



The application of Decision support system In water resources management

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Abstract

An important point in relation to Decision support system (DSS) is that the decision maker is responsible for the decision and the DSS is a tool to provide a larger window of opportunity. DSS' are models that use flexible data as inputs, and give alternative solutions as outputs. Their primary objective is to assist specific decision makers, individually or as groups. This allows custom design of the system, in which the decision maker can develop the DSS interactively, thus providing the opportunity to adapt the analytical models used in the decision-making process. This article presents results of a study about the application of Decision support system in water resources management with some example programs in application of Decision Support Systems for river basin simulation.. The results reveal that DSS is one of the most effective tools or models for optimized operation of water resources systems.

Keywords: Decision support systems, water resources, river basin simulation, stakeholder.

1. INTRODUCTION

Decision support systems (DSS) are a subset of computer-based information systems (CBIS). The general term 'computer-based information systems' is a constellation of a variety of information systems such as office automation systems, transaction processing systems, management information systems and management support systems. Management support systems consist of DSS, expert systems and executive information systems. In the early 1970s, scholars in the CBIS area began to recognize the important roles information systems play in supporting managers in their semi-structured or unstructured decision-making activities. It was argued that information systems should exist only to support decisions, and that the focus of the information systems development efforts should be shifted away from structured operational control to unstructured critical decisions in organizations. Decisions are irreversible and have far-reaching consequences for the rest of organizational life. The importance of effective decision making can never be overemphasized. Decision making is, in effect, synonymous with management.

2. DEFINITION OF DECISION SUPPORT SYSTEMS

Drawing on various definitions that have been suggested a DSS can be described as a computer-based interactive human computer decision-making system that:

- supports decision makers rather than replaces them;
- utilizes data and models;
- solves problems with varying degrees of structure:
 - (a) Non-structured (unstructured or ill-structured)
 - (b) Semi-structured
 - (c) Semi-structured and unstructured

focus on effectiveness rather than efficiency in decision processes (facilitating decision processes).