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NON-WOOD FOREST PRODUCTS (NWFPs) FOR HOUSEHOLD INCOME IN RURAL AREA OF TIMBA- TARANGA HILLS FOREST, NORTH GUJARAT

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ABSTRACT:

Non-Wood Forest Products (NWFPs) constitute a vital source of household income for millions of people worldwide. It provides material substance and cash income to millions of rural people. Timba-Taranga Hills Forest has many villages. All these villages have mainly tribal as well as rural populations. Notably, Timba-Taranga Hills Forest shows different plant parts, e.g., firewood, fodder, fibers, food, gums, dyes, toothbrushes, flowers, fruits, and seeds which often provide different NWFPs at different seasons of the year, prominently in rural income generation. These products are essential to maintaining food security and rural populations. These matters are discussed in the research paper.

KEYWORDS: Non-Wood Forest Products, NWFPs, Timba-Taranga Hills forest, Rural populations.

INTRODUCTION:

Non-Wood Forest Products (NWFPs), also known as Non-Timber Forest products (NTFPs), generate a significant source of livelihood and income generation for millions of people, especially the communities around the forest across the globe (Arnold and Perez, 2001). The collection of Non-Wood Forest Products has been promoted in India as a strategy to aid wildlife conservation whilst simultaneously alleviating poverty, and recent legislation now allows for the collection of NWFP (Gubbi and

MacMillan, 2008). NWFPs are important for household food security. At present, at least 150 NWFPs are significant in terms of international trade, including honey, gum, rattan, bamboo, cork, nuts, resins, essential oils, and plant and animal parts for pharmaceutical products. It is difficult to estimate the contribution of NWFPs to regional economics. In this paper, the first-hand data collected directly from the tribal and rural informants during field trips in the Timba-Taranga Hills Forest is presented

STUDY AREA:

The Timba-Taranga hills are situated in the Satlasana taluka in the Mehsana District of North Gujarat. It is located within 23.9658° N and 72.7525° E. The Timba-Taranga Hills area is bordered by the Sabarmati River on its eastern limit. This is about 2.5 km. away from the forest area. Dharoi Reservoir is near this forest area. The total catchment area at the site is 5540 sq. km. The hills are approximately 1200 feet above mean sea level. The main temple and main shrine of Shree Ajitnathji is one of the biggest Jain temples in Gujarat and Rajasthan. Taranga consists of a group of 18 peaks, of which Siddha-shila on the north, Koti-shila on the south, Moksha-shila on the west, and Taran-dharan mata on the west are well known. Agricultural land is situated on the east side. The total forest area of the Mehsana district is 48.28 sq. km; out of this, the Timba-Taranga Hills forest covers 18.12 sq. km, which is the actual "study area." GSFD considers these forests as an unclassified (under Section 4) reserve forest of Satlasana taluka in Mehsana district. These forests can be broadly classified as Tropical Dry Deciduous Forests 5 E₂ types as per the revised classification of forest types by Champion and Seth (1966).

METHODOLOGY:

The present work is based on a fortnightly or monthly visit to the study area from April 2022 to April 2024. During the course of the excursions, information regarding the local names of plants and their uses was noted from local inhabitants of the area as much as possible. The information was collected through semi-structured interviews supplying questionnaires in the local language. An attempt was made to interview either the male or female head, who resided near the temple's villages. In many cases, the household was present to give their observations and clarify some points.

Respondents were asked about their knowledge and use of NWFPs in two rounds of interviews. The first round of interviews was done to assess which NWFPs the respondents were familiar with, whether they used those forest products, and the quantities of those products used. The interview included questions on categories of NWFPs such as edible plants, gum, honey, building materials, and medicinal plants, as well as commercial NWFPs like rattan, orchids, and other ornamentals. For every plant, the respondents mentioned the usual amount collected, the time of the year these plants

were available, whether they sold these plants or plant parts, and if so, to whom and at what price. Questions about the difficulties of locating the NWFPs were also raised. For the second round of interviews, a checklist of all the plants mentioned in the first interviews was circulated among the original set of respondents. The checklist was completed to ensure that the answers given during the first round were accurate.

RESULTS & DISCUSSION:

It was observed that tribal and rural people manage the forest areas by using age-old traditional methods. The village headman divides the forest area into several compartments. Each compartment is then allotted to a household. The decision taken by the village headman is final, as well as with mutual understanding. There are many customary laws that are strictly followed in the study area regarding the use of forest products like fruits, flowers, worship parts of plants, aromatic plants, dye-yielding plants, resin, gum, medicinal plants, fuel wood, etc. The main economy of the indigenous inhabitants of the area is directly or indirectly regulated by the NWFPs available in this area. There are 30 NWFPs, which are generally collected in the different seasons and are sold near the main Jain temple and 18 peaks of the Timba-Taranga hills, viz., Siddha-Shila, Koti-Shila, and Moksha-Shila, or sold in the weekly market. All the data obtained as a consequence of the present study is incorporated in Table -1.

In the present study, 30 NWFPs plants from the area are enumerated, out of which the fruits of 18 plants were used as medicine, eaten raw, vegetables, decorative articles, and pickles. The leaves of 06 plants were used as worship plants, fodder, medicine, mats, and vegetables. Stems, branches, and clumps of 05 plants were used as tooth brushes, firewood, house construction, and baskets. One of the plant species was used as a source of gum. Flowers and seeds of 04 plants were used for vegetable, oil, and liquor production.

The majority of the rural peoples used to sell the NWFPs, but some of the tribes were involved in agriculture. *Pennisetum typhoides* (Burm.) Stapf et Hubb. (Bajara) and *Zea mays* L. (Maize) were usually grown at the base of the mountains in small pockets within and around the villages.

There are various ways that forest edge communities earn a living from the forest, both from timber and NWFPs (Mayer, 1991). This study also emphasizes that although households varied in their dependence on forest resources, the forest remained necessary to the communities for both food security and cash income.

In conclusion, our research indicates that NTFPs collection will have a favourable impact on the rural and tribal populations of the Timba-Taranga Hills forest in terms of reducing poverty.

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Table 1. List of NWFPs in Timba-Taranga Hills Forest that fetch direct income for tribal and rural people

Name of species	Part used/sold	Use	Rs. / Kg.
<i>Abrus precatorius</i> L.	Fruit	Decorative articles	1.0 / piece
<i>Acacia nilotica</i> (L). Del.	Young shoot, Branches	Tooth brush, Firewood	20.0
<i>Aegle marmelos</i> L.	Fruits	Medicine	5.0/ Fruits
	Tri foliate Leaves	Worship	0.50 /Leaf
<i>Annona squamosa</i> L.	Fruit	Eaten raw	40.0
<i>Azadirachta indica</i> A.Juss	Tender branches	Tooth brush	10.0
	Fruit	Fertilizer, Medicine	20.0
<i>Bambusa arundinacea</i> Reiz.	Nature culm	House const.	100.00
		Fence, baskets	(10 feet long)
<i>Bauhinia variegata</i> Lamk.	Flowers	Vegetables	20.0
<i>Boswellia serrata</i> Roxb.	Gum	Loban	200.00
<i>Butea monosperma</i> (lam.) Taub.	Leaves, Flowers	Fodder, dye, coolness	50.0
<i>Calotropis procera</i> (Aib) RBR	Flowers	Worship	10.0/ Garland

Name of species	Part used/sold	Use	Rs. / Kg.
<i>Capparis aphylla</i> Roth.	Fruit	Pickle	50.0
<i>Centella asiatica</i> (L.) Urb.	Leaves	Medicine	10.0
<i>Chenopodium album</i> L.	Leaves	Vegetable	40.0
<i>Derris indica</i> Lam.	Seeds	Oil	50.0
	Young shoots	Tooth brush	10.0
<i>Dioscorea bulbifera</i> L.	Rhizome	Vegetables	10.0/ Piece
<i>Gmelina arborea</i> Roxb.	Stem	house construction	200.0 (10 feet long)
<i>Limonia acidsima</i> L.	Fruit	Eaten raw	30.0
<i>Madhuca indica</i> L.	Fruit	Vegetable butter	100.0
	flower	Liquor	500.0
<i>Mangifera indica</i> L.	Unripe fruit	Eaten raw	40.0
<i>Mimusops hexandra</i> Roxb.	Fruit	Edible fruit	30.0
<i>Momordica dioica</i> Roxb. Ex willd	Unripe fruit	Vegetables	60.0
<i>Moringa olefera</i> Lam.	Fruit	Vegetables	60.0
	Flowers	Vegetables	10.0
<i>Morus alba</i> L.	Fruit	Edible fruit	50.0
<i>Murrya koenigii</i> Spong.	Leaves	Spices	10.0
<i>Phoenix sylvestris</i> Roxb.	Fruit	Eaten raw	20.0
	Sap	Liquor	50.0
	Leaves (Dry weight)	Mats	10.0
<i>Phyllanthus emblica</i> Web.	Fruits	Medicine	30.0
<i>Syzygium cumini</i> (L.) Skeel	Ripen fruits	Eaten raw	20.00

Name of species	Part used/sold	Use	Rs. / Kg.
<i>Tamarindus indica</i> L.	Fruits	Spices Eaten raw	40.00
<i>Ziziphus mauritiana</i> Lamk.	Fruits	Eaten raw	30.0
<i>Ziziphus rotundifolia</i> Lamk.	Fruits	Eaten raw	60.00

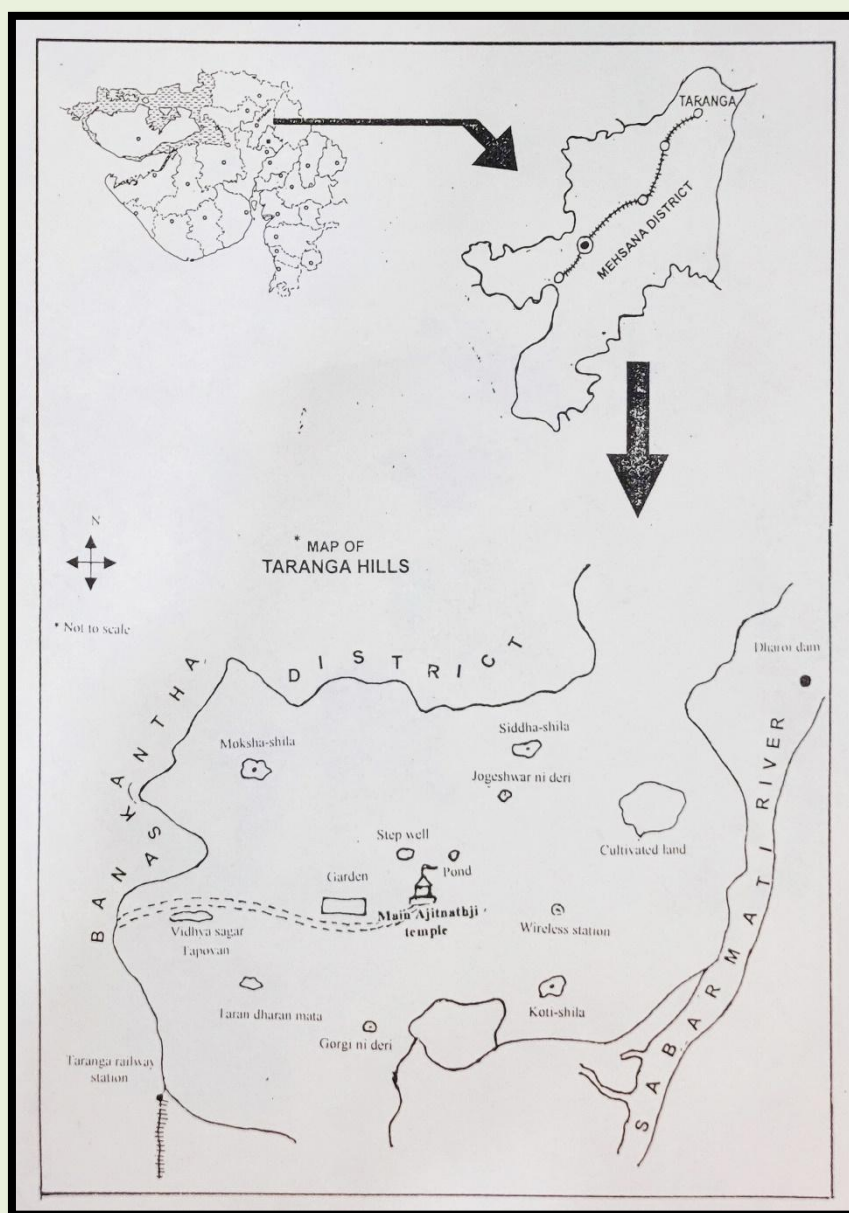


Fig- 1 Map of the Timba-Taranga Hills of Mehsana district showing the study area.