Fuel wood efficient dryers and home processing to add value for kokum and uppage fruits in India

Farm households in the Western Ghats have found many useful applications for *G. gummi-gutta* (uppage) and *G. indica* (kokum), the fruits of which are grown in some home gardens but for the most part are still collected from the forest. The rinds of both of these lesser known species are dried and used as condiments in many local dishes and curries or as a preferred substitute for tamarind. Many people still follow their grandmothers' traditional advice and use the extract of the rinds for minor health issues. The juice of *G. indica*, better known as kokum, is often used against fevers, indigestion and problems of excess bile. Butter is extracted from the seeds of *G. indica* that is beneficial for the skin and is also used for cooking.

In the 1980s the pharmaceutical industry discovered that the rinds of *G. gummi-gutta* can be extracted for hydroxy citric acid, which is used in weight loss products. While the market for rinds has increased substantially, farmers and rural households are generally unaware of the high end price their rinds fetch. Middle men buy and sell the rinds for substantially higher prices, taking the larger share of the profit. Another major concern is that the current method of drying rinds is time-consuming, dangerous and eco-inefficient.

Since the fruits are harvested during the monsoon season, farmers must dry the rinds within three days of collection to deter fungus and mold. Large fires are built and maintained in makeshift processing units or within homes. The rinds are hung a meter above the flames that create enough heat and smoke to dry the fruits. In the process, however, family members have experienced life-long health effects from constantly standing near the fire and smoke. There have been several cases where houses have burned down when fires got out of control.

"This traditional method also has a devastating effect on the local ecosystem", explains Narasimha Hedge, who leads LIFE Trust, a local NGO focused on conservation and livelihood issues. Approximately 22 kg of fuel wood collected from the forests is needed for every 1 kg of dried rinds. It is estimated that more than 46,000 tons of valuable fuel wood is being used annually to dry the fruit rind of *Garcinia* in Uttara Kannada District of Karnataka alone. "We estimated that an average family uses 60% of its firewood for drying these rinds during the monsoon period," he explains further. The quality of the product is also poor due to uneven heating of the rinds. Many rinds are over-burnt and have to be discarded. Until quite recently, farmers have had no other alternative than the open fire method. A simple energy-efficient drier has recently been
introduced that can process and dry G. gummi-gutta and G. indica fruit rinds. Several communities have had the opportunity to buy these dryers with help from LIFE Trust at 10% of the cost. The positive ecological impacts are numerous as the driers reduce the demand for fuel wood from 22 kg to 5 kg per 1 kg of rinds. The destruction of the local ecosystem will be reduced and there will be fewer emissions. Production costs of the Garcinia rinds will be lowered while the quality will simultaneously increase. "I could directly sell my rinds for a 20% higher price compared with the rinds dried using the traditional method," says the farmer Manjunath Bhat. It will take farmers less time to collect fuel wood and to process the rinds. "We often use the drier for drying our blankets and clothes and neighbours bring their spices to dry here" explains Manjunath Bhat. Wastage in the form of unevenly dried or totally burnt rind is also avoided.

Instead of just selling the dried rinds, women's groups have been trained to make several natural high-quality products from the fruit rinds, like kokum juice, candles from the fat extracted from seed and skin care soap from the oil in the seeds. This will diversify households' income and livelihood options. The driers and home industry activities will improve the livelihoods of many landless labourers and rural poor that are dependent on the collection of Garcinia fruits and even improve their health by reducing the inhalation of smoke. Further plans for subsidizing more dryers and improving the marketing of their products are being made under the auspicious UNEP/GEF project on tropical fruit diversity. Driers are further improved by innovative designs that are more energy-efficient, user-friendly and made of easily available local materials. By increasing the profit for poor households and by teaching them about sustainable harvesting practises, the project will ensure that rural communities have more interest in maintaining their valuable forests and indigenous fruit trees.

(This short story gives a good insight into the value of local indigenous fruit species and shows how the use of these fruits can contribute to the livelihood and well-being of many rural households. The UNEP/GEF-funded project identified innovative solutions like driers and value-adding activities as 'good practices of diversity management' that can be selected for further strengthening and scaling up within the community and elsewhere.)

(Compiled by Sarah Hom, R. Vasudeva, Narasimha Hedge, Hugo Lamers, V Ramanatha and Bhuwon Sthapit)

This flyer is the output of the UNEP/GEF Tropical Fruit Tree Project, "Conservation and Sustainable Use of Cultivated and Wild Tropical Fruit Diversity: Promoting Sustainable Livelihoods, Food Security and Ecosystem Services" implemented in 46 rural communities in India, Indonesia, Malaysia and Thailand. The project is coordinated by the Bioversity International with financing from the Global Environmental Facility (GEF), and implementation support from the United Nations Environment Program (UNEP).

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