

## Appendix 13

### Leaves for livelihoods

Deep in the Indonesian island of Sumatra, about 700 miles from the capital Jakarta, Siti carries out her daily routine of getting the children off to school and cleaning her house before she starts her main job of looking after food production for the family. She and her husband, Hadjono, have a smallholding of just over an acre from which to feed their family of 4 children ranging from 5 to 14 years of age. It is a familiar scene played out all over south-east Asia where increasing population pressure is causing landholdings to decrease with each generation and fallow periods to reduce. Pressure to produce more food on less land has meant that more intensive farming methods have to be examined and more productive crops explored.

A tree from 7000 miles away may hold the key to future food production for Siti and thousands of farmers like her throughout the tropics. Gliricidia, is a tree found wild in Central America and used by farmers there for many years. Its wood can be used for fuel or light construction purposes, its leaves for manure, and the whole tree for shading crops from the intense tropical sun. It also replenishes soil fertility by producing nitrogen from its roots, and the leaves, when dried, can even be used for rat poison! But its main value lies in the value of its leaves for animal fodder. Gliricidia produces masses of leaves that can be cut throughout the year and fed to goats and cattle. This is particularly useful during the dry season when alternative sources of fodder are difficult to find. Feeding gliricidia means that Siti's goats put on about 3kg in weight in six months above what she would expect from feeding grass alone. This means she can sell 2 more goats each year than before and earn an extra US\$80; much-needed income when school fees are increasing.

But how does a tree from Central America find its way to Sumatra? Most of the world's main agricultural crops have been transported around the globe for millenia but interest in using a range of trees in farming is much more recent. The potential for using gliricidia outside Central America was spotted by scientists working for Oxford University who were working in the region on other research projects. "In the early 1980s we saw farmers were using it for a range of products – a real multipurpose tree - so we thought why not see if people in other developing countries could find it useful?" says Janet Stewart, Senior Researcher at the Oxford Forestry Institute of Oxford University. The Department for International Development (DFID) has since supported a detailed research programme looking at the different varieties of gliricidia in their natural environment and collected seed from over 28 populations. This seed was sent for testing by researchers to over 55 countries throughout the developing world in order to find the best variety. Meticulous examination of the experiments revealed that one variety, from a region of Guatemala called Retalhuleu, grew faster than any other so plans were set in motion to produce as much seed as possible of this valuable tree. Large seed orchards were established in Asia and Africa but it was often still difficult for farmers like Siti to get hold of seed from them. "We needed seed in our own village" she explained " so we set up our own orchard". Twelve months later she, and her friends in the village women's farming cooperative have all of the seed that they need to plant their own trees of the variety from Retalhuleu.

This approach has been repeated in India, Cambodia, Laos, Vietnam, the Philippines, Malawi, Zambia where in the past three years over 40kgs of seed has been sent from Oxford University to produce over 150 000 trees in seed orchards. This should provide an annual harvest of around 300 000kg of seed which could add US\$ 360 000 000 to farmers incomes throughout the tropics through seed sales and increased growth rate in cattle and goats.

Introduction of gliricidia to Siti's farm has provided her with an ability to feed her goats and hence her family. The tree has travelled a long way to her farm but Siti will make sure it stays!