Report

Research must help implement the concept of multipurpose forest management

Author(s):
Sorg, Jean-Pierre

Publication Date:
2002

Permanent Link:
https://doi.org/10.3929/ethz-a-004418415

Rights / License:
In Copyright - Non-Commercial Use Permitted
Research must help implement the concept of multipurpose forest management

by Jean-Pierre Sorg, Dr. sc. nat.
Swiss Federal Institute of Technology, Zurich

Introduction / Abstract
Keywords: research, forest management, multifunctionality, man-forest interface, sustainability

Today, it is generally acknowledged that the multifunctional management of forests is one of the principal challenges to modern forestry throughout the world. One can easily state that the concept of multipurpose management is on the way to be established where policy leaders and decision-makers are concerned. It is also known that in most Southern and Eastern countries, populations living in forests or relying partially on forest resources to cover their needs intact often practise multipurpose use. This is the case in Kyrgyzstan.

Between the two poles of policy leaders and decision-makers on the one hand, populations on the other hand, there is the forest service, commonly called ‘forest practice’. In this context, it is important to point out that the different levels of forest administration often experience many difficulties in implementing the concept of multipurpose management with regard to the resources of forests and trees. Various reasons can be asserted as explanations, among others education, laws and regulations, and without any doubt the weight of administrative tradition, strongly linked with timber production.

Research is less connected to law texts and traditions than forest practice. Forest research has the opportunity to bring up the relevant issues of the moment and the expected ones with a certain freedom of action. So for example regarding the multipurpose management issue.

By the mean of some examples, this presentation is aimed to show how and to what extent research programmes contribute to spread the notion of multipurpose forestry in forest administrations’ practices. The focus lies less on the research programme content than on the process of change that it promotes. Finally, some proposals will be given regarding the research needs in Kyrgyzstan’s forests.
Research showing new ways and means

Research, in accordance with its role, is opening new paths in the industrialised countries as well as in Africa, Asia and South America. In Europe, natural forests (see MEYER 1997, KORPEL 1995), but also near-to-nature silviculture (SCHERZINGER 1996) regain in interest. In France for example, this interest lies in the restoration of degraded natural environments, while postulating from the very beginning that technical, ecological, socio-economic and cultural aspects take on the same emphasis (VALLAURI and CHAUVIN 1997). The issue of biodiversity indicators is becoming more and more important, at times on the basis of known methods (PIERRAT 1995), more often thanks new approaches of a more holistic nature (STORK et al. 1997). More generally, criteria and indicators of sustainability are subject to great attention (MOSSELER and BOWERS 1998), the emphasis being often put on the practical applications (LAMMERT VAN BUEREN and DUIVENVOORDEN 1996).

In Europe, scientists often let each other know about their new orientations quite cleverly, such as French forestry research in its attractive publication presenting sustainable, that is multifunctional, forest management (INRA 1996). In this brochure, the wood production is kept close to the biological diversity, the mineral nutrition of the trees is bordering to the forest industry and its application, the whole supplying a multiform palette of forest research in this country. Such a renewal - other examples could easily be added - corresponds to a great effort of re-establishment and adaptation, in which new research on interactions between forests and greenhouse gases or between man and biodiversity give their voice to the prolongation of topics inherited by a long tradition, such as classical silviculture or forest production.

In Switzerland, despite a long forest tradition based on sustainability (of wood production particularly), the concept of multifunctional forest management has only been progressively established for the last decade. This development constitutes the visible result of a triple impulsion: The intention of the Swiss federal forest authorities based on a new legislation, the interest of university environments for research concerning the interface between populations and forests, and lastly the sustained pressure put by the nature protection organizations. The action of the Swiss federal forest authorities has just known a provisional result by the mean of an opinion poll on the expectations of the population with regard to the forest (BUWAL 1999). This opinion poll was carried out by the Institute of Sociology of the University of Berne together with the Chair of Forest Politics and Economics of ETH Zurich. The results are presently under assessment and will lead to a revision of forest policy, to a better information for the public opinion regarding forest issues and to the definition of conflict potentials (SUTER THALMANN
2000). Forest management should belong to the principal beneficiaries of this broad opinion poll. In Switzerland, only for the last decade, forest planning has entered a dynamic phase of renovation under the influence of university research (BACHMANN et al. 1996; BACHMANN 1999). Besides numerous technical and practical aspects, the notion of population’s participation in the planning process has been developed conforming to the new forest legislation. New participants will be interested in forestry, fact that can be considered as an important innovation or even as a small revolution! The nature-protecting organizations, traditionally campaigning for multipurpose forest management, intervened and still do intervene in the discussion with all their influence, which is important in industrialised societies. Based on their own research work (such as BROGGI and WILLI 1993), they have regularly presented their points of view and their expectations with regard to forest management (PRO NATURA / ASPO 1997). The organizations actively propose using the new possibilities for participation in order to make their ideas valuable, particularly in the fields of silviculture, forest roads, protected areas and the ecological certification (SORG 1998).

In the tropical zones, that is in regions of generally high-level biodiversity and where trees and forests usually play an essential role in populations’ life, the management of space and resources on the basis of pluridisciplinarity and multifunctionality is at present one of the research focus.

As far as forest resources are concerned, the research results are often presented in a regional and holistic frame which reveals the care to present a coherent approach for protection and use of the resources. Island regions, where biodiversity is generally fragile, constitute a good example. One can illustrate this fact with the case of Porto Rico (LUGO and LOWE 1995) and with the occidental dry regions of Madagascar (GANZHORN and SORG 1996). The evolution that can be observed in Madagascar is interesting. In this country, applied research & education have gained a great deal while taking into consideration the three following points (VARIOUS AUTHORS 1995; SORG 1996; BUTTOUD and SAMYN 1999):

- a more comprehensive approach towards forests and trees with regard to the whole natural resources;
- the socioeconomic reality of the interface with the populations;
- participative approaches and partnerships.
This has occurred to such an extent today that it becomes more and more common to speak about participative management of forests in this country (RANDRIANASOLO 2000).

In dry western Africa, the situation is somewhat different, especially with regard to forest resources. Most of various types of savannahs and agroforestry systems are under great and increasing pressure of cattle herds. As an example, Mali whose forest service is rather repressive by tradition, is a country confronted with the needs and the requirements of the periforest populations. A paradoxical situation in which the forest administration envisages resource management in a linear way basing principally on wood production rather than on the needs of the population - and their management practice - which are remarkably multifunctional. Important research work were carried out in this context. Indeed in and around the state-owned forest of Farako in the region of Sikasso, Mali, a large-scale study focused on finding a compromise allowing the existential needs of the population to be met and at the same time conserving the forest resources in the long term brought interesting results (SCHNEIDER 1996).

The first step in this research was to sketch out the rural socio-economic context and to determine the needs for natural resources for autoconsumption and commercial use as well as the demand for non-material forest services. One of the result was that in a list of 13 forest uses made by the population living nearby, the wood exploitation is ranked far behind hunt, agriculture, pasture, apiculture and harvest of medicinal plants in the order of importance. Simultaneously, the ecological context of the forest and the resources available were evaluated by means of inventories with regard to quality and quantity. According to an in-depth comparison between demand and potential, there is a differentiated view of the forest suitability to meet the needs of the people living nearby. Propositions for multipurpose management of the forest were drawn up as follows (SCHNEIDER and SORG 2000):

1. Detailed research is necessary in order to strengthen decisions based on ecological, sociological and economic coherence within a context of constant change.

2. The integration of the population in the planning is not optional but necessary and is justified for logical, practical, technical, historical and political reasons.

3. The ties between the population and the natural resources are multiple and solid. They are directly related to the satisfaction of fundamental needs and indirectly to the generated money.

4. Forestry planning and rural development are concomitant. The needs and concerns of the villagers go beyond the limits of the forests. Forestry planning is not a goal in itself but a
way of reaching certain objectives that enable a sustainable management of natural forest resources within the framework of rural development.

5. Participative planning that is close to the needs of the population as well as to the ecological reality must be understood as a continuous process.

6. Planning must differentiate between private levels of exploitation (individuals, interest groups) and collective levels of property (national, communal). The usufruct corresponds to the renewable part of natural resources.

7. The balance between the objectives of autoconsumption, commercial and non-commercial interests is complex. But it constitutes the basis of a compromise between the needs of the population and the need for conservation. So-called ‘secondary’ activities as well as traditional rights have a decisive role to play.

**In practice the implementation of the multifunctionality concept only progresses slowly**

The approach becomes more global, the field of forestry action enlarges. The management principles, which are known to be very dependent on forest politics, are changing in the whole world. Forest legislation is modernised, the organization of forestry is subject to revision which are sometimes on a major scale. It is observed, for example, that in two domains as different at first sight as the global climatic changes on the one hand and the preservation of biodiversity on the other hand, the tree and the forest figure at the first level. However, the latter must be considered as a resource among others, whose global management orientations tend to escape out of forestry. The reasons for this movement of transformation of forestry are various and express situations sometimes specific to one or the other country, or to other regions of the world. It can be stated, in a general way, that this renewal goes with the wave of democratization, of law or fact, characterizing the present human society, without excepting forestry. The changes in forestry often have social or political roots. They are reflecting the important role that forest and tree resources play for the populations (FAO 1995).

The preceding examples show that research plays a pioneering role in this movement. Research has shown that the notions of multifunctionality, biodiversity and sustainability are closely connected. The maintenance or restoration of high-level biodiversity in the ecosystems, species and genetic potential are considered today as strategic choices contributing to the satisfaction of a large palette of the populations’ needs. In particular the works of the Centre for
International Forestry Research (CIFOR) show that a high level biodiversity represents a condition of forest multifunctionality and, therefore, of sustainability on an ecological, economic and social levels (STORK et al. 1997).

The medal, of course, has its revers side. In deed the favourable reception which is given to the multifunctional and sustainable forest management aim, as far as the level of declarations of intentions is concerned, hides problems of acceptance at a practical level. In Switzerland, for example, it was seen that the participation of the population in forest management represents an essential aspect of multifunctional approach at a practical level. For the moment, it can be stated that the first experiences of participation are moderate, even deceptive. In general, with regard to new demands, the foresters often react excessively prudently. The implementation of forest certification, largely accepted on the political level in Switzerland, has triggered off passionate discussions. The reserves of the professional organisations are well known (HOFER 1997), despite the lately concluded agreements.

In Mali and in Madagascar as well as in other African countries, the farmers who are interested in the wood, in non-timber forest products and in the forest soil as reserve of cultivable soil, often have to fight against the indifference of the forest service. Such a situation of major injustice leads the farmers and the small wood traders to overexploite the forest resources and even to revolt against the forest service, such as what happened in Mali in 1991/1992. In this latter country, the integration of the forest administration within a large service responsible for renewable natural resources runs up against strong and organised oppositions (METRAUX 1998). A very similar situation is present in Bhutan, an Himalayan country with a small and unevenly distributed population and which owns a remarkable biodiversity and an important forest covering (60%). In this country, the forest service is reluctant to any establishment of the multifunctionality concept dedicated to rural population. Therefore, necessary changes have been got by the means of the reunification of the administration of agriculture, animal husbandry, forestry and horticulture in one department of renewable natural resources (PRADHAN et al. 1996). The competence of this department covers the administration, the education on a technical level as well as the research. It leaves the impression that forestry was reluctantly included into an organization which were new for it, but not necessarily for the other administrations concerned.

In Burkina Faso, it is to be feared that the pressure of animal husbandry implies irreversible degradation and even a disappearance of certain forest massifs (BOLY 1997) whereas forms of multifunctional management could be established (SORG and TIENDREBEOGO 1997).
In the field of tropical forestry, natural forest management on a multifunctional and participative basis which is compatible with the conservation of biodiversity, generally encounters great difficulties. In order to take this fact into consideration, research is more and more turning towards alternatives such as a better use of secondary forests, the reforestation of degraded soils, the improved utilization of non-timber forest products and even an increased support to the establishment of protected areas (BAWA and SEIDLER 1998).

**It is necessary to accelerate the movement!**

The conclusion of this analysis makes apparent that as far as multifunctionality is concerned, the way from the theory to the practical application remains a long one. Modern forest policies and legislations integrate the notions of sustainability, biodiversity, participation and multifunctionality of management. Too attached to traditions, to forest property and to timber production, and too quickly hidden behind competence, the practice follows rather slowly and with reluctance. In reality, should forestry not be democratized, so that multifunctional management can become reality?

Democratizing forestry implies openings, and deficits to overcome in particular in the following ways:

- seeing further than timber sales in order to envisage the whole of society’s needs and to establish real partnerships among the concerned actors;
- seeing further than the edge in order to consider the forest as a natural resource interconnected to other ones and forming landuse units to be managed;
- getting more and more interested in the role of the tree out of the forest context and instead of a sectorial approach thinking about a global one which would include environment and mankind.

The concept of multifunctional management in his modern meaning, is certainly evolutionary, in Kyrgyzstan such as anywhere else in the world. Although many basic concepts are given, the practical application is in its infancy. In a recent contribution concerning the management of walnut forests in Kyrgyzstan (MÜLLER and SORG 2000), the authors estimate in conclusion that the multifunctional approach can improve the practice of forest management according to the following axes:
• short term regulations of forest management have to fit into a long-term vision of sustainability;

• besides the production of valuable wood and the function of protection, management has to envisage fuel wood, non-timber forest products, agroforestry as well as the biodiversity;

• besides the owner, in this case the State, the local population being the first beneficiary of forest products, has to be involved within the management since it takes up on itself the main profit; moreover, in a multifunctionally orientated system, the scientific community and the organisations of environmental protection should be considered as actors responsible for the management of such important forests.

Research in Kyrgyzstan’s forests

New research approaches should be implemented as for the Walnut and the Juniper forests of Kyrgyzstan. And sometimes, a new vocabulary should be used. For instance, since multifunctionality lies, at a great extent, on so-called by-products like nuts, fruits, firewood, haymaking, grazing, which meet the needs of the population, one should consider these by-products as important products of the forests, like timber, and the word by-products should disappear.

Coming back to the Juniper forests, we think that the main research questions can be stated as follows:

Landuse planning

- Who are the actors and what are the needs of the population regarding the renewable natural resources? Are old property rights or customer rights already used?

- What are the key roles of the forests in a regional frame, regarding ecology, economy as well as social items?

- What roles could the forest play in the frame of a regional landuse planning, and what is the production potential of the forest looking at the different categories of products?

The needs of the population as well as the production potential of the forest should be precisely qualified and as far as possible, quantified. Potential and needs regarding fuelwood, hay and grazing, berries, medicinal herbs should be considered very carefully.
**Forest planning and silviculture**

- Considering the most important forest products and services, where does the major conflict potentials lie? How can the different production and services be optimized? More concretely:
  - How and where to meet the need for hay and pasture land at a regional (for instance catchment) level?
  - How and where to meet the need for fuelwood, berries, medicinal herbs?
  - How to manage the forest in a sustainable way?
  - How to obtain regeneration or promote restauration of degraded forests? Is it really necessary to plant and where? If yes, which species and methods should be used?

**Monitoring**

- Which criteria and indicators are suitable in order to ensure the necessary monitoring of the implementation of the planned activities? For example using criteria like forest density, biodiversity, number of cattle, etc…

** ***

In order to be successful, this kind of research should be implemented within a strong commitment of science, forest service and population.

It is obvious that this research should be an applied one, and that it should be implemented in a transdisciplinary way. Furthermore, research should give much importance to former experiences as well as to research results from abroad.

Until foresters have been ready to shift their approach from forestry to agroforestry, it’s to be feared that this management proposals remain on-sided. Less forestry, but more agroforestry means:

- that the planning remains the matter of the forest service; the population, as well as other interested decision makers and actors, for instance in the field of nature protection must be involved in the planning;

- the management and use of the resources are the matter of the peasants, monitoring and controlling being with the forest service.
Bibliographie


