

Concepts, and Application of Integrated Planning and Decision Support Systems

M.A. Sharifi* and Antonella Zucca**

* Department of Urban Regional Planning and Geo-Information Management, ITC
, The Netherlands. E-mail address: alisharifi@itc.nl

** Faculty of Agricultural Science, University of Milan, Italy.

Keywords: Planning support systems, decision support systems, spatial multi criteria evaluation, integrated planning and decision support systems, site selection

Abstract

Geo-information technology has offered appropriate technology for data collection, information extraction, data management, routine manipulation and visualization of processes that are taking place on the earth. However, it lacks well-developed, analytical capabilities to support decision-making processes. As we move from data-poor to data-rich environment, there is more and more need for filtering, processing, and integrating various data/information in such a way that they can be supportive to management decision. These tools and techniques are so called planning and decision support systems. This paper elaborates on a framework for planning and decision support systems, and its supporting tools. It further demonstrates the application of the framework in an actual site selection process for a special kind of park in Italy.

1. Introduction:

Advances in geo-information technology have provided extensive information from the processes that are taking place on the earth's surface, many of which are organized in computer systems, some are freely available and others are accessible in affordable price, however not efficiently applied. Research in disciplinary sciences has also produced significant insight into many physical and socio-economic processes, leading to development of knowledge formalized in various types of disciplinary models, many of them in public domain, but not well applied in practice. Development in management and decision sciences has provided opportunities to build decision aids and provide platforms for flows and exchange of different information and knowledge. Although we are moving from a poor data to a rich data environment, yet many of the existing information and knowledge are not used to support better management of our resources.

Geo-information technology through various remote sensing techniques has offered appropriate technology for data collection from the earth's surface, information extraction, data management, routine manipulation and visualization, however, it lacks well-developed, analytical capabilities to support decision-making processes. Nowadays, in many areas of the world, the problem is not the lack of data/information, but the selection and processing of data to generate meaningful and timely information that can support better management of resources. As the amount of information increases, so does the need for filtering, combining, integrating processes that makes data/information useful to the decision makers. Especially in the context of growing emergence of a more accountable and inclusive governance style, which calls for more debates and requires interfaces for an extended involvement and agreement of all relevant stakeholders upon policy issues.

In this context, there is a need for a decision aid to make use of development in various related fields and provide facility to support to understand the problem and analysis of the effects and impacts of alternative policies on allocation of resource and services; and more importantly provide a forum for debates. Such facility, which is aiming at integrating all the relevant information and knowledge from different sectors and disciplines to support individuals and group collaboration process for more effective and transparent planning and decision-making process, is called "Integrated Planning and Decision Support System (IPDSS)". In this context, this paper elaborates on the framework which has been developed for planning and decision making and its supporting tools so called Spatial Multiple Criteria Evaluation "SMCE". This