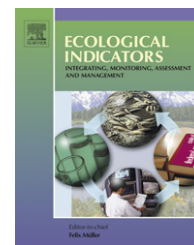


available at www.sciencedirect.comjournal homepage: www.elsevier.com/locate/ecolind

Criteria and indicators for sustainable forest management: The road travelled and the way ahead

Don Wijewardana *

Wellington, New Zealand

ARTICLE INFO

Article history:

Received 16 June 2006

Accepted 23 June 2006

Keywords:

Thematic areas

Concepts

Definitions

ABSTRACT

Criteria and indicators (C&I) have emerged as a powerful tool in implementing sustainable forest management. In a relatively short period, around 150 countries have adopted C&I. Some processes have used C&I in forest management and produced progress reports. Six of the seven thematic areas common to all processes are also being used as a basis for reporting progress towards sustainable forest management [e.g., the Food and Agriculture Organization of the United Nations (FAO) in its Global Forest Resource Assessment 2005]. However, there are significant problems in the wider application of C&I. A number of countries are not using C&I at all, and in some countries where they are being used, it is not done in an effective manner. Areas that need improvement in order to promote the use of C&I include: (1) strengthening concepts and definitions; (2) rationalising criteria and indicators; (3) further research on indicators; and (4) utilising C&I in more effective ways. The future development of C&I must be based on an active link between research effort and operational needs in order to prevent a waste of resources and effort. Some of the research undertaken to date has led to the adoption of innovative approaches to optimise resource use and simplify application. This paper identifies areas needing more research and draws from ongoing work to show where progress is being made.

© 2006 Elsevier Ltd. All rights reserved.

1. Introduction

Criteria and indicators (C&I) are perhaps the most important and innovative forest management tools developed in recent decades. They are not only a mechanism for systematically implementing sustainable forest management (SFM) procedures, but also an effective means of assessing and reporting progress. Through C&I it has also been possible to derive a global understanding of what constitutes SFM. The Rio Earth Summit in 1992, through the adoption of a number of instruments and declarations,

urged countries to manage their forests sustainably. C&I subsequently emerged as a key mechanism that could help deliver the Rio expectations, because they provided the means to translate lofty principles of sustainability into measurable goals and 'signposts'. The popularity of C&I is evident in that nearly 150 countries, containing 97.5% of the world's forest area, are participating (to varying degrees) in the nine regional and international C&I processes¹. A noteworthy feature is that all of this has occurred in a relatively short period (around 10 years), and on an entirely voluntary basis.

* Tel.: +64 4 3844566.

E-mail address: donwije@paradise.net.nz.

¹ The nine international and regional Processes are the African Timber Organization (ATO) Process, the Dry Forest in Asia Process, the Dry-Zone Africa Process, the International Tropical Timber Organization (ITTO) Process, the Lepaterique Process of Central America, the Montreal Process, the Near East Process, the Pan-European Forest Process and the Tarapoto Proposal for the Sustainability of the Amazon Forest.

1470-160X/\$ – see front matter © 2006 Elsevier Ltd. All rights reserved.

doi:[10.1016/j.ecolind.2006.11.003](https://doi.org/10.1016/j.ecolind.2006.11.003)

1.1. Background

The challenge for sustainable forest management comes from within the forest sector as well as from outside. Globally, over nine million hectares of forest is cleared each year while considerably more is degraded through human intervention (Food and Agriculture Organization (FAO), 2006). Most of this deforestation is a result of pressures from outside the forest. The main challenge from within the forest sector relates to a limited, and limiting, view of forests as spaces in the landscape for wood production.

For centuries, forest management has been based on the principle of sustained yield which states that the volume of wood harvested should not exceed the volume of growth gained over a given period of time. This worked well, just as long as wood was the only recognised output of the forest. However, in recent years, and since the 1992 UNCED in particular, there has been a growing recognition of the importance of sustaining a number of other significant values of the forest such as its biological diversity, contributions to hydrological cycles, cultural and amenity values. The focus earlier on wood production alone had meant that many other ecological, economic and social values, particularly when they were considered mutually exclusive to wood production, were lost or severely degraded.

C&I are information tools that seek to capture all major forest values, including wood production. Much of the recent literature (e.g., [the International Conference on Criteria and Indicators \(CICI\) 2003](#)) points to the fact that there is general agreement that seven thematic areas are commonly seen to underpin sustainable forest management.² It is only when forest management explicitly recognises the existence of these thematic areas, and seeks to achieve trade-offs among them that meet with broad societal approval while passing tests for economic, ecological and social viability over the long term, that we can consider it as being sustainable. The second type of challenge arises from mismanagement and corrupt or illegal practices and results in deforestation, degradation and loss of forest products and services. As information tools that seek to present a holistic, but not overly detailed picture, C&I present themselves as potentially powerful tools.

1.2. What Are C&I?

C&I characterize the essential components of SFM, and provide information for the formulation of sound policies. They recognise forests as ecosystems that provide a wide, complex and dynamic array of environmental and socio-economic benefits and services. C&I can be used to monitor and assess national trends in forest conditions and forest management at a range of scales.

² Sustainable forest management comprises seven common thematic elements: (1) extent of forest resources; (2) biological diversity; (3) forest health and vitality; (4) productive functions of forest resources; (5) protective functions of forest resources; (6) socio-economic functions; (7) legal, policy and institutional framework (FAO, 2006).

A criterion is a category of conditions or processes by which sustainable forest management may be assessed. It is characterized by a set of related indicators that can be monitored periodically to assess change.

An indicator is a measure of an aspect of the criterion. It can be a quantitative or qualitative variable that can be measured or described, and when observed periodically, can demonstrate a trend.

C&I are implemented at three different levels: (1) national, (2) sub-national and (3) forest management unit (FMU) level. Implementation at all levels is important to promote SFM. So far, the focus of all major processes has been on the national level. This is understandable given that it is at this level that countries can best ascertain progress towards SFM. However, C&I by themselves will not show whether a country is managing its forests sustainably. It is also necessary to assign values to indicators that signify agreed sustainability levels. Given that society's values change over time, sustainability levels established at one time may not be acceptable at a later date. Therefore, it is the journey rather than the destination that is important. Signposting progress on this journey is where C&I are particularly useful.

2. Recent progress

The role of C&I in implementing SFM has been increasingly recognised by both governments and international organizations. The three United Nations (UN) fora established to implement the 1992 Earth Summit decisions relating to forestry – the Intergovernmental Panel on Forests (IPF), the Intergovernmental Forum on Forests (IFF) and the UN Forum on Forests (UNFF) – have placed great importance on C&I as a vehicle for achieving SFM. The many (related) proposals for action emanating from these fora, combined with the recent UNFF adoption of C&I as the basis for countries to report on progress towards SFM, are indicative of this.

There are also a number of other international organizations that are involved in promoting C&I. The most notable among these are the FAO, the International Tropical Timber Organization (ITTO) and the Center for International Forestry Research (CIFOR). The FAO has based its Forest Resources Assessment 2005 on six of the seven thematic areas common to all nine international and regional C&I processes (FAO, 2006). The ITTO, which pioneered the use of C&I in relation to the tropical timber trade³, has vastly improved and simplified its original set for implementation through its report on progress in achieving the 'Objective 2000'⁴.

³ ITTO developed the first set of C&I in 1992 in relation to tropical timber trade.

⁴ Objective 2000 refers to the ITTO moving as rapidly as possible towards achieving exports of tropical timber and timber products from sustainably managed sources. It remains a central goal of the Organization, supported by renewed efforts to raise the capacity of government, industry and communities to manage their forests and add value to their forest products, and to maintain and increase the transparency of the trade and access to international markets.

Download English Version:

<https://daneshyari.com/en/article/4374625>

Download Persian Version:

<https://daneshyari.com/article/4374625>

[Daneshyari.com](https://daneshyari.com)