

factors that are limiting the ability for regeneration. An assessment will be made of plants, herbs and other NTFPs that may be sustainably harvested for generating alternative income for residents living in close proximity to the forests. Training on rotational grazing will be held with livestock owners to prevent soil erosion and further degradation of forests.

This two-year \$100 000 project is being funded by the Critical Ecosystem Partnership Fund.

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 AUSTRALIA

Double gain for tea tree oil industry

A nine-year breeding programme has resulted in a new “breed” of tea tree that could increase the Australian industry’s competitiveness by dramatically increasing production volumes of high-quality tea tree oil.

Tea tree oil is a significant part of Australia’s essential oil industry – it is incorporated into many personal care and household products and is also used in a variety of agriculture and veterinary applications. The Australian industry is slowly recovering from several years of decline when the prices of this oil fell below the cost of production for many producers. Recent increases in demand and higher prices have seen renewed interest in growing the tea tree. Other challenges face the industry, however, such as the threat of increasing overseas competition.

The breeding programme forms part of an industry strategy developed by Ensis scientist, Dr John Doran. He says that if Australian producers are to maintain their commercial viability, they need to give serious consideration to replanting with the best material the breeding programme can provide. “The improved seed will be able to produce plants that are capable of producing 270 kg of oil/ha from paddocks that would otherwise yield 148 kg/ha, if established with unimproved seed,” he says.

The principal source of oil is *Melaleuca alternifolia*, a medium-sized tree from the coastal plains of New South Wales. [Source: *North Queensland Register* [Australia], 10 July 2007.]

TFS sandalwood

Tropical Forestry Services (TFS) is the world’s leading sustainable and socially responsible producer and manager of Indian sandalwood (*Santalum album*) with over 1 100 ha established in Kununurra, Western Australia’s tropical Kimberley region.

Since 1999 TFS has planted, and continues to plant, the prized Indian sandalwood using seeds originally sourced from India. Expert foresters have concluded that these trees will be suitable for harvesting at age 13 to 15 years based on current rates of heartwood formation. TFS plans to become vertically integrated, consistently to supply large quantities of high-quality plantation-grown Indian sandalwood oil, cultivated and produced in an environmentally friendly and ethical way.



Sandalwood

The latest Baz Luhrmann film *Australia*, starring Nicole Kidman and Hugh Jackman, is currently being filmed on the beautiful Kingston Rest property purchased by TFS late last year. TFS believes that this uniquely beautiful property represents the future of Indian sandalwood, allowing the company to expand on its existing 1 100 ha. As part of this acquisition, TFS has committed to expanding its existing training and employment opportunities for indigenous Australians. About half of the Kimberley population is of Aboriginal descent. TFS is committed to providing employment opportunities to ensure that at least half of its Kingston Rest staff is indigenous by 2016. By working with the Kimberley community and environment we believe we can help to ensure shared long-term benefits for the community, the environment and TFS.

TFS has donated the profits from filming to the Clontarf Foundation, a programme aimed at encouraging education, good health and relationship-building among the region’s indigenous children. [Contributed by: Danae Christensen, Research Officer,

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 BANGLADESH

Hogla (*Typha elephantina* Roxb.): a potential NTFP for socio-economic upliftment in rural Bangladesh

Hogla, the local name for a bush-like small plant, *Typha elephantina* Roxb. of the family Typhaceae, looks like a grass and may attain heights of 2–5 m. The species shows an encouraging growth performance in waterlogged, swamp and even under poor soil nutrition conditions in Bangladesh. It also provides a satisfactory yield in rural areas when incorporated with other agrocrops, without hampering the main crops. The species could, therefore, be an economically viable associate crop in rural areas since it does not require extra care, fertilizers or other costs involved in the collection and planting of seeds. The plant can survive even after a heavy flood.

Dried grasses of the species are extensively used to make prayer mats, and other types of mats, baskets, ropes and various handicrafts. The residual matter (i.e. defective leaves, petiole, roots) of the plant is also extensively used as fuel and for partitioning and thatching purposes among rural farm holders. Moreover, the plant produces a huge quantity of pollen, which is used to prepare a delicious traditional food in rural areas.

A recent study of southwestern flood plain areas of Bangladesh reveals that rural women, old people and even children are involved in preparing secondary products from *hogla* leaves, while men are mainly engaged in the planting, collection, sorting and marketing of the leaves. Women usually utilize their leisure time to produce secondary products. The study also suggests that planting of *hogla* just once can secure the sustainability of planting materials on the same field for at least ten years. It was also evident that farmers can earn an additional US\$5 from a decimal part of their land just from selling *hogla* leaves.

In Bangladesh – a country with a huge population growth, shrinking income and per capita agricultural land, low agricultural productivity, acute shortage of fuel in rural areas, and where sudden floods become serious threats –

incorporating *hogla* with other profitable agricultural crops can be an advantageous solution. The massive introduction of the species in rural areas will also empower women and old people to contribute increasingly to their family income and thus to improve their living standards. The residual products obtained from the species can be used to minimize the domestic fuel shortfall in rural areas. However, the marketing system, both for primary and secondary products, needs to be improved to maximize the profit of growers and producers. (Contributed by: Sharif Ahmed Mukul, Department of Forestry and Environmental Science, School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh. E-mail: sharif_a_mukul@yahoo.com)



“Riches of the forest: fruits, remedies and handicrafts in Latin America”

Murta (*Schumannianthus dichotoma*) cottage industry in socio-economic development of rural people in the northeastern region of Bangladesh

A recent study has attempted to generate information on the status of the *Schumannianthus dichotoma* (*murta*) cottage industry and its contribution to the income and employment of rural areas in the northeastern region of Bangladesh with the aim of improving the database necessary for any socio-economic development programme. This survey was carried out at Gowainghat thana (subdistricts) in Sylhet district.

The forest-based cottage industry is one of the major sources of off-farm income for the rural population of Bangladesh. NWFPs could generate potential income for the local people and provide employment for about 229 000 of them, which would continue throughout the year, or at least during the agriculture off-season.

Murta, an important NWFP belonging to the family Marantaceae, is a clump-forming shrubby plant, dichotomously branched, with green cylindrical stems of 3.7–4.6 m in

height and a diameter of 2 cm. Local names for this NWFP differ throughout Bangladesh, e.g. *patipata* and *pai-jung* in the Chittagong region, *mostak* in Noakhali, *pat-bat* and *murta* in the Sylhet and Tangail regions and *paitrabon* in Barisal.

The species is generally grown in low-lying marshy areas of greater Sylhet, Mymensingh, Barisal, Noakhali, Chittagong and Pabna districts and covers sizeable areas in the forest of Sylhet division. It is sporadically planted along roadsides and around ponds and, formerly, fallow and unproductive paddy fields were used for its large-scale cultivation.

Murta is extensively used as a raw material in cottage industries, especially for floor mats, prayer mats and woven utensils, and is adopted by both the rich and the poor. A recent valuation study revealed that the stem (culm) harvested from 100 ha of land, worth 65 lakh taka (US\$108 300) can produce products (such as *shitalpati* prayer mats) worth 1 crore 80 lakh taka (approximately US\$300 000). Thus, it plays a significant role in generating income and providing employment opportunities, as well as improving the socio-economic status of the rural people.

A large number of local people throughout the country have adopted the *murta*-based cottage industry as either their part-time or full-time profession and have earned a substantial income. Various novelty items produced from it are very popular with both the people of Bangladesh and also abroad, where it is in great demand and earns foreign currency. But, this is all about to be ruined since more and more fallow land is now being converted for agricultural production, considerably reducing *murta* production. The productivity and sustainability of the industry are, therefore, becoming uncertain because of this shortage and artisans are consequently suffering the curse of poverty. If this process continues, production of the popular *shitalpati* prayer mat will decrease and ultimately be lost forever, making thousands of people jobless.

Our study revealed that 77 percent of the total population are directly involved in this cottage industry and that each article fetches a different price, depending on total requirements for *murta* and other materials, market demand and workdays required to produce an article. The net average profit/workday on various articles varies from Tk16 to 51, with net profit/article varying from Tk25 to 127. Entrepreneurs

manufacture articles according to seasonal requirements and local market demand.

The *murta*-based cottage industry, therefore, can improve rural livelihoods, help to generate additional employment and income, contribute to foreign currency and support biodiversity conservation. *Murta* can play a vital role in the economy and environment of the country. It is possible to develop the cottage industry to a profitable international standard through the scientific cultivation of *murta* on private and government forest lands. It is necessary to look not at the product or commodity in isolation, but at a wide range of factors that would enable it to be exploited, managed for sustainability and marketed for profit. The government and other national and international agencies should come forward to motivate and assist interested farmers through technical support and financial assistance to help the industry flourish. If managed properly, it will not only attract foreign currency but also create employment opportunities for thousands of unemployed villagers in Bangladesh. (Contributed by: Romel Ahmed, Mostafizur Rahman, A.N.M. Fakhru Islam and Mohammad Redowan, Department of Forestry, Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh. E-mail: romelahmed76@yahoo.com)



Grow bamboo, save trees

In Bhutan, bamboo is seen as a possible alternative to wood to reduce the pressure on forests. The Forestry Development Corporation Limited (FDCL) office in Phuentsholing distributed 10 000 seedlings on 2 June 2007 to government agencies and interested private individuals in Samtse and Chukha *dzongkhags* (districts) to start large-scale cultivation of bamboo. The bamboo seedlings were raised last year mainly in Samtse.

More than 866 acres (approximately 350.5 ha) of degraded land under Samtse and Chukha *dzongkhags* were identified last year for plantation of various bamboo species and other valuable tree species that were of commercial value according to the divisional manager of FDCL, Tashi Peljore. Bamboo helped to conserve soil and water in catchment areas such as Balujora in Pasakha and Dam Dum in Samtse by minimizing the downstream flow of silt.