NTFP Sustainable Harvesting and Resource Management Protocol

Resin

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non-timber forest products - exchange programme

NTFP Protocols Series

This publication is part of a series of sustainable harvest and resource management protocols to promote good practice in NTFP management.

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The full volume is also found in:
https://asean.org/wp-content/uploads/20.-ASEAN-NTFP-Guidelines-Final.pdf

Resin

Hard resin
Photo: SPABP, Palawan

Resins are plant secretions that essentially aid to protect the plant from pathogens and insects. Resins have been used by human beings since ancient times to water proof boats, embalm bodies, incense in worship rituals, medicinal preparations etc. Hard transparent resins are used for industrial purposes like paints, varnishes and adhesives, soft aromatic oleo-resins and gum resins are used for medicine, food and rituals.

The protocols suggested below are based on the scientific and experiential knowledge based on the following species. In the case of solid resin harvested from the bark of genera Shorea, Hopea, and Parashorea, and liquid resin which often comes from the phloem of the genus Diptercarpus. For certain resin species such as *Agathis philippinensis*, resin emerges first as liquid and then hardens. There is also a stone resin in Indonesia and the Philippines that comes from the roots of Pinus merkusii, among other pine species. Liquid resin, also known as oleoresin or balsam, contains a mixture of essential oils, one example is Manila elemi or Canarium luzonicum. If harvested sustainably, liquid resin-producing trees will live for 50-60 years. In Mekong countries and in Indonesia, the resin from the trunk of Styrax tonkinensis is considered highly valuable especially in Vietnam and Laos. Some countries such as Vietnam and the Philippines ban the harvesting of liquid resin.

There are many threats to resin harvest, production and trade. Resin trees are harmed by the use of unsustainable harvest methods such as resin hole mismanagement, improper tools, fire, chemicals, and girdling. In many countries, the habitat of resin trees has been destroyed due to conversion of forests to other land uses such as plantations and extractive industries. Hunting, cutting of trees, and forest fires have also been detrimental to resin trees. At the institutional level, lack of clear policies to secure tenure or regulate trade that favors sustainable practices and local communities also pose threats to the future of resin. In some cases, prices are very low for resin and this necessitates large volumes to be collected leading to overharvesting.

Listed below are some commonly practiced thumb rules for resin harvest in traditional forest communities:

- Safeguard the forest ecosystem within the resin collection zone.
- Prevent forest fires.
- Conserve biodiversity by not cutting trees or hunting animals that may be nesting in these trees.
- Define tree or area ownership and zones and do not go for harvest in non-permitted areas.
- Tap only mature trees.
- Don't use chemicals when harvesting resin.
- Use appropriate sustainable harvesting tools and methods.
- Make the right size and shape of incision.
- Follow local wisdom.
- Advocate for supportive policies.

Woman CF member of O Kreng, Kratie tapping solid resin
Photo: NTFP–EP Cambodia

Thumb Rules for Resin in Traditional Forest Communities

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Almaciga hauling
Photo: SPABP

Socio-Ecological Indicators to Ensure the Sustainability and Quality of Resin

01 Ecological

- There is an increasing number and good distribution of resin trees (saplings, juvenile, adults).
- The forest is healthy with a diverse population of plants and animals.

02 Harvest

- Proper harvesting methods are used (correct size and shape of cuts, proper use of fire for liquid resin) with the proper tools and equipment.
- Resin is harvested at the right season.
- Trees continuously provide resin after repeated harvesting.
- Size of resin hole and number of holes are in proportion with the size of the resin tree.
- Resin hole is not getting larger due to unsustainable technique and uncontrolled fire.
- Leaves are not yellowing or falling off.
- No termites or other insects are attacking the resin trees through the cuts.
- Local wisdom is practiced.

03 Trade and Markets

- Visual indicators of good quality resin are observed (color, size, purity).
- Resin products can be traced to its source.
- Price of product is favorable to the harvester.
- There is value addition by harvesters or the community.

04 Institutions

- Local or traditional organization is engaged in collective trade.
- Social networks or partnerships exist between harvesters and other actors in the value chain.

05 Policies and Regulations

- Policies for collection and collection areas exist.
- Harvesters have permits or licenses to collect resin.
- Policies for protecting resin trees exist.

06 Monitoring Methods

- Field monitoring is done to check forest conditions.
- There are permanent plots where the number of trees is checked annually.
- Harvested trees are checked for new cuts or holes, and condition of trees is checked once a month or every other month.
- The amount of resin in holes or cuts is checked.
- The amount of charcoal attached to the hole for liquid resin (indicates use of fire) is checked.
- Harvest records are maintained.
- Quality and quantity of resin at collection area is recorded. This will indicate if immature trees have been tapped or there has been over tapping, and destructive tapping methods used.
- Records showing who is the harvester, where, when, volume, price, quality, etc. from every collection at processing center or storage area for enterprise groups or trader is consolidated.
- Observation records about animals and birds that are dependent on resin trees for nesting, seeds/fruit or resin are maintained.

07 Climate Adaptation

- Climate-related factors (e.g. warmer temperature, stronger typhoons) affecting the health of resin trees are regularly recorded.
- Impact of irregular rainfall on the quantity of resin harvest is monitored.
- Factors that cause changes in harvesting patterns (e.g. socio-economic issues, poachers) are recorded.

Community Harvest Protocols for Resin in Palawan, Philippines

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Resin from *Agathis philippinensis*, or almaciga, is a culturally and economically important NTFP harvested by the Palaw'an indigenous community in Amas, Brooke's Point, Palawan in the Philippines. In their ancestral land, there are traditional laws which the community follows pertaining to almaciga. These include tree ownership, harvesting practices, and traditional governance system whereby a group of elders, in consultation with the community members, sets the rules and metes out fines or punishments for offenders.

The community formed an enterprise group so that they could consolidate their produce to command a higher market price, as well as secure their harvest

concession. The group manages the business, markets the product, and monitors tappers' compliance to sustainable harvest protocols, as follows:

- All harvesters must tap only the trees that belong to their family.
- A tree only becomes harvestable when a single person can no longer hug the entire trunk by himself.
- An untapped tree must first be tested before making numerous incisions. After the first incision, a harvester should wait 3–5 seconds to see if resin will come out. If no resin comes out, the tree is left alone. If resin trickles out quickly, the incision is repeated after 15 days, then again after 30 days, to determine if the tree will produce good quality resin. If the tree shows productivity, then it is tapped at maximum twice a month. A healthy tree can yield 5–10kgs of resin per tapping session.
- New incisions can only be made after three months and should not be more than three inches wide in the shape of an inverted triangle.
- To maintain the quality of resin, the harvester must remove dead or old bark from the part where resin will flow.
- Resin that splatters to the ground is not removed as it is believed this protects the tree from termites.
- Urinating and spitting near the tree are strictly prohibited.
- No fires should be set anywhere near the tapping areas.

The community monitors compliance to these protocols through two methods:

1. One is actual observation of tapped trees in the forest. This is done by volunteer members who are engaged in other forest activities, or by cluster leaders among tappers. They check to see if the surrounding area of the tree is clean, if the cuts are done properly, and if the tree is healthy. They check for presence of pine bark weevils, termites, and disease as well as wildlings emerging from mother trees. The leaves should be a healthy green; if it turns yellowish, then there could be termites attacking the roots.

2. The other method is simply by looking at the almaciga harvest per tapper. If the quality of the resin is good, this is an indication that the trees of that tapper are healthy. Almaciga is classified into class A or tipak, class B, and class C depending on size, color, and purity. Tipak is a large white lump, class B are white broken pieces not less than two inches long, and class C are small broken pieces with some impurities such as bark or soil. Dark colored resin in powder form are classified as rejects. Harvesters bringing in class C almaciga get paid a lower price, and this also indicates there could be problems with his or her harvesting methods. The consolidator of the enterprise group records the amount and class of almaciga that the harvesters bring to the sorting and storage facility, and reports any findings to the group.

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