

Economic benefits of various non-timber forestry products to Lao PDR's farm economy

Agriculture in Laos is primarily rain-dependent due to its tropical monsoon climate. Farmlands are often subjected to droughts and floods, rendering crop production unstable. Therefore, in addition to rice cultivation, Laotian farmers collect non-timber forestry products (NTFPs) in mountainous areas, thus providing a safety net to local residents in terms of livelihood support. To understand the actual utilization of NTFPs and its contribution to rural household economies, a study was conducted on all 140 households (104 valid responses) in a farming village in the northwestern part of Vientiane Province from July 2012 through June 2013, recording each day the types and quantities of NTFPs collected as well as their intended uses. To determine the economic values, a price table was created, with each NTFP's trade price multiplied by its trade value and then converted to a monetary amount.

Over 400 diverse types of NTFPs, including 289 plant-type products (such as mushrooms) in addition to 124 animal-type products, were utilized. Excluding the types of NTFPs categorized as textiles, resins, and medicines, over 90 percent of NTFPs were used by the collecting households and mostly consumed as food. Out of 24 mushroom-type NTFPs, which are easily influenced by the forest environment, nine types accounted for 90% of collected amounts. Of these, five types are collected during rainy season, whereas one type, *Lentinus polychrous* (Lao name: Hed bot), is collected during dry season (Fig. 1). Mushrooms are, therefore, valuable sources of food that are collected throughout the year.

NTFPs categorized as textiles, resins, and medicines were collected for sale, and of these, approximately eight tons (dry weight) of textiles were collected (Fig. 1). The majority of these NTFPs were summer cypress, from which flower clusters are collected to make products such as brooms. Summer cypress appears in fallow land after slashing and burning and can be collected in great quantity for the first three years. It is also a valuable source of income between periods of farming.

The economic value was estimated at 5,480,000 kip (broken down into 3,820,000 kip from plant types and 1,660,000 kip from animal types) (Fig. 1). This equates to approximately 2.4 tons of glutinous rice, enough to feed 9.6 people (at 250 kg/person/year) and contributing greatly to the rural economy.

This study is important towards understanding the subsistence strategies of area residents in Laos over a full year. It can also be used as a basis for implementing safeguards, including the protection of indigenous peoples/ area residents and the maintenance of species diversity, by institutions that implement rural development programs and forest preservation programs such as participatory forest management. Lastly, it provides concrete data on NTFPs, as identified in forestry strategies by Laotian government organizations such as the Agriculture and Forestry Office and the Ministry of Natural Resources and Environment.

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Table 1. Number of NTFPs, amount, economic value, purpose of collection, and main products based on the attributes of NTFPs collected

Category	Number of NTFPs	% ¹⁾	Amount collected		Economic value KIP	% ²⁾	Intended use(% ²⁾)		Main products
			Weight (Kg) ²⁾	Number of pieces			Self-consumption	Sale	
NTFPs of plant origin	289	100	44,587	39,874	397,131,470	100			
Food	262	91	33,515	18,614	202,303,120	51	99	1	
Edible wild plant	133		11,481	105	62,205,920				<i>Azadirachta indica</i> , <i>Centella asiatica</i>
Flower	10		347	5	854,700				<i>Musa</i> spp.
Fruit	19		2,384	1,872	6,674,750				<i>Livistona saribus</i> , <i>Dialium indum</i>
Bud	68		14,719	16,632	76,082,950				<i>Schizostachyum blumei</i> , <i>Calamus tenuis</i>
Root & Tuber	2		17		154,500				<i>Curcuma longa</i>
Spice	6		82		491,700				<i>Alpinia</i> spp.
Mushroom	24		4,485		55,838,600				<i>Lentinus polychrous</i> , <i>L. Squarrosulus</i> , <i>Schizophyllum commune</i>
Craft	13	4	228	21,143	68,722,200	17	93	7	<i>Calamus gracilis</i>
Fiber	4	1	7,891	114	119,961,650	30	9	91	<i>Thyrsanolaena maxima</i> , <i>Broussonetia papyrifera</i>
Resin	2	1	1,240		2,598,400	1	9	91	<i>Shorea obtusa</i>
Medicine	8	3	1,713	3	3,546,100	1	41	59	<i>Smilax glabra</i> , <i>Coccinidium fenestratum</i>
Per household			429	383	3,818,572				
NTFPs of animal origin	124	100	5,331	5,543	172,372,200	100			
Mammals	21	17	133		49,816,400	29	97	3	<i>Calosciurus erythraeusm</i> , <i>Rattus norvegicus</i>
Birds	19	15		2,244	10,150,000	6	98	2	<i>Spilopelia chinensis</i> , <i>Ixobrychus cinnamomeus</i>
Fish & shellfish	33	27	4,155	2,544	80,807,200	47	99	1	<i>Cyprinidae</i> spp., <i>Clariidae</i> spp., <i>Synbranchidae</i> spp., <i>Viviparidae</i> spp.
Reptiles	5	4		97	2,210,000	1	97	3	<i>Colubridae</i> spp., <i>Varanidae</i> spp.
Amphibian	4	3	446	92	9,919,500	6	98	2	<i>Rana temporaria</i> , <i>Pelophylax esculentus</i>
Insects	42	34	597	566	19,469,100	11	94	6	<i>Gryllidae</i> spp., <i>Rhynchophoridae</i> spp.
Per household			51	53	1,657,425				

1) Percentage of each attribute in all NTFPs of plant and animal origins

2) Air-dry weight for craft, fiber resin, and medicine. Wet weight for others.

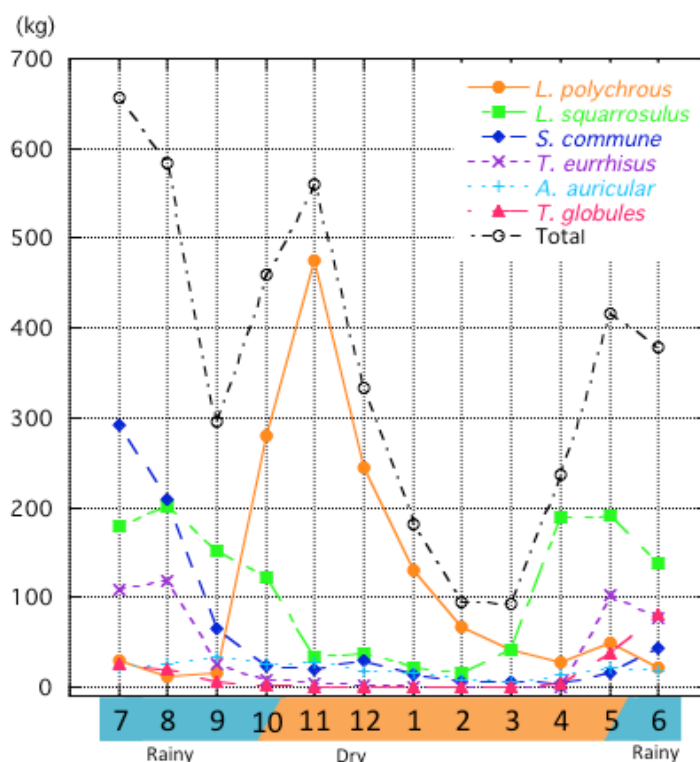


Fig. 1. Monthly collection for each type of mushroom