

CHAPTER 5

CASE STUDIES

5.1 INTRODUCTION

Since reservoir development always implies some negative environmental irreversible effects, sustainable reservoir development must be seen in a broad context where an overall balancing of present and future life-supporting needs is a prerequisite for decision-making. This balancing is extremely difficult, and an uncritical use of the sustainability term is obviously a risk. However, the present report may prove to be a valuable tool in the search for sustainable solutions.

The following three case studies, as well as a country policy study, all address sustainability, but they focus on different aspects of the concept. An accounting of a broad set of sustainability issues in reservoir development is intended. The three cases represent reservoirs of small, medium and large sizes, and they are located in different climatic zones on different continents.

The first case study on the Alta Reservoir in Norway in particular addresses the rights of indigenous people and the vulnerability of nature. Also, public participation in the decision-making process is described. The second case study on the Aswan High Dam in Egypt focuses on the inundation of large areas with the associated needs for moving a large population. In addition the reservoir sedimentation problem is given a thorough treatment. The third case study on the Green River in Utah, USA, particularly takes the changed downstream conditions into consideration and discusses the possible use of artificial flooding as a means for achieving sustainability. Institutional aspects are also covered in detail.

Finally, a Japanese policy study on reservoir development discusses the balancing of social, environmental and economic issues in connection with reservoir development. In this context improved performance of existing reservoirs and other alternatives to reservoir building are considered.

The case studies and the policy study are individually presented and concluded. The studies are selected to illustrate how the sustainability concept can be applied in different ways to real-life water resources development. In this respect they may serve as a source of inspiration steadily to put more emphasis on sustainability related issues in future reservoir development and management.