

## CHAPTER 2

### Definition and concepts of agroforestry

#### *Community forestry, farm forestry, and social forestry*

It is clear from the previous chapter that agroforestry is a new name for a set of old practices. The word and concept attained a fair level of acceptability in international land-use parlance in a rather short time, but not without some difficulty. In the beginning, undoubtedly, a lot of ambiguity and confusion existed regarding the question "what is agroforestry?" Even the people who were supposedly experienced and knowledgeable about agroforestry in the late 1970s and early 1980s were unable to clearly define agroforestry. Perhaps as a manifestation of this lack of precision, most of the writings on agroforestry during this period contained at least one definition, and often some imaginative and fascinating interpretations, of agroforestry. The situation was reviewed in an editorial, appropriately titled, "What is Agroforestry," in the inaugural issue of *Agroforestry Systems* (Vol. 1, No. 1, pp. 7-12; 1982), which contains a selection of "definitions" of agroforestry, proposed by various authors.

In summarizing these definitions, Bjorn Lundgren of ICRAF stated that:

There is a frequent mixing up of definitions, aims and potentials of agroforestry. It is, for example, rather presumptuous to define agroforestry as a successful form of land use which achieves increased production and ecological stability. We may indeed aim for these, and in many ecological and socioeconomic settings agroforestry approaches have a higher potential to achieve these than most other approaches to land use. But, with the wrong choice of species combinations, management practices, and lack of peoples' motivation and understanding, agroforestry may indeed fail just like any other form of land use may fail, and it will still be agroforestry in the objective sense of the word.

A strictly scientific definition of agroforestry should stress two characteristics common to all forms of agroforestry and separate them from the other forms of land use, namely:

- the deliberate growing of woody perennials on the same unit of land as agricultural crops and/or animals, either in some form of spatial mixture or sequence;

## 14 *Introduction*

- there must be a significant interaction (positive and/or negative) between the woody and nonwoody components of the system, either ecological and/or economical.

When promoting agroforestry one should then stress the potential of it to achieve certain aims, not only by making theoretical and qualitative remarks about the benefits of trees, but also, and more importantly, by providing quantitative information (Lundgren, 1982).

These ideas were later refined through "in-house" discussions at ICRAF, and the following definition of agroforestry was suggested:

Agroforestry is a collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence. In agroforestry systems there are both ecological and economical interactions between the different components (Lundgren and Raintree, 1982).

This definition implies that:

- agroforestry normally involves two or more species of plants (or plants and animals), at least one of which is a woody perennial;
- an agroforestry system always has two or more outputs;
- the cycle of an agroforestry system is always more than one year; and
- even the simplest agroforestry system is more complex, ecologically (structurally and functionally) and economically, than a monocropping system.

This definition, though not "perfect" in all respects, was increasingly used in ICRAF publications and thus achieved wide acceptability.

In the meantime, the surge of enthusiasm for defining agroforestry has subsided. The concepts, principles, and limitations of agroforestry have been articulated in several publications from ICRAF and other organizations. Thus, agroforestry is no longer a "new" term. It is widely accepted as an approach to land use involving a deliberate mixture of trees with crops and/or animals. However, the question of "what is agroforestry" comes up occasionally even today (early 1990s) in many discussions and some publications (e.g., Somarriba, 1992). But the discussants eventually realize that the discussion, after all, has not been worth their while; they reconcile themselves to the fact that even the long-established land-use disciplines such as agriculture and forestry do not have completely satisfactory definitions, and more importantly, that a universally acceptable definition has not been a prerequisite for the development of those disciplines.

Today there is a consensus of opinion that agroforestry is practiced for a variety of objectives. It represents, as depicted in Figure 2.1, an interface between agriculture and forestry and encompasses mixed land-use practices. These practices have been developed primarily in response to the special needs and conditions of tropical developing countries that have not been satisfactorily

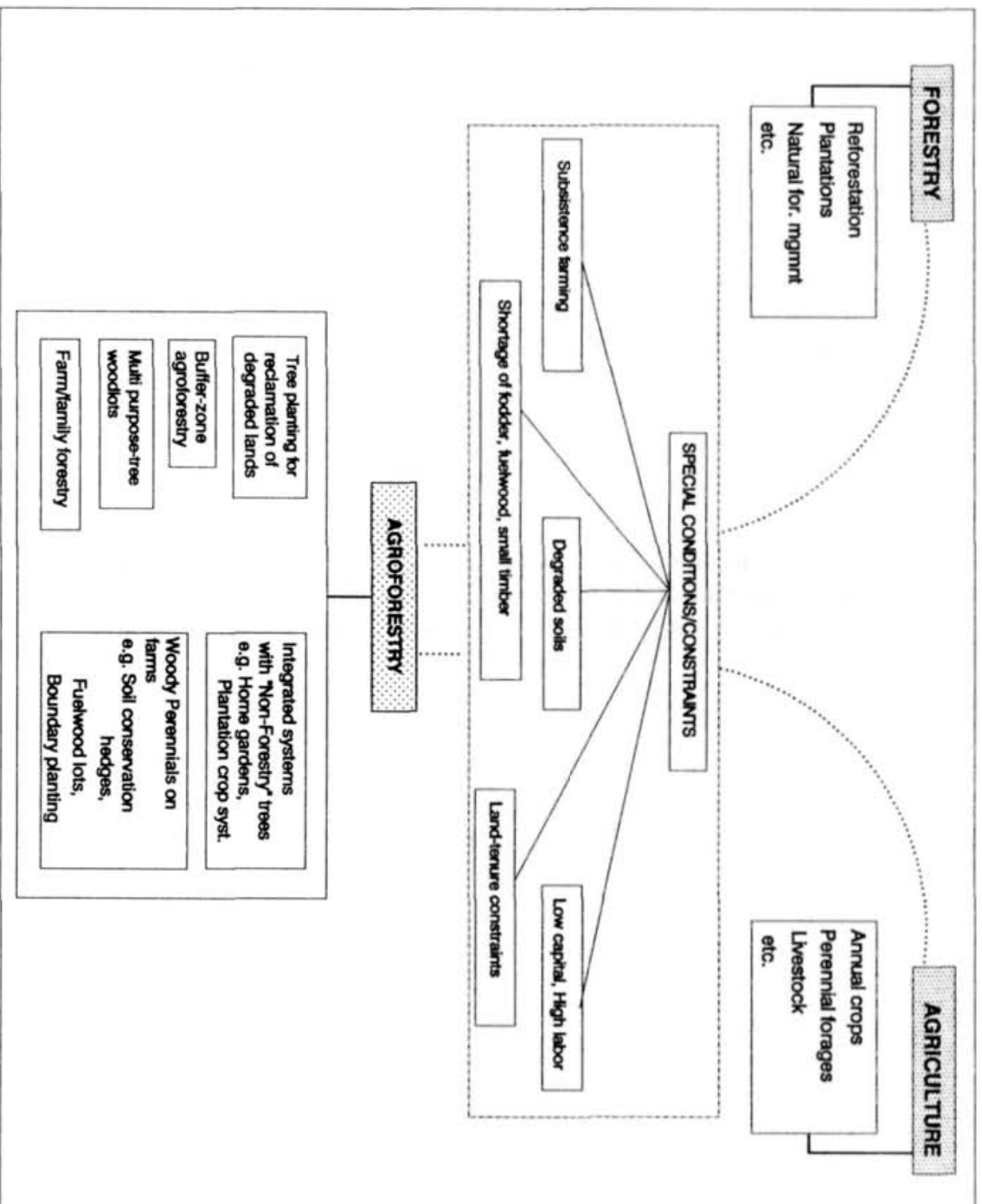


Figure 2.1. Agroforestry has developed as an interface between agriculture and forestry in response to the special needs and conditions of tropical developing countries.

addressed by advances in conventional agriculture or forestry. The term is used to denote practices ranging from simple forms of shifting cultivation to complex hedgerow intercropping systems; systems including varying densities of tree stands ranging from widely-scattered *Faidherbia (Acacia) albida* trees in Sahelian millet fields, to the high-density multistoried homegardens of the humid tropics; and systems in which trees play a predominantly service role (e.g., windbreaks) to those in which they provide the main commercial product (e.g., intercropping with plantation crops). Detailed descriptions of a variety of such systems in the tropics are now available (e.g., Nair, 1989). It needs to be reemphasized that one concept is common to all these diverse agroforestry systems: the purposeful growing or deliberate retention of trees with crops and/or animals in interacting combinations for multiple products or benefits from the same management unit. This is the essence of agroforestry.

Additionally, there are three attributes which, theoretically, all agroforestry systems possess. These are:

1. *Productivity*: Most, if not all, agroforestry systems aim to maintain or increase production (of preferred commodities) as well as productivity (of the land). Agroforestry can improve productivity in many different ways. These include: increased output of tree products, improved yields of associated crops, reduction of cropping system inputs, and increased labor efficiency.
2. *Sustainability*: By conserving the production potential of the resource base, mainly through the beneficial effects of woody perennials on soils (see Section IV of this book), agroforestry can achieve and indefinitely maintain conservation and fertility goals.
3. *Adoptability*: The word "adopt" here means "accept," and it may be distinguished from another commonly-used word adapt, which implies "modify" or "change." The fact that agroforestry is a relatively new word for an old set of practices means that, in some cases, agroforestry has already been accepted by the farming community. However, the implication here is that improved or new agroforestry technologies that are introduced into new areas should also conform to local farming practices.

These attributes are so characteristic of all agroforestry systems that they form the basis for evaluation of various agroforestry systems as discussed in Chapter 24.

### **Community forestry, farm forestry, and social forestry**

The escalating worldwide interest in tree planting activities during the past two decades (1970-1989) resulted in the emergence and popularization of several other terms with "forestry" endings. Notable among these are *Community Forestry, Farm Forestry, and Social Forestry*. Although these terms have not been defined precisely, it is generally accepted that they emphasize the self-help aspect - people's participation - in tree planting activities, not necessarily in

association with agricultural crops and/or animals as in agroforestry, but with social objectives ranking equally in importance with production objectives. Thus, social forestry is considered to be the practice of using trees and/or tree planting specifically to pursue social objectives, usually betterment of the poor, through delivery of the benefits (of trees and/or tree planting) to the local people; it is sometimes described as "tree growing by the people, for the people." Community forestry, a form of social forestry, refers to tree planting activities undertaken by a community on communal lands, or the so-called common lands; it is based on the local people's direct participation in the process, either by growing trees themselves, or by processing the tree products locally. Though claimed to be suited for areas with abundant common lands, the success of community forestry has been hampered by the "tragedy of the commons."<sup>1</sup> Farm forestry, a term commonly used mainly in Asia, indicates tree planting on farms.

The major distinction between agroforestry and these other terms seems to be that agroforestry emphasizes the interactive association between woody perennials (trees and shrubs) and agricultural crops and/or animals for multiple products and services; the other terms refer to tree planting, often as woodlots. As several authors have pointed out (e.g., Dove, 1992; Laarman and Sedjo, 1992), all these labels directly or indirectly refer to growing and using trees to provide food, fuel, medicines, fodder, building materials, and cash income. Only blurred lines, if any, separate them and they all encompass agroforestry concepts and technologies. No matter what the experts may say, these terms are often used synonymously, and sometimes even out of context, in land-use parlance.

## **References**

- Dove, M. R. 1992. Foresters' beliefs about farmers: a priority for social science research in social forestry. *Agroforestry Systems* 17: 13-41.
- Laarman, J. G. and Sedjo, R. A. 1992. *Global Forests: Issues for Six Billion People*. McGraw-Hill, New York, USA.
- Lundgren, B.O. 1982. Cited in Editorial: What is Agroforestry? *Agroforestry Systems* 1: 7-12.
- Lundgren, B.O. and Raintree, J.B. 1982. Sustained agroforestry. In: Nestel, B. (ed.). *Agricultural Research for Development: Potentials and Challenges in Asia*, pp. 37-49. ISNAR, The Hague, The Netherlands.
- Nair, P.K.R. (ed.). 1989. *Agroforestry Systems in the Tropics*. Kluwer, Dordrecht, The Netherlands.
- Somarriba, E. 1992. Revisiting the past: an essay on agroforestry definition. *Agroforestry Systems* 19:233-240.

<sup>1</sup> The "tragedy of the commons" assumes that land held in common will be exploited by all, and maintained by no one! (Hardin, G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.)