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MASTER THESIS

**Market-oriented non-timber forest products
collection and rural livelihood
in Peruvian Amazon**

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Declaration

I hereby declare that I have written presented master thesis “Market-oriented non-timber forest products collection and rural livelihood in Peruvian Amazon” by myself with help of the literature listed in references.

Prague 6—Suchdol, 15 April 2012

.....

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ABSTRACT

Master thesis presents the results of research focused on the collection, utilization and market potential of non-timber forest products (NTFPs) used by rural population living in Peruvian Amazon. Data were collected during September and October 2011 through interviews, semi-structured questionnaires and direct observation followed by participatory techniques. Cultural and economic values were applied in order to determine the cultural and economic significance of used NTFPs. Field study was conducted in 40 randomly selected households in three villages of the Abujao river basin, out of which 17 belonged to the ethnic households of the Shipibo-Conibo tribe and 23 were populated by migrants called the „mestizos”. During the survey 57 plant based and 20 animal based NTFPs collected and used by both ethnic groups were identified. Local and Latin name, part of use, purpose of use and, in the case of commercialization practice, price were documented for each NTFPs. Results show that the Shipibo-Conibo collects higher number of NTFPs, i.e. 67 out of total number 77, in comparison to the “mestizos” households. The Shipibo-Conibo harvests NTFPs particularly in the secondary forest (29.41%), while most of them (43) are used for subsistence purposes. In contrast, the “mestizos” use the collection of 61 NTFPs, of which 45 are intended only for their own consumption. The total number of all the households involved in collecting non-timber forest products is 17.39%. The calculation of cultural and economic values showed that NTFPs have higher cultural importance for the Shipibo-Conibo ethnic (62.69%) while for the “mestizos” households NTFPs are important from the economic point of view (59.02%).

Key words: non-timber forest products, commercialization, cultural value, economic value, Shipibo-Conibo, Abujao river basin, Peruvian Amazon.

ABSTRAKT

Diplomová práce prezentuje výsledky výzkumu zaměřeného na sběr, využití a tržní potenciál nedřevních lesních produktů místních rurálních populací žijících v peruánské Amazonii. Data byla sesbírána v průběhu září až října 2011 prostřednictvím rozhovorů, polostrukturovaných dotazníků a přímého pozorování za pomoci participačních technik. Výsledky byly zpracovány pomocí ukazatelů tzv. kulturní hodnota a ekonomická hodnota, které umožnily stanovit kulturní a ekonomický význam používaných nedřevních lesních produktů pro daná etnika. Studie byla provedena ve 40 náhodně vybraných domácnostech obývajících tři vesnice v povodí řeky Abujao, přičemž 17 domácností patří ke kmenu Shipibo-Conibo a 23 k přistěhovalecké populaci (tzv. „mestici“). Během výzkumu bylo identifikováno 57 rostlinných a 20 živočišných nedřevních lesních produktů používaných oběma etnickými skupinami. U každého produktu byl zjištěn místní a latinský název, používaná část, způsob využití a v případě komerčního využití i cena produktu. Dle zjištěných výsledků etnikum Shipibo-Conibo v porovnání s „mestici“ využívá nedřevní lesní produkty ve vyšší míře, 67 z celkového počtu 77, zjištěných produktů. Shipibo-Conibo se z 29.41% věnují sběru v sekundárním lese, přičemž většinu produktů (43) používají pouze pro vlastní spotřebu. Oproti tomu „mestické“ obyvatelstvo používá 61 produktů, z nichž 45 používají pouze pro vlastní spotřebu. Počet domácností věnujících se sběru nedřevních produktů je 17.39%. Ukazatele kulturní a ekonomická hodnota prokázaly, že nedřevní lesní produkty mají pro Shipibské etnikum vyšší kulturní důležitost (62.69%) přičemž pro „mestické“ domácnosti především důležitost ekonomickou (59.02%).

Klíčová slova: nedřevní lesní produkty, komercializace, kulturní hodnota, ekonomická hodnota, Shipibo-Conibo, povodí řeky Abujao, peruánská Amazonie.

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LIST OF ABBREVIATIONS

AIDSESP	Asociación Interétnica de Desarrollo de la Selva Peruana “Interethnic Association for the Development of the Peruvian Rainforest”
CIDRA	Centro de Investigación y Desarrollo Rural Amazónico “Amazon Research and Rural Development Centre”
CIFA	Centro de Investigación de Fronteras Amazónicas “Research Center for Amazonian Border”
CIFOR	Centre for International Forestry Research
FAO	Food Agriculture Organization
IIAP	Instituto de Investigaciones de la Amazonía Peruana “Peruvian Amazon Research Institute”
MINAG	Ministerio de Agricultura del Perú “Peruvian Ministry of Agriculture”
MINCETUR	Ministerio de Comercio Exterior y Turismo del Perú “Peruvian Ministry of Foreign Trade and Tourism”
NTFP	Non-timber forest product
NWFP	Non-wood forest product
SIAMAZONIA	Sistema de Información de la Diversidad Biológica y Ambiental de la Amazonía Peruana “Information System of the Biodiversity and Environment of the Peruvian Amazon”
SICNA	El Sistema de Información sobre Comunidades Nativas de la Amazonia Peruana “Interethnic Development Association of the Peruvian Amazon”
UNU	Universidad Nacional de Ucayali “National University of Ucayali”

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1. INTRODUCTION

The forest of Amazon occupies more than one third of the entire South American territory and represents the world's greatest biodiversity hotspot (MINCETUR, 2005). It also differs from the other world forested areas, in terms of ethnic and cultural diversity (Imperador et al., 2009). Livelihood of a lot of indigenous and traditional communities depends on resources withdrawn from the tropical forest (Dutfield, 2003). Numerous studies have documented that tropical forests are subjects to high rates of degradation and deforestation, with current estimates indicating an annual loss of 17 million ha (Byron and Arnold, 2010; Illukpitiya and Yanagida, 2010). Illukpitiya and Yanagida (2010) observed the extraction of plants and animals by rural population represent less degrade for the forest than the other forest activities such as logging and, moreover, such an extraction could assure the continuation of tropical forests by alternative way of natural forest conservation.

Peruvian Amazon occupies about 60% of total country's territory and it is home for approximately 11% of total population. This region is the least developed and due to the insufficient infrastructure most population lives in a relative isolation from the rest of the country's population (COREMYPE, 2004). People in remote areas rely primarily on agriculture for their livelihood and non-timber forest products extraction represents major sources of livelihood and income for some households (Illukpitiya and Yanagida, 2010). The most significant value of non-timber forest products (NTFPs) is their use for subsistence and trade in small local markets, thus helping to generate the forests residents' income (Ros-Tonen, 2000; Pierce et al., 2003; Quang and Anh., 2006).

The study is focused mainly on non-timber forest products, their significance of consumption and other possible usage heading to economic improvement of local tribes

and migrants living in the Abujao river basin. The study sampling represents three villages situated in the remote areas affected by timber exploitation where attitudes to NTFPs collection and use are strong.

2. LITERATURE REVIEW

2.1 The dawn of non-timber forest products collection for commercial purposes

Collection and utilization of non-timber forest products (NTFPs) is an ancient human activity that prevailed from pre-neolithic ages to present days and is particularly linked to the rural areas with strong connection to the forest in both developed and developing countries (see e.g. Kvist et al., 2001; Saha and Sundriyal, 2011; Quang and Anh, 2006; Illukpitiya and Yanagida, 2010). A lot of recent studies have documented the strategic role of NTFPs collection for the livelihood generation strategies of the poor households or tribal communities worldwide, pointing out the strong dependency upon forest resources (Neumann and Hirsch, 2000; Quang and Anh, 2006). Historically, forest products were collected namely for subsistence purposes. Together with increasing interaction between communities has led to diversification of strategies and roles of NTFPs collection to mean of exchange or trade.

Generally, the beginning of the European colonial empire could be considered as the beginning of commercial extraction and trade of NTFPs. When the British Imperial Institute was established at the end of the 19th century, large-scale trade of NTFPs was launched from many British colonies. During the last decades, NTFPs have attracted global interest of international organizations due to the increased evidence that forest products can supply important community needs through contribution to household food security, helping to create additional income generating activities, offering opportunities for enterprises and rural market chain development or support biodiversity and other conservation strategies, e.g. in or near the buffer-zones of natural reservations (FAO, 1995; Neumann and Hirsch, 2000; García et al., 2006).

2.2 How non-timber forest products are defined by scientific and development community?

Despite the scientific interest as well as the importance of NTFPs collection at the global level, the term “non-timber forest products” is difficult to define among forest experts (Ahenkan and Boon, 2011). In 1995 the first step to harmonized definition of NTFPs was made by FAO. It divided the forest and tree products into wood, non-wood products (NWFP) and forest services (Figure N°1). However, according to FAO (1999) itself, there are still various terminologies frequently used, such as “byproducts of forests”, “minor forest products”, “non-wood goods and benefits”, “secondary forest products” etc., causing “serious problems in communication, difficulty to compare studies and statistics or impossibility to create a comprehensive consistent classification system on non-wood forest products,” (FAO, 1999).

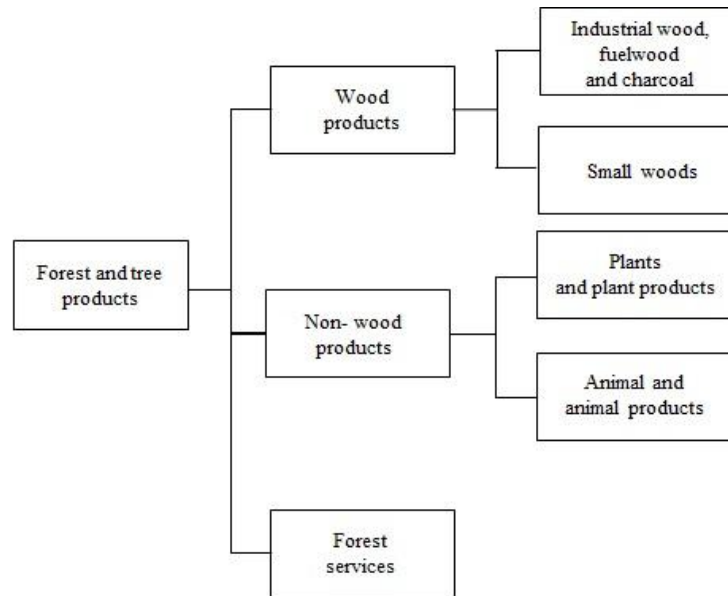


Figure N°1: Preliminary classification of forest products.

Source: taken from FAO (1999)

Despite the first definition, there are still some doubts between NWFP and NTFP definition which FAO (1999) explains as follows: “The term non-wood forest products (NWFP) excludes all wood raw materials, except for timber, chips, charcoal and fuelwood as well as small woods and tools, household equipment and carvings. Non-timber forest products (NTFPs) in contrast include fuelwood and small woods, which make the main difference between NWFPs and NTFPs.”

One of the broadest definitions of non-timber forest products published by De Beer and McDermott (1996) says that “NTFP would include all biological materials harvested from forest for human use”. Other definition published by the same authors is more specific about the amounts which do not clarify much specifically: “These products are usually harvested by individual harvesters, households or small cooperatives and the processes of buying, marketing and exporting are usually undertaken by small firms.”

Unfortunately, there is still no definition or agreement of NTFPs to be universally accepted (Ahenkan and Boon, 2011; Hunt et al., 1999) even though several attempts have been made by some authors and international institutions. Some other definitions are mentioned in the table below (Table N°1).

Table N°1: Chosen definition of NTFPs.

Definition	References
'...all products derived from biological resources found on forest land but not including timber, fuelwood, or medicinal plants harvested as whole plants'	Wong (2000)
"all tangible animal and plant products from the forest, other than industrial wood" In 1998, they slightly modified this definition to include "...all tangible animal and plant forest products other than industrial wood, coming from natural forests, including managed secondary forests and enriched forests.	Ros-Tonen et al. (1995, 1998)
Non wood forest products (NWFP) are defined as 'goods of biological origin other than wood derived from forests, other wooded lands and trees outside forests'	FAO (1999)
All products obtained from plants of forest origin and host plant species yielding products in association with insects and animals or their parts and items of mineral origin except timber, may be defined as Minor Forest Products (MFP) or Non-Wood Forest Products (NWFP) or Non-Timber Forest Products (NTFP).	Mathur and Shiva (1996)

Source: Ahenkan and Boon (2011)

"Nevertheless, what makes NTFPs different from timber and important as a conservation strategy is the assumption that the forest will remain standing biologically intact under sustained NTFP harvesting. This accounts for much of the attention given to commercial NTFPs as the foundation upon which to build policies of conservation and development," (Neumann and Hirsch, 2000).

2.3 Classification of NTFPs

As well as no definition of NTFPs is globally standardized there is also no standardized classification of the products. But what authors usually highlighted, most of the appropriate classifications therefore depend on the end use (medicine, food, drink, etc.) or on the part used (roots, leaves, bards, etc.) (Ahenkan and Boon, 2011). Some of studies have focused on the links between forest products and importance in the livelihood of rural people or

market that the NTFPs might reach (Tacón et al., 2006; Marles, 2001; Adepoju and Salau, 2007). Propose of classification linking to the household food security divide NTFPs into edible and non-edible. Edible include “edible plants and animals, honey, oils, fish and spices while non-edible products include grasses, ornamental plants, oil for cosmetic use and medicinal product,” (Adepoju and Salau, 2007). Other classification made by Odebode (2005) is displayed in the following figure (Figure N°2). It divides NTFPs in the first line into “woody” and “non-wood” products.

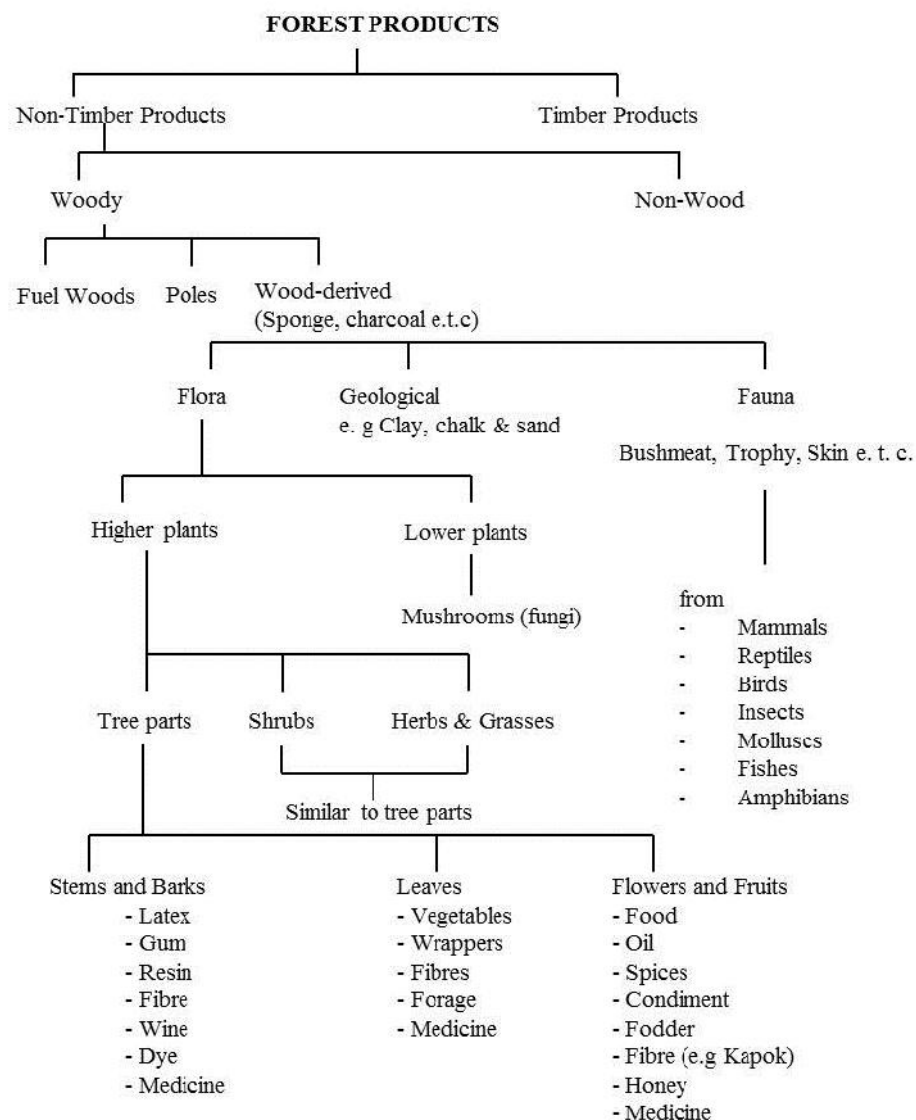


Figure N°2: Classification of forest products.

Source: taken from Odebode (2005)

Another author proposed classification based on the market that non-timber forest product might reach (Table N°2).

Table N°2: NTFPs classification on market.

Products without an established market.	Group of products which has an enormous value in terms of traditional use, and has not reached any market due to the very limited production, restricted geographic distribution, scarce appreciation, or due to ignorance on the part of the urban consumers.
Products that participate in the local market.	Commercialized NTFPs that are raw and fresh, generally in farmer markets located near the place where they are collected.
Products that participate in the national market.	Those NTFPs reach higher productivity and also were put in storage for some time. It allows NTFPs to reach wider markets in different cities far from the place where they were collected.
Products that participate in the international market.	Includes all NTFPs that are exported to other countries. NTFPs found in this category might contain products that have more processing, value added and accomplish international standards.

Source: (Calleja, 2007)

For the purpose of this thesis classification in Table N°3 was adapted. It divides the NTFPs in the first line into plant based products and animal based products. This classification was adapted from FAO (1990) and Ros-Tonen (2000).

Table N°3: NTFPs classification used for this thesis.

Product category	Examples for product type
Plant based products	
Food products	Edible plants and plant parts (seeds, roots, tubers stems, leaves, shoots, flowers, fruits, nuts) providing vegetables, snacks, beverages, edible fats and oils, spices, flavorings, etc.
Medicinal plants	Medicinal herbs and plants and plants parts (leaves, barks, sap, resin, etc.).
Construction materials	Bamboo, rattan, small wood, fibers, cork, leaves for roofing.
Ornamentals	Aesthetically pleasing plant cut and dried flowers, seeds, dry fruit etc. for handicraft and tools.
Dye	Non-edible dyes, colorants.
Mystic	Hallucinogens and herb-baths for mystic purposes.
Other	Leaves for wrapping food, etc.
Animal based products	
Food products	Meat and protein from mammals, birds, fishes, reptiles and insect, eggs, edible nests.
Medicinal products	Pharmaceutical extracted from mammals, fishes and reptiles; honey.
Ornamentals	Live animals and animal products like feathers, hides, skins, shells and horn.

Source: adapted from FAO (1990), Ros-Tonen (2000)

The terminology is often confusing because there are so many different interests and disciplines involved; such as ecology, economics, ethnobotany, geography, anthropology, and each one uses its own classification and terminology (Calleja, 2007; Ahenkan and Boon, 2011).

2.4 Significance of NTFPs collection

According to Ahenkan and Boon (2011) the significance of NTFPs started when it was believed that “the promotion of sustainable use of NTFPs could lead to poverty reduction and biodiversity conservation”. Other increasing recognition caused that “NTFPs can contribute significantly to the livelihoods of forest dependent communities generate additional employment and income and offer opportunities for NTFP based enterprises.” Some authors also highlighted that NTFPs can be harvested with little impact on the forest environment (Ahenkan and Boon, 2011; Ros-Tonen, 2000). „NTFPs have gained

importance due to the evolution in thinking about the importance of rural development and poverty alleviation, and the interest in how forest and forest products contribute to households' resources, livelihood outcome, strengthening of the local culture, food security, health and well being," (Calleja, 2007). Thus, up to 80 percent of the population in developing countries depends on NTFPs for subsistence, both economically and for nutrition. Some authors also highlighted significance of NTFPs especially to women in developing countries from Latin America to Asia and Africa (Adepoju and Salau, 2007).

2.5 Gender issues

All the research on NTFPs considered that both men and women are involved in commercial NTFP activities. In general, men usually harvest NTFPs from distant forest areas while women harvest from fallows, gardens and forest near residences. Basically "men usually undertake long-distance collecting trips and women collect opportunistically," (Neumann and Hirsch, 2000). Another common trend is that "women often do not have control over the income generated, even though they may be primarily involved in harvesting, processing and marketing. Men have control over the income derived from NTFP collection and sale; women are not likely to directly benefit from commercialization," (Neumann and Hirsch, 2000). Despite the fact that women do not participate much in extraction activities and generates small scale and low-technology processing, they are putting important and positive impact for commercialization (Neumann and Hirsch, 2000; Kvist et al., 2001).

The United Nations estimate that up to 70% of the world's poor are females in developing countries who play the key role in managing community resources and helping to protect the environment due to the NTFPs collection. "In many parts of the world NTFPs are

critical resources, especially for the rural poor and woman, because these products may provide the only source of personal income,” (FAO, 1990).

2.6 Commercial potential of NTFPs extraction

Generally, it was documented that NTFPs are equal to wood-based forest products from the economic point of view (Adepoju and Salau, 2007). About 150 types of NTFPs are significant in international trade (FAO, 1997; Ros-Tonen, 2000; Adepoju and Salau, 2007; Saha and Sundriyal, 2011) and the economic estimations indicate USD 11 billion annually¹ in international trade (Ahenkan and Boon, 2011). However the economic value and the services NTFPs provide are “rarely taken into account when assessing Gross Domestic Product (GDP) (...) because of the fact that contribution to household income of the rural poor is difficult to quantify, most of these activities are done in informal markets and therefore there is a lack of information,” (Calleja, 2007).

For forest dwelling people extraction of NTFPs is usually “a part-time, seasonal and subsistence-oriented activity, complementary to farming, mining or logging,” (Ros-Tonen, 2000). The possibilities to get higher income of forest dwelling people is quite limited by the distance, usually it may take days to travel to a market place (Vargas and Andel, 2005). The transport costs are the reason for the difference of farmers’ dependence on NTFPs which “differs one to other but in the urban areas, where trading and commercial opportunities perform better, the farmers have more options. They can produce NTFPs mainly for commercialization,” (Ros-Tonen, 2000).

¹ estimation by UNCTAD, the total value of world trade in non-timber forest products.

The new contribution of NTFPs to commercialization was recognized “as having the potential to achieve dual conservation and development goals by increasing the value of forest resources to local communities for poverty reduction and human development,” (Ahenkan and Boon, 2011). Some research also indicated that the use of NTFPs is a possible solution to release the dependency of local people on timber and to provide them sustainable source of income (Quang and Anh, 2006).

However, some studies realized in Africa suggest that the value of products extracted from particular forest could in some cases exceed and the financial impact of NTFPs may be even greater than of forestry (Calleja, 2007). The most usual way of income for households in remote areas displays figure N°3.

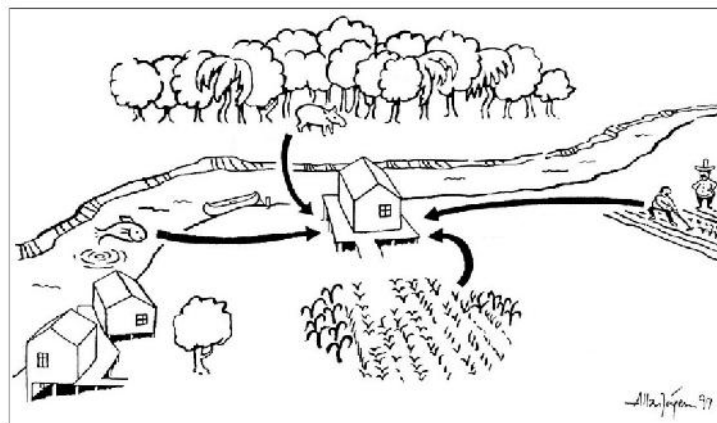


Figure N°3: Forest sources in household economy in remote areas.

Source: Kvist et al. (2001)

NTFPs are often considered as a potential for economic development in areas where the forest industry is in decline or the deployment ranks high numbers. However some authors (for example Ricardo Godoy) demonstrated in more detailed way that the value of NTFP harvest does not have always sufficient income to compensate the loss of income from timber harvesting (Hunt et al., 1999).

Harvesting NTFPs is usually a way to supplement small incomes; they are often considered as marginal forest resources but are extremely important sources of income for people who harvest them (Hunt et al., 1999). Nevertheless Adepoju and Salau (2007) summarized that „markets for NTFPs to add value at the local level are not well known, but are thought to have significant impact on rural economies.”

2.7 Cultural importance

Marles (2001) also mentioned that NTFP can be very significant in terms of cultural importance. Collection of NTFPs is mainly performed by communities who possess rich indigenous tradition, knowledge and connection with the forest. This immediate relation is present in rural areas where the inhabitants have maintained their traditional and cultural knowledge through generations.

2.8 Biodiversity impact

Many authors have suggested that NTFP harvesting promotes more positive impact to biodiversity and other environmental values than extraction of timber (Neumann and Hirsch, 2000; Godoy et al., 1993). Forests also provide positive externalities, such as preventing soil erosion and helping conserve biodiversity. Anyway, some of the studies found the negative relation to NTFP commercialization and overexploitation especially if the price of NTFPs rises and farmers get high profitability, it could lead to increased extraction rates for those species and reduce species diversity (Neumann and Hirsch, 2000; Quang and Anh, 2006). This fact pushed scientists to search for new land use models. “The occurrence of negative ecological impact is closely associated with government regulatory mechanisms,” (Neumann and Hirsch, 2000) and certification, which could be possible solution for ensuring the rich diversity of the NTFPs (Roderick and Hirsch, 2000).

2.9 Non-financial benefits

Financial income is not the only important benefit of NTFPs collection. For example Shackleton et al. (2007) also measures non-financial benefits which were revealed as important for improving the quality of life in target area. He noticed that trading widely improved social benefits when income was provided to women an own source. They invested the money not only into food or household needs but most importantly into school fees for their children. Other recorded benefits were psychological well-being and extended social networks. In general, the involvement in the local market provided the households more opportunities and the income was often also invested in other activity.

2.10 NTFPs extraction heading to sustainability

The increasingly acknowledged for role of NTFPs in development and conservation of ecosystem is heading to the question of sustainability (Vargas and Andel, 2005; Saha and Sundriyal, 2011). The extraction of NTFPs can be considered as sustainable when “products do not become extinct as a result of exploitation and when the productivity of the population does not decline,” (Vargas and Andel, 2005). Anyway, sustainable manners could be interpreted in three ways of sustainability: ecological, economic and cultural.

Kvist et al. (2001) mentioned that collection of NTFPs can be both economic and ecological sustainable if it is provided by economic alternatives without destroying the resources. Furthermore, Marles (2001) reveals that if the extraction and market participation of NTFPs is consistent with local community needs and desires, not just demands of the global market, we could call it as extraction with cultural sustainability.

3. AIM OF THE THESIS

Various multidisciplinary studies, e.g. ethnobotanical or socioeconomical, regarding to non-timber forest products have been published. However, there has not been much research made focusing on the importance of these products among different ethnic population groups living in Peruvian Amazon in recent years. Despite the fact certain studies focused on NTFPs collection, utilization and commerce potential exists, they do not assess the overall cultural importance and economic value for these ethnics.

Thus, the aim of the thesis is to identify collected non-timber forest products and the role of these products for two different ethnic groups living in the remote areas of the Abujao river basin. Specific objectives of this thesis are to investigate diversity of collected NTFPs with regards to their utilization (subsistence or commercial use) for the local households; to compare the diversity of collected NTFPs with special regard to cultural and economic importance for the two ethnic groups.

In order to achieve the goals of the study, there were set following hypotheses:

Hypothesis N°1: Commerce collection of NTFPs is affected by travel cost to the market and by external subsidies.

Hypothesis N°2: The Shipibo-Conibo ethnic generally uses more NTFPs which have higher cultural importance for them than for the “mestizos” households.

Hypothesis N°3: Commercial collection of NTFPs in remote areas is more often provided by assistance of middlemen than in areas situated closer to the market.

4. MATERIALS AND METHODS

4.1 Study area description

The study took place near Pucallpa city, located some 860 kilometers from Lima, the capital of Peru, situated 154 meters above the sea level, nested at 8°23' of latitude and 74°31' of longitude. Pucallpa is the administrative center of Ucayali region that borders with Brazil on the east and with the Andes mountain range on the west. The total area of Ucayali is equal to 102.411 km², which represents 8% of the Peruvian surface (MINCETUR, 2005). However, according to the latest census of population from 2007, the region has 432,159 inhabitants, representing only 1.6% of the total population of Peru (COREMYPE, 2004). Local climate can be characterized as a humid tropic with the average monthly precipitation ranging between 1.800 to 3.000 mm. The rainy season with most of the precipitation ranges between the months February to May and September to December. The dry season ranges between June to August and (from) December to January. Average annual temperature is 25.2°C, with the maximum of 30.9°C and minimum of 19.6°C. Average humidity of the air is about 84.2% (MINCETUR, 2005). However, a certain climate change has been documented during the last decade, probably due to deforestation of the nature forests, the rainy season is usually coming in later months or the difference between rainy and dry seasons are not so obvious (Vela, 2011).

Ucayali river basin includes the region and neighboring areas which consist of 502 rivers and tributaries. The main river is the Ucayali, which has undoubtedly played a unifying role in this area as a source of fishing and principal transportation road. The length of the river Ucayali is 1.771 km (734 km inside the region of Ucayali) (Vela, 2011). Ucayali itself is formed by the rivers Tambo and Urubamba and follows a course from the south to

the north of Peru. It is a mighty watercourse: it is long and wide with a ranging width between 2.000 and 4.000 meters, displaying numerous islands. Unfortunately, nowadays the primary rainforest faces a devastating threat. This region has a natural resource of great value that should be protected, but unfortunately not much is being done to keep the region productive (Vivanco, 2008).

4.2 The role of NTFPs in the region of Ucayali

The significant role of NTFPs in the region is shown in the data obtained from Peruvian ministry for the exports and tourism. Estimated export from the Ucayali region reveals 0.1% from the total Peruvian exports, which creates 1.16% of the Peruvian GDP. Almost 70% of the population lives within the poverty and 43.6% in the extreme poverty level (MINCETUR, 2005). As NTFPs support livelihood and small-scale income, it is significant that NTFPs provide a vital source of livelihood and offer a possible solution that can lead to the poverty reduction.

One of the main objectives of the ministry includes raising the level of competitiveness and investment into this region to create more opportunities for local people. The Ucayali region is very rich in regards to its diversity of forest products. However, the development of the market in this region is affected by a number of limitations. Some of the largest restrictions include the access to the market, inadequate infrastructure (only 17% of the roads in the region is a paved roadway, in total 194.4 km), lack of business organization, technological development and also weak support from the government (COREMYPE, 2004).

The main aim for the future is to be able to provide effective mechanisms that encourage the development of infrastructure, the access to financial services and better logistics

conditions of quality and price. As the ministry highlighted, timber is not the only forest product with the commercial value. Especially “piasaba, aceite de copaiba, oje, chuchuhuasi, abuta, uña de gato, sangre de grado” and honey. The main step for the region development is to create regulations, investment opportunities and a sustainable use of natural resources (MINCETUR, 2005).

4.3 Target area, river Abujao basin

For purposes of data survey three villages located in river Abujao basin were chosen. The villages are unique with their location in proximity of forest (Figure N°4) and were randomly chosen with the cooperation of the university organization CIFA on the basis of economic importance and their previous researches that have been conducted. Influence of logging activities and hard transportation difficulties (since there is no road, only one water way) are limiting factors for the households.

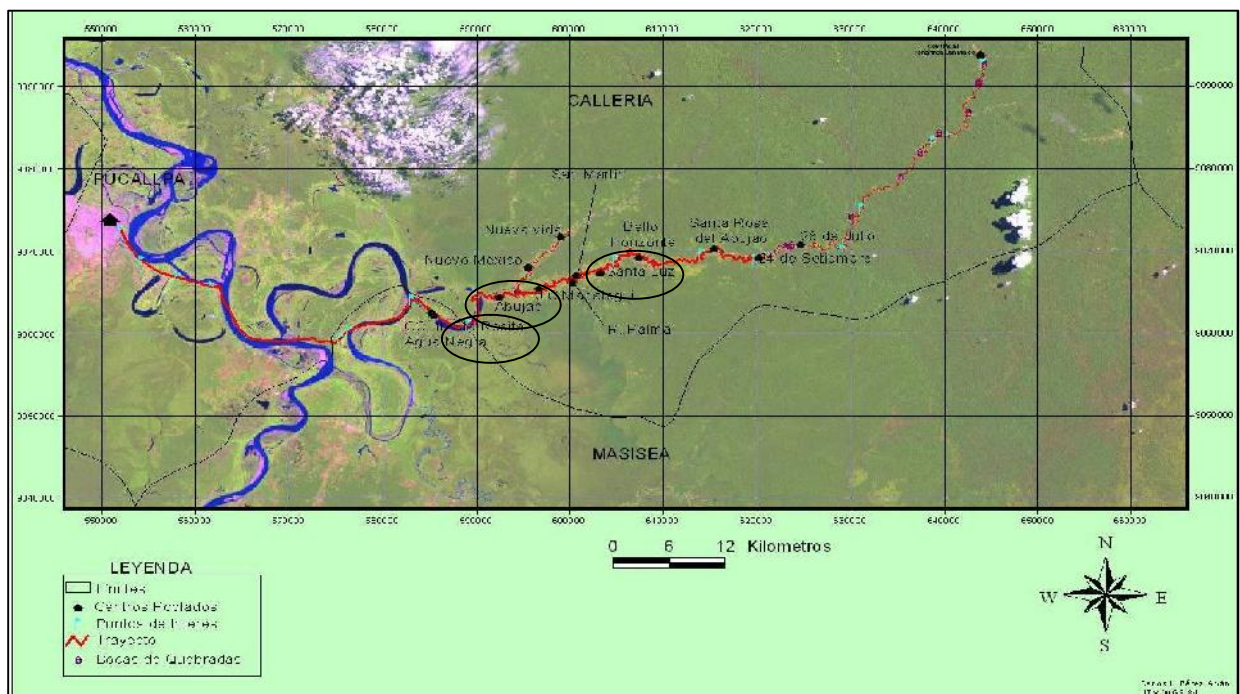


Figure N°4: Abujao river basin and location of chosen villages.

Source: COREMYPE, 2004

The village named Santa Rosa occupied by the indigenous tribe Shipibo-Conibo and two villages named Abujao and Santa Luz occupied by the migrants group called „mestizos“.² The table N°4 displays the geographical overview and also access to the villages.

Table N°4: Geographical overview of the selected villages.

Name of the village	Number of inhabitants	Number of families	Longitude	Latitude	Above the sea level	Distance from the main market = city of Pucallpa*	Access with large boats**
Santa Rosa	124	20	74°13'33.7"	8°28'42.6"	144	3	Always
Abujao	67	18	74°9'34.52"	8°27'40.2"	149	6	High water
Santa Luz	35	11	74°3'40.9"	8°26'4.3"	154	10	Never
In total	226	49	-----	-----	----	---	

Source: Vela, 2011

* In hours of sailing with the average speed of the boat about the 6km per hour.

** Accessibility to the village by common large boats from the city of Pucallpa may be possible only at high river water or always, otherwise by private boats for one to three passengers.

These three village groups have different histories but they have been cooperating recently.

Furthermore, they have been participating in collective meetings in Pucallpa.

4.3.1 Shipibo-Conibo village Santa Rosa

The indigenous community from the ethnic group Shipibo-Conibo speaks the Shipibo-Conibo language from the Pano linguistic family. However, thanks to the bilingual teaching in a school located right in the village Santa Rosa, especially children speak also

² „mestizos“ is a locally used term for migrants to this region. This term could also mean mixed population. In 1970's Peruvian government decided to settle rarely settled areas to recover border areas to fight against trade and cultivation of coca which composed the major income for rural areas in Peruvian Amazon. The government gave ownership of specific areas to families moved there and these are called „mestizos“. Internal migration in Peru has been caused by the development of extractive industry which brought new working opportunities and prospect of better life. Major wave of internal migration to the province occurred in the sixties and seventies. The migration occurred usually in the age between 20 and 35 years, today migrants are about 50 to 70 years old (Morales, 2007).

fluent Spanish. The village is located on the left bank of the river at a distance of 43.60 km from the city of Pucallpa and was founded in the 1975 (Vela, 2011).

The activities carried out in the village are mainly agriculture, fishing and handicraft production, which is very typical for this ethnic community living all around. Problems evaluated by the local people are inadequate health care, education, transport, food security, poor access to markets, lack of basic services and quality of natural resources.

The village facilities include large primary and secondary school where teachers give lessons not only in the Shipibo-Conibo language but also in Spanish. The school provides education for this ethnic group living all around which is the reason why the ships full of schoolchildren arrive to the village every day.

The most significant advantage of this village is its location on the lower river. Thanks to the sufficient water level the village is accessible also during the dry season. There are bigger public ships called „collectivos“, which arrive to the village several times a day. The capacity of the ship is about 40 passengers. Inhabitants here still identify themselves with the Shipibo-Conibo culture, but due to centuries of oppression they tend to hide their true identity (Vela, 2011).

4.3.2 “Mestizos” villages Abujao and Santa Luz

The migrant population called “mestizos” has migrated into the river basin especially in the seventies. They came mostly from mountainous areas or from neighboring countries (Brazil or Bolivia). This region faces also seasonal migration for logging or gold mining. Miners come here to work for a few weeks and then they return to their families for a few days. Unfortunately, most mining activities are performed without causing any significant economic or social benefits for the population living here. Constantly, there is a

deterioration of environment and degradation of natural resources, which limits further development of the area (Vela, 2011).

Abujao village is situated on the lower river and was founded in 1963. Nowadays, the village is settled by 12 families. Electricity is provided only by a small gasoline engine. Its power consumption is 1.5 liters of gasoline per day, which guarantees six hours of light. The villagers have no available source of potable water; the only possibility is to drink rainwater or water directly from the river. There is a medical center that takes care of all the villagers and communities living on the river basin twice a year. Literacy and education of the children is provided by the primary and secondary school which is open only for four months of the year.

The main activities in the village are agriculture, small trade, hunting, logging and livestock. Priorities in the village consist of improving education especially in technical field, food security and health care. Cocaine addiction of young people (aged 15 to 16 years) is the main problem pointed out by the residents. Harvesting fruit called „aguaje“ and “bijao” leaves has a great economic importance for the inhabitants. The university organization CIFA has been involved in its intensification.

Village Santa Luz is located on the right bank of the river Abujao, approximately 10 hours canoeing upriver from Pucallpa (shipping can be - due to low water level during the dry season - provided only by small boats on average speed 6km per hour). The first families settled here in the mid seventies came from regions San Martin, Huanuco and Pucallpa city.

The main economic activities are logging or growing corn, cassava and cacao plants. Some families also try to improve their economic situation by breeding cattle.

This village was selected by Peruvian agricultural ministry for the program to support agriculture. For six years, farmers were growing cacao plants, and the state ensures sales for fixed price. Unfortunately, this project is now almost over (termination by 31th of December, 2012). This project was highly welcomed by the residents of Santa Luz and locals hope for some other similarly configured program in the future.

The mayor of all the village leaders settled the river Abujao basin lives in Santa Luz. This president represents the interests of all the leaders at the district meetings in Pucallpa. In 2012 the proposal of drinking water for this village will be discussed there, as residents are dependent on highly polluted river water or rainwater.

4.4 Data collection

Data were collected from September to October 2011 among 40 households in three villages in Peruvian Amazon (17 from the ethnic village of Shipibo-Conibo tribe, 23 from the migrant villages called “mestizos”). The total number of people involved to the research was 165 (Table N°5) since the number of household members varied from 4 to 15. For the purpose of our survey, data were collected in a four-level approach based on similar studies (for example see in Kvist et al., 2001):

- a) questionnaire survey among household members;
- b) participatory collaboration with selected elders in each of village;
- c) interviews with household members;
- d) interviews with local vendors in “Bella Vista” market, Pucallpa city.

Naturally, a preliminary assessment preceded to the data collection which was followed by

the evaluation of the results.

Table N°5: Study sampling.

Name of the village	Number of inhabitants	Number of families	Number of questionnaires	People involved to the research
Santa Rosa	124	20	17	86
Abujao	67	18	13	51
Santa Luz	35	11	10	28
In total	226	49	40	165

Source: Data survey, 2011

The field study started on the base of permission for the investigation with indigenous people which provided regional organization named AIDSEP Ucayali.³ To monitor the commercialization and the use of NTFPs in Peruvian Amazon, a meeting with representatives of the villages was held in September 2011 in each village where the leaders of the villages on the river Abujao were informed about all the goals of the field research:

- Village Santa Rosa, name of the leader: Roberto Torres,
- Village Abujao, name of the leader: Ojitos,
- Village Santa Luz, name of the leader: Miguel Shahuano.

The information on collected and used NTFPs was gathered using a semi-structured questionnaire which was based on preliminary research (Sullivan, 2002; Quang and Anh, 2006; Saha and Sundriyal, 2011) and adapted for the purposes of this survey to get general household information, agricultural and forest products use information, etc.

³ See Annex N°2

Firstly leaders and teachers of each village were interviewed in order to understand more local details and history issue. Subsequently, interviews with household members were conducted face to face in each family of questioned member. This way of survey involved participants to spontaneously list collected NTFPs on the base of ordinary use and also to list the possible uses of these forest products. The interviews were made in as relaxed way as possible but with all the attention to record reliable data held with men as well as with women, young and elders from each family. Information from respondents was recorded on prepared sheets permitting a complementary source of survey.

Participatory collaboration was held in the forest with 3 elders from each village in order to record possible differences in NTFPs use and traditional knowledge. During this collaboration elders took short walks during which they picked the selected plants to describe, their effects, uses and preparation on the basis of their own experiences.

Interviews with the local traders were held in the market called “Bella Vista” to ensure that the products used by the study sampling are available on the market and it is possible to make a profit from them. The objectives of the interviews were to gather information regarding the origin of the product and sales value.

4.5 Data processing

For the purpose of the thesis, methodology published by García et al. (2006) was applied. Cultural value (CV_e) and economic value (EV_e) of pointed NTFPs were applied in order to achieve total value (V_e).

To calculate cultural value (CV_e) following formula was used:

$$CV_e = U_{c_e} * I_{c_e} * \sum IUC_e$$

Uc_e expresses the total number of uses reported for NTFPs and was divided by eight potential uses (food, medicine, etc.) of NTFPs considered in the survey. Ic_e expresses the number of participants who listed the NTFP e as useful and divided by the total number of people participating in the survey. And IUC_e expresses the number of participants who mentioned each use of the NTFP e divided by the total number of participants.

To calculate the economic value (EV_e) following formula was used:

$$EV_e = Oe_e * Pe_e$$

Oe_e represents the number of households NTFP e was brought/used in the household sample and Pe_e is the price of NTFP e . To calculate economic value the village price⁴ or market price⁵ of NTFPs was used. If both market price and village value was observed, there was arithmetic mean calculated. Value of “0” was assigned to the NTFPs that people mentioned in the survey but they do not sell it and the product was not observed on the market in Pucallpa during the survey.

Then total value (V_e) could be calculated as the sum of cultural (CV_e) and economic value (EV_e):

$$V_e = CV_e + EV_e$$

4.5.1 Species identification

Despite the fact that most of species have a specific name in the local language, identification by scientific name was necessary to provide. Collected NTFPs by study

⁴ Village price (or expecting value) is the average mean of prices answered by households which participate in making profit from these NTFPs gathering.

⁵ Market price (or selling value) is the average mean of NTFPs prices observed in market „Bella Vista” in Pucallpa.

sampling were identified by a specialist Ing. Patricia Vidal Quintana, National University of Ucayali.

4.5.2 Estimated amounts, costs and profits

The value of each NTFP extracted was generated using market price. To generate preliminary data on the monetary value of NTFPs, the exchange rate between New Peruvian soles and US dollars was $1 \text{ USD} = 2.6934 \text{ PEN}$ ⁶. Prices are rounded to two decimal places. If a different expecting or selling value was found, arithmetic mean was counted. Selling price is always negotiable as we talk about pricing in Latin America. Fruit is usually counted into the pieces not kilos and there is a discount to quantify pieces of dozens.

The cost of land used by each household was not taken into account as it was assigned to migrants population in 1970's by the Peruvian government.

The market called "Bella Vista" is the largest one from all the markets in the city of Pucallpa. The estimated sales have an average monthly income of about 1.124 USD. There are a great number of vendors and products coming from all parts of the region and country. Numerous vendors concentrate in 13 blocks in a straight line with stalls. This market could be identified as informal when no documentation of exchange exist (Vela, 2011). As the vendors responded the trade here is usually driven by both supply and demand.

⁶ The rate observed on 17th of December, 2011 at www: <http://www.exchange-rates.org>.

5. RESULTS

In the research, there were identified 77 NTFPs.⁷ In general, the people are involved to collect NTFPs for both commerce and subsistence purposes. Products that are solely collected for sale are only few. However ethnic households are more involved into commerce collection while migrants living in more remote areas (villages Abujao and Santa Luz) are specialized in selling only certain NTFPs which is organized by assistance of university organization CIFA or by Peruvian government (externally driven collection). In the ethnic village Santa Rosa the number of NTFPs for both commerce use and consumption is larger than in “mestizos” villages (Table N°6). However most of the NTFPs are animal based (river provides source of animal based NTFPs as well as sufficient connection with Pucalpa city throughout the year). Table N°6 gives a brief overview of purposes of both plant and animal based NTFPs.

Table N°6: Purpose of plant and animal based NTFPs collected by both ethnic groups.

Plant based NTFPs				Animal based NTFPs			
Ethnic village		“Mestizos” villages		Ethnic village		“Mestizos” villages	
Purpose of collection	Number of products	Purpose of collection	Number of products	Purpose of collection	Number of products	Purpose of collection	Number of products
Commerce only	0	Commerce only	1	Commerce only	0	Commerce only	0
Subsistence only	39	Subsistence only	32	Subsistence only	4	Subsistence only	13
Both C and S*	9	Both C and S*	13	Both C and S*	15	Both C and S*	2
Total of collected NTFPs	48	Total of collected NTFPs	46	Total of collected NTFPs	19	Total of collected NTFPs	15

Source: Data survey, 2011

* Both C and S = Both subsistence and commerce

⁷ See Annex N°1: Total overview of NTFPs gathered in Abujao river basin.

The Shipibo-Conibo' listed 67 used NTFPs out of which 24 are used for both commerce and subsistence purposes. On the other hand, the "mestizos" listed 61 NTFPs out of which 15 are used for both commerce and subsistence. Nevertheless most of marketed NTFPs do not play any important role in contribution to the household income. Large-scale commercial exploitation does not occur; only few NTFPs were observed as NTFPs with high significance of economic income (aguaje fruit, bijao leaves, corn, cattle and fish). Cacao, harvested plant subsidized by Peruvian government, is a product intended for commerce only. 8 out of 11 families in Santa Luz participate in cultivation of this plant. Plants grow in the fields for four years and then are sold to the middleman, which is provided by the government.⁸

5.1 Demography of study sampling

Income source of study sampling mostly come from 7 different categories: logging, fishing from Abujao river, small business (craftwork or small shops in each of village), plantation (bijao leaves, aguaje, etc.) secondary forest (NTFPs gathering), cattle breeding, annual crops (corn). Almost each household participates in more than one category. Nevertheless income of the households could be calculated just on scarce responses. To compare the real monetary income of the households was not possible to include into this research. Communities are very small and households are suspicious of one another. However, the average monthly family income diverse from USD 130.70 to USD 186.70.

Following table (Table N°7) illustrates demography of study sampling in the three villages. Average age of study sampling in the Shipibo-Conibo village Santa Rosa is 38.53 years.

⁸ see chapter 4.3.2

Males and females are labors between 19 and 71 years old. In the “mestizos” villages (Abujao, Santa Luz) the average age is 47.96 and labors are between 19 to 72 years old. The average number of family members reaches 4.78, on the contrary the Shipibo-Conibo families are larger, 6.05 members per family.

Table N°7: Household demography.

Gender	Ethnic village	“Mestizos” villages
Female	64.71%	39.13%
Male	35.29%	60.87%
Category	Ethnic village	“Mestizos” villages
Logging	5.88%	26.09%
Fishing	52.94%	4.35%
Small business	23.53%	8.70%
Plantation	11.76%	34.78%
Secondary forest	29.41%	17.39%
Cattle raising	11.75%	39.13%
Annual crops	17.65%	21.74%

Source: Data survey, 2011

Most of the families extract NTFPs only for subsistence, since the commercialization is relatively expensive in the remote areas due to the transport costs. Almost 30% of ethnic households are gathering NTFPs from secondary forest but the dependency of households on this income varies. Generally, households with smaller portfolio of activities often gather NTFPs which provide them secondary income. “Mestizos” households generally participate on NTFPs gathering less than ethnic households, namely in 17.39%.

Extraction of aquatic animals is provided strictly by males and becomes an important contribution to the income of many households in Santa Rosa (in over than 52% of households). While men go mainly fishing, handicrafts are provided by females. It is undertaken all over the year and sold mainly in Pucallpa.

It was also found out that mainly young men in villages Santa Luz and Abujao participate in logging because of its profitability and thus assuring family income.

Almost all the households in the three villages breed animals. It is an important source not only for subsistence but also for an economic income and economic safety for households. Cattle breeding occurs in “mestizos” villages in 39.13% of households (with the average of 8.13 heads per household) while in the ethnic village only in 11.75%. However, the most common animal is poultry which occurs in every household in average number of heads 7.76 and 7.7.

Table N°8: Animal raise in study sampling, mean per household.

Ethnic group/Indicator	Cattle	Pig	Sheep	Poultry
Ethnic village	3.59	0.29	0.00	7.76
“Mestizos” villages	8.13	0.78	0.65	7.70

Source: Data survey, 2011

Pets such as for instance turtles, dogs or parrots occurred rarely as they have no added value.

5.2 Category of NTFPs

Participants mentioned a total number of 77 NTFPs where 57 of them are identified as plant based and 20 as animal based forest products. Plant based NTFPs are widely used by the ethnic household as well as by the “mestizos”. The use of these products includes medical purposes, nutrition, economical income as well as dye for traditional coloring, materials for artesian production typical for the Shipibo-Conibo tribe. On the contrary, animal based NTFPs are mostly used by Shipibo-Conibo for livelihood. Some of animal based NTFPs are also used for medical purposes and incense/ornaments/traditional art.

These parts of animal based NTFPs are used: meat, oil, bone, fluid, larva and egg. In the plant based NTFPs there are utilized plant, fruit, leaf, tree trunk, stem, bark, resin, root, branch and seed.

In total there were observed 9 different categories of NTFPs: food, beverage, medicine, cure and bath, drug, construction material, dye, incense/ornaments/traditional art and other. Figure N°5 displays share of each category used by the ethnic households and the “mestizos” from study sampling.

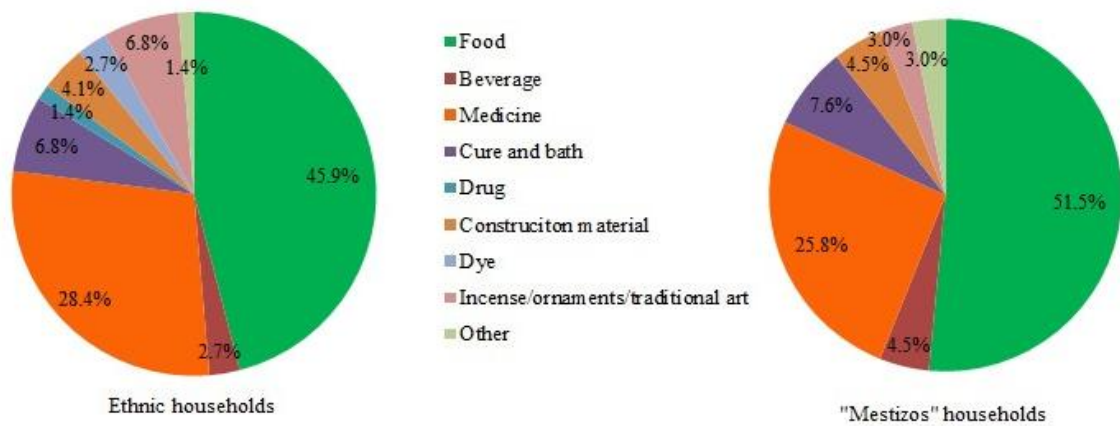


Figure N°5: Share of total NTFPs by category of use, in ethnic and “mestizos” villages.

Source: Data survey, 2011

As shown, the biggest share from both the Shipibo-Conibo and the “mestizos” household makes the group of food NTFPs. However, bigger percentage share 51.5% is used by the “mestizos” villages. These products provide livelihood and supply inhabitants with energy, proteins and other important vital substances.

The second largest group of NTFPs is widely used as medicine. Since the medical care is hard to reach, people use their traditional knowledge of NTFPs for its medical effects in remote areas. Traditional knowledge is more used by the ethnic households where medical

NTFPs are used by 28.4%, while 25.8% by the “mestizos” households. Most of the medicinal products are widely used for digestion problems, gastrointestinal disorders, prostate inflammation, sexual infertility, astringents, and urinary bladder and also during traditional healing rituals. Consumption and the traditional knowledge of plants are familiar to all the inhabitants; however, procedure of the medicines is usually made by an elder family member who keeps the traditional knowledge as a family heritage which has been usually passed orally from generation to generation. Medical NTFPs are also widely used for treating pets.

Another part of NTFPs represents the group of cure and bath. People believe in their positive effects on health, love or good luck. These products are also widely sold on the market in Pucallpa and use by Shipibo-Conibo and “mestizos” reached almost the same numbers.

The category of incense/ornaments/traditional art NTFPs is significant for the ethnic village at the value of 6.8% while in the “mestizos” villages 3.03% households. Traditional production is very important and typical for the ethnic village Santa Rosa inhabited by the Shipibo-Conibo tribe. Most of the women regularly participate in traditional textile and ornament production which generates them a significant income. Considering the proximity of Pucallpa city and relatively easy transportation to the nearest market the traditional production increases incentive to involve women in this traditional work.

Housing in the tree villages included to the study and named above is solely made by natural materials. For construction they use tree trunks, palm branches are used as a roofing material and a liana called “tamishi” binds the construction of the house together. The higher elevation of the house construction provides protection against floods or

uninvited wild animals. Using of natural resources to build the house assure easy renewability of the materials which are easy to reach in the forest. Average needs of each house require 500 branches with its lifetime of 5 years.

Category of dye NTFPs is entirely used by Shipibo-Conibo tribe by 2.70% of households. Most used NTFPs is “huito” tree which is used for coloring textile, typical for this ethnic group. The textile processed by women is embroidery by colours and it is finally sold in Pucallpa city.

As well as dye also the drug category was used entirely by the ethnic group by percentage of 1.35. “Ayahuasca” is a liana famous for its hallucinogenic effect. The ingestion of this liana is usually accompanied by a traditional Shipibo-Conibo ceremony provided by the elders.

Category of other NTFPs includes for instance wrapping material (“bijao” leaves) or plants which could not be included into any of the categories mentioned above. This group includes also cacao plant growing which has already been presented as a profitable activity in the “mestizos” village Santa Luz.⁹

5.3 Commerce of NTFPs

As it is apparent in the Table N°6 most of the products are used for both commerce and subsistence. Some of the products are traded both on the local market and by middlemen.

⁹ See chapter 4.3.2

Significant difference could be observed in Figure N°6 which displays the percentage of products traded on the local market or by the middlemen. Households in the ethnic village Santa Rosa do 85.71% of trading by themselves in the local market in Pucallpa city, which they can reach in couple of hours by boat no matter what season is. While in the two “mestizos” villages Abujao and Santa Luz the trade is usually ensured by the middlemen who come to the village randomly during the year. Only 4 products, which create 13.33% of total commerce used NTFPs by “mestizos” are sold on the local market which are at the same time mostly traded materials among the households mutually.

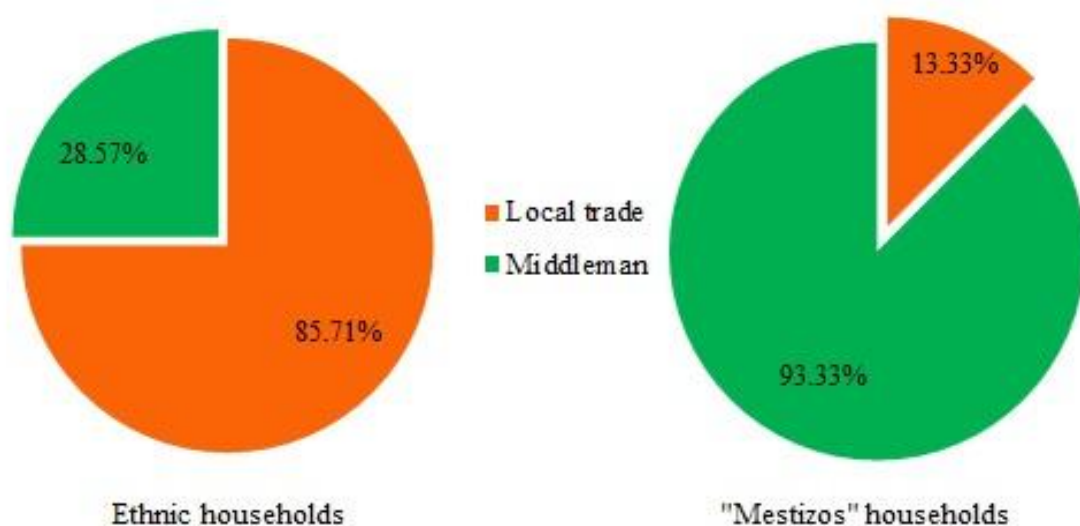


Figure N°6: Way of trading by study sampling, in percentage.

Source: Data survey, 2011

In case of trading there was a difference observed between the expected price by the study sampling and the market price in Pucallpa. The market price always reached higher numbers.

During the survey in the three villages the commercial use of 18 used and collected NTFPs

was not observed, even though the products were traded in Pucallpa city. This fact increases the possibility of growing commercial use of well-known and collected NTFPs by the locals.

There were one or two families in each village who collect plant-medicines for the local market use. The middlemen from Pucallpa come irregularly and the expecting price is low. They purchase all the products from the locals and sell them to the small natural medicine producers in Pucallpa or to the local traders in market place “Bella Vista”. It is important to mention the product “uña de gato” which is well-known in alternative medicine as “vilcacora”. Its positive medical effects and also possible economic profit is known in Pucallpa city which in consequence causes that some people from the city come to the remote areas to collect the barks and sell them in Pucallpa. This causes high damages to the forests as the gatherers do not process collecting environment friendly.

The commercial use of animal based NTFPs also occurred during the survey. The families who breed cattle usually go to the Pucallpa city four times a year to sell the meat in the local market. However, the accessibility of the market varies between the villages during the rainy and dry season.

In the “mestizos” villages there were three cases of participation in programs subsidized by external organizations observed. As mentioned above, the cultivation of cacao plants in the village Santa Luz is supported by the Peruvian government. There are also different programs organized by the university organization CIFA which cooperates with the “mestizos” village Abujao in “bijao” leaves growing and “aguaje” fruit harvesting. A high interest in these programs was observed during the interviews with the household members as the participation assures a stable income to the households. The figure N°7 shows that

almost 80% of the “mestizos” households participate in these programs.

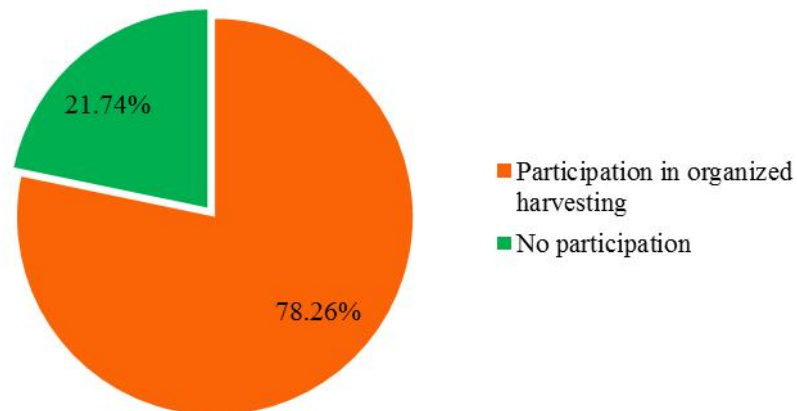


Figure N°7: Share of “mestizos” household participation in external driven NTFPs production.

Source: Data survey, 2011

5.4 Data evaluation

To evaluate the data collected these three indexes were used: cultural, economic and total value. Values were divided into 5 groups:

- a) no value – NTFPs with value equal to zero;
- b) very low – NTFPs with the value higher than 0 but lower than 5;
- c) low – NTFPs which did not range higher number than 10;
- d) high – NTFPs with the value between 10 to 50;
- e) very high – NTFPs with the value higher than 50.

The cultural value of total of 77 non-timber forest products ranged from 29.85 to 1.59. Economic value reached higher numbers, from 156.96 to 0 and the total value of all used

NTFPs range values 174.66 to 1.59.¹⁰ The table N°9 displays the frequency of NTFPs and percentage of all of them.

Table N°9: Frequency and percentage of the cultural, economic and total values of all gathered NTFPs by study sampling.

Range	Cultural Value		Economic Value		Total Value	
	Nr.	%	Nr.	%	Nr.	%
Very high (>50)	0	0.00%	23	29.87%	25	32.47%
High (<50)	37	48.05%	12	15.58%	30	38.96%
Low (<10)	29	37.66%	7	9.09%	16	20.78%
Very low (<5)	11	14.29%	1	1.30%	6	7.79%
No value (= 0)	0	0.00%	34	44.16%	0	0.00%

Source: Data survey, 2011

Almost 90% of all the gathered NTFPs have important cultural significance for both the Shipibo-Conibo and the “mestizos” households. Almost 50% of all used NTFPs are also important to generate potential income, the economic value of these products falls into high or very high category. All of them are used for both commerce and subsistence.

When the average total value is compared by NTFPs classification (Table N°10), the highest importance can be found in the group “other” with the value of 67.78. Only two products, “bijao” leaves and cacao plant, which harvest is supported by external organizations, were ranked into this group. Second highest average value create NTFPs used as medicine (44.85). The group of food reaches the third highest value (39.32). The group of products used as incense, ornaments or for traditional art gets the average value 36.54, cure and bath 22.02 and NTFPs used by locals as construction materials 17.44. Last two groups did not reach average value higher than 13.

¹⁰ See Annex N°1: Total overview of NTFPs gathered in Abujao river basin.

Table N°10: Total value average by NTFPs classification.

NTFPs category	Average total value
Other	67.78
Medicine	44.85
Food	39.32
Incense/ornaments/ traditional art	36.54
Cure, bath	22.02
Construction	17.44
Drug	16.09
Beverage	12.59
Dye	12.19

Source: Data survey 2011

Table N°11 shows values for the ethnic households which were observed in the Shipibo-Conibo village Santa Rosa. Over 60% of all non-timber forest products used by this ethnic reached the cultural value higher than 10 which shows the real importance for this ethnic. On the contrary, over 85% of the “mestizos” households, mentioned in Table N°12, did not reach values higher than 5, which significantly decrease the cultural importance of non-timber forest products for the migrants living in the target area.

Table N°11: Frequency and percentage of the cultural, economic and total values of NTFPs collected by the ethnic households.

Range	Cultural Value		Economic Value		Total Value	
	Nr.	%	Nr.	%	Nr.	%
Very high (>50)	0	0.00%	7	10.45%	15	22.39%
High (<50)	4	5.97%	18	26.87%	19	28.36%
Low (<10)	38	56.72%	3	4.48%	14	20.90%
Very low (<5)	25	37.31%	10	14.93%	19	28.36%
No value (= 0)	0	0.00%	29	43.28%	0	0.00%

Source: Data survey, 2011

Into the group of NTFPs used by the ethnic group with a very high economic value fall mostly animal based NTFPs (specifically 86% of these are fish). A lot of families in the ethnic village deal with fishing but the commercial use is low.

Almost 40% of all NTFPs used by “mestizos” households have very high or high economic value. All of NTFPs supported by external organization also fall into this category.

Table N°12: Frequency and percentage of the cultural, economic and total values of NTFPs collected by the “mestizos” households.

Range	Cultural Value		Economic Value		Total Value	
	Nr.	%	Nr.	%	Nr.	%
Very high (>50)	0	0.00%	10	16.39%	10	16.39%
High (<50)	0	0.00%	14	22.95%	15	24.59%
Low (<10)	0	0.00%	12	19.67%	11	18.03%
Very low (<5)	52	85.25%	1	1.64%	25	40.98%
No value (= 0)	9	14.75%	24	39.34%	0	0.00%

Source: Data survey, 2011

In general, there are 16 products used solely by the ethnic households of Shipibo-Conibo. All of these products reached cultural value while 62.5% of them did not reach the economic value. This fact shows the preferences of NTFPs for the Shipibo-Conibo in daily use more than commercial potential.

The NTFPs used only by the “mestizos” are 9. These products did not reach higher cultural value than 0.02 while 30% of them fall into category very high economic value. Here it can be talked about significant preferences of NTFPs related to the economic profitability.

6. DISCUSSION

6.1 Descriptive analysis

Descriptive analysis tests the hypothesis set above in the chapter N°3 Aim of thesis.

It was found out that the households living in the Shipibo-Conibo village Santa Rosa situated closer to the city sell their products in the local market more easily than the “mestizos” households. They usually sell fish, traditional art and other products directly in the market. However, the price of fish is set by supply and. In case of the “mestizos” households they usually sell the NTFPs to a middleman since the transportation costs are higher from these villages.

In terms of variety NTFPs used, a deeper traditional knowledge of NTFPs was recorded in the Shipibo-Conibo ethnic where a larger number of used NTFPs and a higher share of the households gathering NTFPs in secondary forest were observed. Naturally, the reason might be the larger number of family members who can collect more NTFPs and also a stronger connection to the forest. On the contrary, the number of used NTFPs is lower in the “mestizos” households situated in the remote areas where traditional knowledge might be missing and where most households are aimed at commerce harvesting of some species with the externally driven production.

6.2 NTFPs commercial use and index evaluation

Most collected forest products are used only for subsistence and to a small extent commercially - homemade medicine, species for preparing food etc. This happens despite the fact that NTFPs are important also because of other reasons: not only as livelihood, but

also to support community needs to provide medical care and also to provide a supplementary income for the households as it was shown in this thesis.

The extraction of NTFPs and the trading peaks differ in the rainy months and the dry season. The reason is very simple: the water level is sufficient for the transport of the products out of the forests by a canoe or a boat in the rainy months. On the contrary, fishing is difficult during the flooding because fishes disperse into the flooded forests where they feed (Kvist et al., 2001).

When it comes to the market orientation, two levels were found in the study sampling: a basic market integration which is apparent in the households' level where they usually trade among each other; and a high market orientation, found solely in the "mestizos" villages (Abujao and Santa Luz), where a higher commercial orientation on NTFPs is driven by the assistance of the Peruvian Ministry of Agriculture or by the National University of Ucayali. Such programs have proved to be a good solution as they help to provide income for the poor families living in the remote areas which are hard to reach by boat during the dry season. It was strongly desired by the households to strengthen the governmental support, and thus, to ensure proper harvesting management. Such programs could be perhaps an important factor in future in order to help the communities in the remote areas to raise their living standards.

Travel costs are an important indicator of market integration for the locals. The Shipibo-Conibo village benefits especially from its location and accessibility to the market regardless the season.

Economic and culture importance of non-timber forest products for the chosen communities situated in the Abujao river basin was assured by application of economic

and cultural values.

According to García et al. (2005) the index of cultural values does not necessarily correspond to economic values and it could be underestimated since some species are rarely used but frequently mentioned in interviews. However, in case of the Shipibo-Conibo village most of the species are used really often and their cultural importance reaches high numbers. The same authors claim that some of the forest products with economic value might never enter the households. It happened in the “mestizos” villages, specifically in the households which did not participate in harvesting programs organized by the Peruvian government or the University of Ucayali.

To summarize the total importance of all the collected and used NTFPs by the study sampling, the total value was utilized. Subsidized NTFPs (NTFPs category of “other”) play the main role in the “mestizos” household income. However, NTFPs categories of medicine and food reached a high importance in the household daily life.

6.3 Limits and recommendations

As the results were evaluated, some questions raised. Thinking of the answers to them should head towards future improvements.

In all three villages people lack sufficient education and, moreover, the market access is not equal. Therefore, it is presupposed that development in such areas could open competitiveness for the people living in the remote areas.

According to the number of used NTFPs and also according to the data evaluation, there is a high assumption that the number of the commercially used NTFPs could be higher, if there were more possibilities to reach the local market or if there was an organized system

to help individual producers (such as externally driven production and distribution, appropriate prices etc.). However, some limits and regulations should not be missing. For example pushing recent producers to liberated market actually disadvantage remote areas where the transportation costs affect the product price. Also Quang and Anh (2006) mention that NTFPs overexploitation might occur in case of households' high profitability from NTFPs commercialization. However, since this research had some limitations in duration and data gathering, these questions could become a topic for the future investigations in the target area.

NTFPs certification is another tool which should be considered as a possible improvement for NTFPs collectors. Consumers might be willing to pay a higher price for forest products where negative environmental and social impacts are eliminated. However, such a tool needs to be implemented with appropriate standards, criteria and processes of certification itself for sustainable harvest and trade with transparent methods of monitoring.

In case of NTFPs valuation, there is a lack of common guideline which hinders to bring reliable and comparable results of NTFPs commercial potential. The opportunity of medical use of NTFPs should be also taken into consideration as the locals might make more profit in case of higher commercial use. Unfortunately, the lack of documentation concerning the traditional use limits the locals. To create such tools and methods could be seen as a challenge for coming years nevertheless it should be assured by securing community traditional knowledge and experience of researchers in the region to follow the issue of sustainable production of NTFPs.

Additionally, the Peruvian governmental organizations should pay more attention to the communities situated in the target area, such as the households bound to the rainforest who

have wide traditional knowledge of NTFPs use, way of preparation etc. To protect the intellectual property of the households about forest resources is just as important as the protection of biodiversity itself.

7. CONCLUSION

Present study revealed 77 of non-timber forest products being used for diverse purposes by the communities living in the Abujao river basin. Most of them are consumed on household level. Households are dependent on the forest resources mainly in case of food and medicine. Other purposes vary by ethnics.

People in the remote areas have a very positive relationship to nature. NTFPs gathering represent a daily activity for most households; however, a commercial participation is unachievable for most of them. During the survey it was also found out that communities in remote areas have limited access to markets. Consequently, they have a little chance of earning by harvesting NTFPs because of the high transport costs to the market.

Subsidizing of NTFPs harvesting have a good impact on household income in the remote areas. The households incorporated into some harvesting project implementation participate less on gathering NTFPs from the secondary forest. However, the lack of appropriate guidelines in case of the commercial integration is a current problem of the communities living in the remote areas.

International NGOs should strengthen local NGOs and transfer knowledge to government departments, national forestry institutions, community institutions in charge of NTFP activities and international donors. They should make them aware of the potential of NTFPs for household subsistence and sustainable rural development.

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ANNEX

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Annex N°1: Total overview of NTFPs gathered in the Abujao river basin.

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD (if selling)	Price on the ma in USD (if available on the in Pucallpa)	Ma rket orienta	Comme rcial utilization "mes	Comme rcial utilization Ship Conibo	Cultural value		Economic value		Total value			
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household		
1	Abeja	Melipona sp.	☒	SF, P, C, W	V	**	14,96		MD - Middle market	S	S	5,72	16,31	44,38	44,38	47,46	50,50	106,96	
2	Acaravaso	non-identifi fish	☒	R, A	T	**	5,49	6,71	LM	S	S, C	5,37	9,24	6,15	86,10	92,25	6,54	91,47	101,71
3	Aguaje	Mauritiaflor sa	☒	SF, P, A, H, K	F, K	**	1,87	2,91	MD	S, C	S, C	6,44	24,72	50,19	31,37	81,26	55,08	37,31	105,57
4	Achiote	Bixa orellana	☒	SF	C, S	**				S	S	2,85	4,23	0,00	0,00	0,00	0,00	2,86	4,23
5	Ajo sacha	Mansoa Altiacea	☒	SF	C, L, Q	**				S	S	2,85	5,43	0,00	0,00	0,00	0,33	2,86	5,43
6	Amor seco	Desmodium adscende	☒	SF	D, L	**	0,57			S	S	5,37	13,20	5,18	4,07	9,25	6,85	9,44	22,44
7	Anona (monte	Annona squamos	☒	SF	A, K	**				S	S	0,00	3,95	0,00	0,00	0,00	0,00	0,00	3,95
8	Ayahualca	Banisteria caapi	☒	SF	C, E, O, N	**				S, C	S, C	10,73	16,09	0,00	0,00	0,00	0,00	10,73	16,09
9	Bagre	non-identifi fish	☒	R, A	T	**	2,68	4,40	LM	S	S, C	5,72	9,33	11,22	48,52	59,84	11,48	54,34	69,22

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD	Price on the ma in USD	Market orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value					
												"Me stizos" househ	Shipibo-Conibo hou	"Me stizos" househ	Shipibo-Conibo hou	"Me stizos" househ	Shipibo-Conibo hou	"Me stizos" househ	Shipibo-Conibo hou	"Me stizos" househ	Total
10	Bijao	Helicarea lishaik	×	SF, P	I	L	2,11	3,25	MD	S, C	S	2,70	5,37	16,37	53,50	10,72	64,32	56,50	16,09	80,6	
11	Blanca	non-identi fish	×	×	R	A	T	2,58	4,7	LM	S	S, C	5,37	8,84	11,18	44,70	55,88	11,43	50,07	64,7	
12	Boa	Boa constructo	×	×	SF	C, H, U, V	7,49	7,49		S	S, C	0,77	7,87	14,8	7,49	7,49	14,58	8,25	15,36	29,1	
13	Bocchilo	non-identi fish	×	×	R	A	T	2,58	4,7	LM	S	S, C	0,52	5,72	10,7	14,30	52,15	67,05	15,42	57,37	77,2
14	Cacao d monte	Theobron hylaeum	×	P	I	J	12,67	0,00	MD	C	C	0,00	0,00	2,78	50,58	0,00	50,68	50,68	0,00	53,4	
15	Cafe	Coffea spp.	×	×	P	C	L			S	S	2,53	2,15	11,5	0,00	0,00	0,00	2,53	2,15	11,1	
16	Caimito	Pouteria caimito	×	×	SF	A	K			S	S	0,00	5,01	7,51	0,00	0,00	0,00	0,00	0,00	5,01	7,5
17	Camu camu	Myrciari dubia	×	×	SF	A	K			S	S	0,00	5,37	8,05	0,00	0,00	0,00	0,00	0,00	5,37	8,0
18	Caña	Saccharu spp.	×	P	A, B	M				S	S	0,00	0,00	1,59	0,00	0,00	0,00	0,00	0,00	0,00	1,5

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD	Price on the ma in USD	Market orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value			
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household		
19	Capinuri	Maquira coriacea	☒	SF	C	F	7,49		MD - Middle market	S	S	8,58	0,00	26,22	0,00	31,94	34,8		
20	Carachama	non-identi fish	☒	R	A	T	2,24	3,73	LM	S, C	S, C	8,05	0,00	44,94	0,00	50,31	52,5		
21	Cerdo	Sus scrofa domestica	☒	P	A	T	4,55			S	S	12,62	13,55	9,10	22,75	16,55	11,96	35,3	
22	Clavo huasca	Panurens tynanthus	☒	SF	C	O	7,49			S	S	8,05	0,00	0,00	0,00	5,37	8,05		
23	Coco	Cocos nucifera	☒	SF	A	K				S	S	1,98	0,00	0,00	0,00	0,00	1,98		
24	Colorado	non-identi fish	☒	R	A	T	2,98	4,40	LM	S, C	S, C	10,31	11,22	48,52	59,84	11,61	54,70	70,1	
25	Copaiba	Ceopai paupera	☒	SF	C	F	37,40	55,98	MD	S, C	S, C	2,38	140,07	0,00	140,37	140,07	0,00	142,3	
26	Corvino	non-identi fish	☒	R	A	T	2,98	3,73	LM	S, C	S, C	8,58	0,00	44,38	44,88	0,00	50,90	53,4	
27	Curativo	Phoenix dactylifera	☒	SF	A, C	L				S	S	4,12	11,45	29,35	0,00	0,00	4,12	11,45	29,8

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD	Price on the ma in USD	Market orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value	
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household
28	Donceia	non-identi fish	X	R	A	T	6,71	9,42	LM	S, C	S, C	4,65	6,97	0,00	0,00	4,65	6,97
29	Dorad	non-identi fish	X	R	A	T	6,71	8,54	LM	S	S, C	5,37	9,24	31,30	54,78	31,69	60,14
30	Gallina	Gallus f. do f. ca	X	P	A	T, Y	3,61			S	S	6,03	18,24	83,03	61,37	144,40	85,69
31	Guaba	Inga edulis	X	SF	P	A	K	0,06	0,14	LM	S, C	3,93	8,63	0,40	0,60	1,00	1,30
32	Guanábana	Annona muricata	X	SF	A	K, L				S	S	3,53	11,71	0,00	0,00	2,05	3,58
33	Guayaba	Psidium guajaba	X	SF	A	K				S	S	3,93	7,83	0,00	0,00	0,64	3,93
34	Hierba lisa	Lippia citriodor	X	SF	P	E	L			S	S	5,37	13,20	0,00	0,00	1,67	5,37
35	Hierba santa	Cestrum hediondin	X	SF	D	L	0,57			S	S	5,72	12,5	5,18	4,81	9,99	6,34
36	Huayru	Rhynchosoga phaseoloi	X	SF	F	S				S, C	S, C	5,01	7,51	0,00	0,00	0,00	5,01

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD (if selling)	Price on the ma in USD (if available on the in Pucallpa)	Ma rket orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value		
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	
46	Mangc	Mangifera indica	☒	SF, P A K	*	K			MD - Middle market	S	S	0,00	2,73	0,00	0,00	0,00	2,73	
47	Mata pasto	Sida rhombifolia	☒	SF C L	*	L	0,25	0,75	MD	S, C	S, C	0,00	2,33	0,00	5,50	5,50	7,83	
48	Mucura	Petiveria alliacea	☒	SF D L	*	L	0,57			S	S	1,15	5,37	11,61	5,18	4,81	9,96	
49	Naranja	Citrus sinensis	☒	SF A K	*	K				S	S	1,15	3,93	9,47	0,00	0,00	1,15	3,93
50	Noni	Morinda citrifolia	☒	SF C K	*	K				S	S	2,05	5,72	14,93	0,00	0,00	2,05	5,72
51	Ojé	Ficus insipida	☒	SF C F	*	F	5,68			S	S, C	3,22	12,36	65,78	29,30	95,68	68,43	33,12
52	Oveja	Ovis aries	☒	P A T	*	T	4,48			S	S	0,00	1,93	8,56	0,00	8,96	8,95	0,00
53	Palmito	Euterpe oleracea	☒	SF A K	*	K				S	S	0,00	3,17	0,00	0,00	0,00	0,00	0,00
54	Palo Sarto	Bulnesia sarmient	☒	SF F M	*	M	2,68			S	S	0,00	5,37	8,05	0,00	19,37	19,37	0,00

NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD	Price on the ma in USD	Market orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value		
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	
55	Palta	Persea americana	X	SF	A	K				S	S	5,34	2,50	0,00	0,52	2,50	5,34	
56	Pan de arbol	Artocarpus altifolius	X	SF	C	P	7,49			S	S	13,60	44,34	29,36	46,74	35,33	88,5	
57	Paña	non-identifi fish	X	R	A	T	2,98	3,53	LM	S	S, C	13,74	16,78	46,37	63,75	18,45	52,99	77,4
58	Pepino	Solanum atum	X	SF	A	K				S	S	8,12	0,00	0,00	0,00	1,42	2,50	8,12
59	Pijuayc	Baetris gazipaes	X	SF	P	A	2,21	3,69	MD	S, C	S, C	4,75	50,15	0,00	50,15	0,00	54,9	
60	Piña de monte	Ananascosus	X	SF	A	K				S	S	11,35	0,00	0,00	0,00	1,93	3,93	11,8
61	Piñon blanco	Jatropha curcas	X	SF	D	L	0,27			S	S	13,71	5,55	2,22	7,71	7,74	6,87	21,4
62	Piri Pir	Eleutheri bulbosa	X	SF	C	Q				S	S	15,30	0,00	0,00	0,00	2,70	4,65	15,3
63	Platanos	Musa sp.	X	P	A	H	1,27	3,29	LM	S, C	S, C	18,24	46,50	34,35	81,55	49,46	41,03	99,7


NTFP	Common name	Latin name	Use by ethnic g	Place of collec	Mode of use	Part of Use	Expected selling in USD	Price on the ma in USD	Ma rket orienta	Commercial utilization "mes	Commercial utilization Ship Conibo	Cultural value		Economic value		Total value			
												Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household	Shipibo-Conibo household	"Me stizos" household		
54	Renaquilla	Clusia rosea	☒ ☒	SF ☒	C	O	P 9,44	14,96	MD	S, C	S, C	5,72	17,30	60,75	48,50	109,35	63,48	54,32	126,1
55	Sacha inchi	Plukenet volubilis	☒ ☒	SF ☒	A	K				S	S	5,72	15,72	0,00	0,00	2,32	5,72	15,7	
56	Sangre grado	Ceroton lechleri	☒ ☒	SF ☒	C	F	9,44	16,82	MD	S, C	S	5,72	17,70	117,72	39,24	156,36	120,68	44,96	174,1
57	Sapoté	Matisia cordata	☒ ☒	SF ☒	A	K	0,75	1,40	MD	S, C	S	4,65	15,70	13,50	3,38	16,88	16,13	8,03	32,5
58	Sharamasho	Ocimum american	☒ ☒	SF ☒	E	L		0,57		S	S	5,37	12,30	5,18	4,44	9,62	6,73	9,81	22,4
59	Shebor	Al lalea butyrace	☒ ☒	SF ☒	F	L, R				S	S	3,93	11,05	0,00	0,00	0,00	1,67	3,93	11,0
60	Sucunapé	non-identi fish	☒ ☒	R	A	T	5,49	7,46	LMI		S, C	6,03	9,12	0,00	67,41	67,41	0,00	73,49	76,5
61	Suri	Rhynchos palmar	☒ ☒	SF ☒	A	J				S	S, C	3,93	8,63	0,00	0,00	0,00	0,90	3,93	8,66
62	Tamishi	Heterops oblongifo	☒ ☒	SF ☒	F	N				S	S	2,85	10,24	0,00	0,00	0,00	1,93	2,86	10,2

NTFP	Common name	Latin name	Use by ethnic group		Place of collection	Mode of use	Part of Use	Expected selling price in USD	Price on the market in USD (if available on the market in Pucallpa)	Market orientation	Commercial utilization "mestizo"	Commercial utilization Shipibo-Conibo	Cultural value		Economic value		Total value				
			Shipibo-Conibo household	"Mestizo" household									Shipibo-Conibo household	"Mestizo" household	Shipibo-Conibo household	"Mestizo" household	Shipibo-Conibo household	"Mestizo" household			
73	Tobacco	Nicotianatum	X	X	SF	C	L	4,59		MD	S	S	1,42	3,22	9,19	17,16	8,58	25,74	18,58	11,30	34,9
74	Ubos	Spondiambombin		X	SF	C	C				S	S	0,00	4,20	6,44	0,00	0,00	0,00	0,00	4,29	6,44
75	Uña de gato	Uncaria tomentos	X	X	SF	C	C	0,07	0,15	LM	S, C	S, C	1,03	3,22	8,00	7,79	2,87	10,66	8,82	6,09	18,6
76	Vaca	Bos primigeni f. taurus	X	X	P	A	T	2,24	3,03	LM	S, C	S, C	2,10	0,35	7,28	38,31	2,99	41,79	40,59	3,34	49,0
77	Verbená	Verbena littoralis	X	X	SF	C	L				S	S	1,93	4,20	12,38	0,00	0,00	0,00	1,93	4,29	12,3


*A- food, B- beverage, C- medicine, D- cure and bath, E- drug, F- construction material, G- dye, H- incense/ornaments/traditional art, I- other

**J- plant, K- fruit, L- leaf, M- tree trunk, N- stem, O- bark, P- resin, Q- root, R- branch, S- seed, T- meat, U- oil, V- bone, W- fluid, X- larva, Y- egg

Annex N°2: Permission for the investigation with indigenous people.

	<p>Organización Regional AIDSESP Ucayali ORAU</p>
	<p>Jr. Aguarico N° 170 - Pucallpa, Teléfono: (061) 57-3469 E-Mail: orau_aidasep@yahoo.es www.orau.org.com</p>
	<p>I Decenio Internacional De Los Derechos De Los Pueblos Indígenas Del Mundo "Año Internacional de los Bosques" Año del Centenario de Machu Picchu para el mundo</p>
FECONABU	CARTA N°111-2011-TEPAF-ORAU
ORDIM	Pucallpa, 26 de setiembre del 2011
FECONADIP	<p>Señores Autoridades Comunales de la CC.NN. San Mateo Presente -</p>
OAGP	Asunto : <u>Solicita apoyo y colaboración</u>
	De mi mayor consideración,
FECONBU	Grato es dirigirse a ustedes para saludarle cordialmente en nombre del Consejo Directivo de ORAU y de los 14 pueblos indígenas de la Región Ucayali, el mismo que tiene por finalidad solicitar su apoyo y colaboración dando las facilidades al equipo de investigación interinstitucional conformado por el Centro de Investigación de Fronteras Amazónicas-CIFA de la Universidad Nacional de Ucayali y del Instituto del Trópico y Subtrópico de la Universidad Checa Agraria de Praga (IIS-UCHAP); quienes harán un trabajo de investigación conjunta con la CC.NN. San Mateo durante los meses de setiembre y octubre del presente año, así también se integrará al equipo un joven de su comunidad que tenga ganas de ser capacitado y a propuesta de ustedes
FECONAPIA	
ORDIFLONADIT	
FECONAPI	
ACONADIYSII	<p>El equipo de investigación está conformado por las siguientes personas.</p> <ol style="list-style-type: none"> 1. Ing. Jorge W. Vela Alvarado 2. Tesista Mariela Reyes Raymundo 3. Investigador Pavel Borecky 4. Investigadora Helena Kerkova 5. Investigador Jim Sak 6. Traductor Manny Deza 7. Personal de apoyo
FENACOCA	
FECONAYY	Agradecemos por su atención, nos suscribimos
ACONAMAC	Atentamente,
OIRA	 <p>José C. Barquero Fernández PRESIDENTE ORAU</p>
	<p>c.c. Ing. Jorge W. Vela Alvarado, Líder del CIFA Dr. Gustavo Casal Arévalo, Decano Fac. de Ciencias Agropecuarias Eliot Sánchez Marlicovera, director de Investigación de la FCSA Pavel Borecky, Investigador Checo</p>

Annex N°3: Confirmation of cooperation with the university organization CIFA.




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
Pucallpa, 23, Septiembre, 2011

Confirmación de Cooperación

Mediante el presente documento, se confirma la cooperación de la estudiante de la Facultad de Trópicos y Subtrópicos de la Universidad Checa de Agricultura de Praga de la República Checa. Be. **Helena Kotková**, fecha de nacimiento 9 de Abril, 1986 en Hrdčichův Hradec que, a través de su investigación conjunta con la Universidad Nacional de Ucayali, Centro de Investigación de Fronteras Amazónicas. Ejecutó la investigación titulado: **Expedición WAYVANA "Colección-Procesamiento-Usos: Conocimiento tradicional de los recursos naturales de los Bosques desde punto de vista de la antropología visual"** y su parte titulado **"Orientada hacia el mercado de productos no-maderables del bosque colección y el sustento rural en Amazonia peruana"**, la cual fue realizado en los poblados indígenas Ashéuinkas, Shipibo-Conibo y mestizos, ubicados en la cuenca del río Abujao. Se firma la presente para acreditarla, para los trámites de la interesada.



Ing. Jorge W. Vela Alvarado MSc.
Centro de Investigación de Fronteras Amazónicas
Universidad Nacional de Ucayali
Túdel



Annex N°4: Establishing cooperation with the leader of Shipibo-Conibo village, Roberto Torres.



Annex N°5: Group interview with Shipibo-Conibo females.



Annex N°6, 7: Participatory collaboration.



Annex N°8: Interviews with the Shipibo-Conibo children.



Annex N°9: Interview with household member in “mestizos” village Abujao.



Annex N°10: Group interview in “mestizos” village Santa Luz.



Annex N°11: Interview in Shipibo-Conibo household.



Annex N°12: Shipibo-Conibo female showing the traditional work.



Annex N°13: Labeled “bijao” field, village Abujao.



Annex N°14: River Abujao and private boat, the only way of transportation.



Annex N°15, 16, 17: Housing in the river Abujao basin.





Annex N°18: “Irapay” branches prepared for roofing.



Annex N°19: Fishing, the main source of income for the Shipibo-Conibo households.



Annex N°20: “Bijao” leaves in the market “Bella Vista”, Pucallpa.



Annex N°21: Fruit “aguaje” in the market “Bella Vista”, Pucallpa.



Annex N°22: Dried fish in the market “Bella Vista”, Pucallpa.



Annex N°23: Trading with NTFPs in the market “Bella Vista”, Pucallpa.



Note: All the pictures were made by Helena Kotková and Jakub Žák.