



# Integrated Impact Assessment for Sustainable Development: A Case Study Approach

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**Summary.** — The realization of sustainable development requires the use of different disciplinary approaches to the impact assessment of development proposals, which can give a balanced consideration to the multidimensional nature of sustainable development targets. This need has led to a growing interest in the integration of different methods of appraisal and evaluation into impact assessment methodology and practice. This article contributes to the development of a useable methodology for conducting integrated impact assessment (sometimes called integrated appraisal) by using case study experiences of development proposals. Three case studies, each of which has significant economic, environmental and social dimensions, are examined to see how appraisal was carried out in practice. Their primary purpose is to clarify some of the approaches to integrated appraisal currently in use as a prelude to identifying ways in which practice may be strengthened in the future. © 2001 Elsevier Science Ltd. All rights reserved.

*Key words* — integrated impact assessment, integrated appraisal, sustainable development

## 1. INTRODUCTION

Sustainable development is increasingly accepted as a fundamental objective for public policy and decision-making in different types of economy (developed, developing and transitional) and at different levels of intervention (aggregate, sectoral and project). While there is no consensus on a single, precise definition of sustainable development, there is general agreement, nevertheless, that it encompasses the economic, environmental and social dimensions of the development process as reflected in the UN definition of sustainability:

development is a multidimensional undertaking to achieve a higher quality of life for all people. Economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development (United Nations, 1997).

The growing acceptance of sustainable development as an overarching policy goal has

stimulated interest in assessing the impact of particular interventions on sustainable development, and has led to the emergence of integrated impact assessment, based on the use of a number of sustainable development principles and indicators, as one method for according the

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same level of consideration to economic, social and environmental impacts (George, 2000).

Concurrent with this recent interest in the integration of different disciplinary perspectives into impact assessment methodology and practice has been the increasing recognition of the role of stakeholder involvement in assessment (World Bank, 1997a; DFID, 1995). The involvement of both the various parties that will be directly and indirectly affected by a particular intervention, and representatives of the business community and civil society, can be seen as an extension of public accountability to stakeholders, and as such has a political and social value itself. The process of consultation with affected parties and other stakeholders can also have instrumental advantages, for example, by drawing on local or specialist knowledge to improve design, or by reducing uncertainty by building political consensus and ownership (Bond, 1998; Hulme & Taylor, 2000).

The development of a methodology for conducting integrated impact assessment, and for incorporating stakeholder participation into the assessment process is still at an early stage, and major methodological and practical issues remain to be resolved. What is more familiar is the methodology and application of separate forms of economic, social and environmental assessment at the project level. Cost-benefit analysis, environmental impact assessment and social impact assessment have been practiced for many years and, in the first two cases at least, their methodologies are well established at the project level (see Kirkpatrick & Lee, 1997, Chapter 1 and the references it cites on the scope and methodology of each of these forms of appraisal). But, the application of specialized economic, social and environmental appraisals at the policy, plan and program level (strategic-level appraisal) is much less developed. Economic analysis is the most developed at the strategic level, environmental assessment is much less developed (though growing), and social appraisal is the least developed form of strategic assessment.

One way of developing a useable methodology for conducting integrated impact assessments, is to build on case study experience. This paper considers three separate case studies, each of which has significant economic, environmental and social dimensions. The purpose of the analysis is twofold. The primary objective is to explore how appraisal was carried out in practice, the extent to which an integrated approach to assessment was used, and the ex-

tent to which this was conditioned by the context in which it was applied. A second objective is to draw some preliminary conclusions from the case studies, as to how a more appropriate and effective integrated appraisal may be realized.

The paper consists of five sections. Section 2 provides an overview of integrated appraisal—the different methodologies on which it draws, the current state of knowledge and use, and various issues and problems relevant to its future development and application. Section 3 presents the three case studies, providing a description of each scheme, an account of the appraisal methods and stakeholder participation processes that were used, and an indication of the extent to which some form of integrated appraisal was used. Section 4 provides a comparative analysis of the case studies, and draws together a number of general observations relating to the methodology and practice of integrated appraisal used in the three projects. Section 5 summarizes the principal case study findings and provides a number of recommendations on improving integrated appraisal practice.

## 2. AN OVERVIEW OF INTEGRATED APPRAISAL

Interest in integrated appraisal has grown on a wide front and “integration” has been discussed in a variety of contexts that need to be distinguished (Kirkpatrick & Lee, 1999). For example, integration may refer to:

- procedural and organizational arrangements to enable environmental, economic and social appraisal methods to be applied at similar points in time (Scholten & Post, 1999).

- methodological guidelines that encourage different types of appraisal (environmental, social and economic) to use consistent assumptions, methods and data and, when combined in an overall appraisal, to avoid gaps and overlaps in their coverage (Lee & Kirkpatrick, 1997a,b).

- development of crossdisciplinary insights which may not be fully acknowledged in single disciplinary appraisals (Tol & Vellinga, 1998; Toth & Hizsnyik, 1998).

The growth in interest in integrated appraisal has outpaced the rate of progress in developing an integrated methodology and approach to decision making. At the methodological level,

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