Restoration: the challenge for 21st century foresters

50% of the world's forests have been lost. A further 14 million ha are cleared each year. The World Bank reports that 1.8 billion very poor people in developing countries depend for a significant part of their livelihoods upon forests. Deforestation exacerbates floods and landslides in eastern Asia and Latin America and thousands of people are killed or have their land and homes destroyed. And forest destruction contributes to the flux of greenhouse gases and therefore to climate change. In Central Asia, South East Asia and Central America violent conflicts have occurred in areas where forests are degrading. The loss and degradation of forest resources is a global catastrophe and it is the poor who suffer most from this process.

Reactions of the global community

The global community is reacting to the challenge. The United Nations Forum on Forests and the Convention on Biological Diversity have forest restoration on their agendas for the coming years. Restoration of vegetation in dry areas is a fundamental aim of the Convention to Combat Desertification. The climate change mitigation measures agreed under the Kyoto Protocol may lead to huge investments in carbon forestry. In addition many countries are making major investments in forest restoration. China plans to reforest vast areas in the upper reaches of the Yangtse River. Vietnam has ambitious plans to reforest 5 million ha of degraded land. Colombia, Indonesia and the Philippines plan major reforestation programs. But what does all this mean for the forestry professions?

In the early decades of the 21st century, billions of dollars will be available for the restoration of degraded lands. If this money is badly spent we could end up with millions of hectares of exotic monoculture plantations, susceptible to pests, diseases and fire and contributing little either to the livelihoods of the poor or the environment of the less poor. If the money is well spent we could have greatly increased areas of forest yielding a range of products and services for local people, protecting watersheds and making major contributions to the conservation of biological diversity and to the mitigation of climate change.

Multi-functional forests

The challenge for 21st century foresters is to bring their professional skills to bear on the complex problem of restoring multi-functional forests to the world's degraded lands. This will require far more than the traditional skills of plantation sylviculture. It will mean that foresters will need to be skilled negotiators in order to reconcile the differing objectives of different interest groups. They will need to seek a balance between meeting the fibre needs of industry and meeting the non-timber product needs of poor people. Meeting needs for fuelwood in dry areas whilst not depleting the soil water needed for annual crops. Sequestering carbon quickly and efficiently whilst also providing habitats for endangered biological diversity. The challenge goes far beyond that of the multiple-use forestry taught in our forestry schools. A world with 8 billion people all seeking to improve their incomes will need specialised high performance forestry. You cannot meet all the world's forest needs using conventional approaches to natural forest sylviculture. Meeting all of the diverse needs that future societies will have for forest goods and services will require that we mobilise all of the tools of modern science to improve the performance of each area of forest. Forestry in the future will need to produce optimal solutions for every site: we can no longer use the same species and the same sylviculture across multiple climatic zones to meet the differing needs of multiple interest groups. Foresters of the future will need to work with other users of the land to produce efficient mosaics of different forest and non-forest uses. We will need «precision» forestry based upon accurate information on the growth potential of the site and the priority needs of the people most concerned.

Nature reserves of old-growth forest will have to be located to capture maximum biological diversity and then managed intensively to maintain the species of plants and animals indigenous to the site. But these areas will need to be located in a matrix of other types of forest where productive management is the prime objective but special measures are taken to allow indigenous species to extend their ranges or migrate to other reserves. In yet other areas, fibre production will be the primary management objective and all the tools of modern biotechnology and intensive sylviculture will need to be mobilised to increase and sustain yields.

The right tree cover in appropriate locations

One of the most difficult challenges will be to build these mosaic landscapes so that the whole is greater than the sum of the parts. This will require a mixture of conventional land use planning based on the potential of each site and a complex process of negotiation and trade-offs between all the people with an interest in the area. Some of these trade-offs will be between local people with conflicting requirements. But other, more difficult trade-offs will be between local people with short-term concerns focusing on jobs and products and distant people with a concern for the global environment. Markets should help to make such negotiations easier. But markets do not yet exist for the environmental and aesthetic values of forests and they are very imperfect for many of the subsistence products that are vital for the livelihoods of the poor.

Payments for the environmental services of forests are now common in the developed world. The experiments with payment systems for carbon and biological diversity in the developing world need to be expanded. Such payments will be essential if the global values of forests are to be maintained. But payments alone will not solve these problems. Skilled foresters will be needed who are able to expand the range of forest options at any site. They will have to manage forests adaptively to meet changing circumstances. And they will need to work across the landscape to ensure that there is an optimal distribution and extent of the different types of forest that will be needed to meet all the diverse needs of societies.

So the challenge of restoration is not just to cover the land with trees. The challenge is to restore the right sort of tree cover in appropriate locations so that the landscape as a whole produces an optimal mix of environmental services and local jobs and products. More international negotiations, workshops and declarations alone will not meet this challenge. We need practical foresters on the ground equipped with the broad range of social, sylvicultural and business skills that are necessary to get the right solutions for every location.

Jeffrey Sayer
Chargé de mission Cirad-forêt
Campus international de Baillarguet
TA/10 B
34398 Montpellier Cedex 5
France

Senior Associate, Forests for Life
WWF Avenue du Mont Blanc
1196 Gland
Switzerland