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Data, Information and Monitoring – Their Role in Conservation and Management of Natural Resources

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Abstract

Sustainability is the guiding principle when it comes to managing natural renewable resources. Sustainability can only be enacted and monitored when sufficient data and information is available that allows targeted planning and focussed impact assessment. In principle, we assume that a good information base is a prerequisite for good decisions; that better information leads to better decisions; and that lack of quality information puts good decisions at risk.

The systematic gathering of baseline data as an input to mid-term planning has a long history in the field of forestry: forest inventories date back to the 18th century (about the time when the term “sustainability” was coined by the forest and mining engineer Carl von Carlowitz). Forest inventories have taken a dynamic development during the past century and today they are flexible and versatile tools that adapt to many different situations and target objects; they allow to generate information that is being demanded and used far beyond the traditional forestry sector.

Monitoring for the evaluation of biodiversity and conservation has also been conducted on a regular basis, in particular after the UNCED 1992 in the context of the Convention on Biological Diversity (CBD). The data sources, variable sets, estimation techniques and modelling approaches used in biodiversity monitoring and in forest inventory are very similar and it appears worth while to evaluate their commonalities.

In this paper, the role of data and information in decision processes regarding the sustainable management of ecosystems and of renewable natural resources is discussed. Typical techniques and application issues are presented and discussed, and some future research and application challenges are identified.

Keywords: Ecological survey, natural resources, biodiversity evaluation, Convention on biological diversity