

## Multipurpose Forest Ecosystem Management in a Changing Environment

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Over the past few decades the societal expectations from forests have changed fundamentally. It is well recognized that forests have a very wide range of ecological, economic and societal functions that can be broadly classified as supporting (nutrient cycling, soil formation, primary production), provisioning (food, fresh water, wood, fiber and fuel), regulating (climate, flood, plant disease regulation and water purification) and cultural (aesthetic, spiritual, educational and recreational).

Increasingly societies, particularly those which are better off economically, demand more from forests than mere forest products, thus creating a huge challenge for forest scientists and managers on account of the enormous complexities that multipurpose forest ecosystem management impose on the practitioners. And these complexities will in addition be accompanied by great uncertainties in a sharply changing environment. Enhanced vitality and resilience of forests are needed to better serve not only the forest owners but the society as a whole. The new imperative is to promote multipurpose forest ecosystem management by taking into account ecological and economic considerations as well as societal needs.

Against this background, an International Conference on Multipurpose Forest Ecosystem Management in a Changing Environment was held in Nanning, Guangxi, China, from 23-25 November 2011. The conference showed the benefits of a multidisciplinary dialogue and multiple scale approaches by combining knowledge from biology, ecology, forestry, climatology, socio-economics and political sciences to address the challenge of multipurpose forest ecosystem management in response to a rapidly changing environment, and to elaborate adaptive management measures.

Main discussion points were:

- (i) concept and models of multipurpose forestry;
- (ii) adaptive forest management strategies and techniques for multipurpose land use;
- (iii) dynamic monitoring and modeling of forest management;
- (iv) forest carbon sequestration and nutrient cycles, forest carbon accounting and monitoring;
- (v) ecological and socio-economic evaluation of land use and forest management.

The conference highlighted the fact that changes in the environment are not only due to changes in the ecological environment but also due to the changing human perspective which has serious implications for forest ecosystem management.



Photo from session, courtesy of CAF

A multipurpose forest ecosystem management would be one effective option for the forests of the future and science should form the bedrock of the forest ecosystem management. Besides having strictly protected forest ecosystems and plantation forests, multipurpose forests can fulfil local needs of people and society and improve ecosystem services as a whole, while increasing forest productivity with valuable wood production. It can reduce the risk of biotic as well as abiotic disturbances. Multipurpose forest management with site adapted tree species has a better adaptive capacity to the changing environmental, economic and social conditions. Therefore, the understanding of effects of forest management on forests at multiple scales, such as forest stand, ecosystem and even landscape level, needs to be enhanced and elaborate operational guidelines for adaptive forest management should be developed.

The Conference was promoted by IUFRO [4.00.00](#), [9.04.01](#), and [9.04.02](#). Selected papers are expected to be published in a special issue of the *Oxford Journal of Forestry*.

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