EDITORIAL

A Call for a Tree Revolution

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Once upon a time, all farms were small-scale and farmers around the world depended on a wide variety of crops, tree products and animals for their livelihoods. This century, all that changed dramatically. In the rush to modernize agriculture, farms grew bigger, staple crops changed and many trees on or around farms came down. Monoculture — and a dependence on purchased farm inputs — became the order of the day. This may have worked for farmers who could afford to mechanize and purchase farm inputs on medium- to large-scale farms, where land was reasonably fertile and flat. Unfortunately, these modern agricultural methods seem to have done little to improve the plight of the millions of farmers in the tropics whose farms are small or in areas with unfavourable soil fertility, topography or rains. On top of it all, subsistence farmers are being hit hard by the removal of subsidies on agricultural inputs, usually a result of structural adjustment programmes.

In his 1973 book, One hundred countries, two billion people, Robert McNamara, then President of the World Bank, wrote: «The miracle of the Green Revolution may have arrived, but, for the most part, the poor farmer has not been able to participate in it. He cannot afford to pay for the irrigation, the pesticide, the fertilizer, or perhaps for the land itself, on which his title may be vulnerable and his tenancy uncertain.» It was a few years after this that the international development establishment decided that there was a need for a new approach to land use and a system of land management that would be applicable to both farm and forest — «agroforestry» was born.

In fact, agroforestry was a new name for an old game — farmers have used trees on their farms for as long as there have been farmers. Trees provided them with products they used at home, bartered or sold in markets — fruit, fodder, fuelwood, timber, medicines, resins, nuts, oils, cosmetics. Trees also protected soils and watersheds and recycled nutrients on the farm.

Of course, farmers didn't use phrases like «recycle nutrients», or publish their wisdom in peer-reviewed journals or official reports. Farmers just grew crops and managed trees for the welfare of their own families. Any mistakes they made could cost their family its well-being — or survival. Diversity was their best protection against crop failure, and it is this diversity that agroforestry recognizes and promotes.

But has this recognition come too late ? Are increasing population pressure and the rates of deforestation and land degradation going to outstrip technological advances made by agroforestry researchers and their partners in development and extension ? The answer will depend a lot on the approach that researchers take; the push now must be on policy at all levels — local, national and international — as much as it is on technology.

In its first decade, agroforestry research concentrated — too much perhaps — on a single technology developed on research stations. That technology was alley cropping, or farming alleys of crops between rows of trees. Alas, on-farm results didn't match the promising results that researchers had obtained on carefully managed research plots and the adoption rate has been low. This was an important lesson, one that has led researchers out onto farms throughout the tropics to learn more from indigenous peoples about indigenous trees and intricate agroforestry systems. It has also increased awareness among researchers that if their work is have impact on farmers, the technology must be developed together with farmers and must solve short-term problems.

A good example of how well such an approach works is in eastern Zambia, where hundreds of subsistence farmers are now experimenting themselves with a technology developed with and for them at the agroforestry research station in Chipata. The technology, short-rotation fallows with sesbania trees, can greatly increase maize yields after only two years. Improved fallows appeal to the farmers because they are a modification on traditional grass fallows and because the tree fallows ease their most immediate problems of poor soil fertility and lack of fuelwood.

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Another promising area for researchers is the domestication of tropical trees from the forests, trees that farmers know and use every day in the wild, but do not plant on their farms. Researchers are now working with these «Cinderella tress», to realize their full potential, improve their productivity and preserve invaluable genetic material. Once again, however, the research must begin with farmers, who tell researchers which trees they value most and how they would like them improved.

In other areas, agroforestry researchers are not limiting their work to improving on indigenous farming systems but are actually getting involved in the policy research needed to preserve them. The damar agroforests on the Indonesian island of Sumatra are a case in point. These agroforests have been planted over the past century by farming families, in one of the most intricate and complex farming systems on the planet. After indigenous forests are cleared, upland rice is planted for a year, followed by coffee, pepper and a whole range of trees. After about a decade, the trees mature and take over as forest gardens that produce fruits, nuts, medicines, vegetables, timber and the valuable damar resin, which is sold on international markets as an ingredient in glues and solvents.

These agroforests resemble natural forests in their biodiversity — containing 39 species of trees, 92 bird species and 46 mammal species, including the endangered black-handed gibbon. The role of the researchers has been to use their studies of these agroforests in negotiations with policy-makers and officials whose views of farming and forestry did not include agroforestry and who simply did not know how to classify these forest gardens. At the same time as they work to protect the agroforests, researchers are investigating ways to improve them or to modify them for application elsewhere in the tropics.

As McNamara wrote more than twenty years ago, the Green Revolution has not had the desired impact on smallholders in the tropics. Agroforestry and a «tree revolution» on farms have the potential to remedy that, as long as farmers are consulted and involved in the process — from beginning to end.

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