

5.6 CONCLUDING REMARKS ON THE CASE STUDIES

The studies presented all addressed sustainability issues but focused on different aspects of the concept. They are definitely not ideal cases and not selected as such. Together, however, these case studies, differing substantially in size and geographical location, have shed light on the difficulties we are faced with when striving for sustainability in reservoir development.

The Alta case study showed the importance of respecting the rights of indigenous people and the necessity of public participation in the planning process. Further, the vulnerability of Arctic nature and ecology was highlighted. Local vs. national decision making became an issue for strong debate and civil disobedience which resulted in the project being delayed but not significantly modified. The impact on future planning, however, was evident leading to a much greater awareness of sustainability issues between politicians and other decision-makers.

The Aswan High Dam project has been subject to severe international criticism. The sustainability could be, and has been questioned for several reasons. The inundation behind the dam was the reason for resettlement of more than 100 000 people and a unique cultural heritage was situated on the inundated land. To balance the discussion we need to take into account the fact that a population much greater than 100 000 has since been spared from disastrous floods, and saving of the cultural treasures created a truly international effort. The lack of silty sediment deposition downstream of the dam has necessitated the use of artificial fertilizers and sardine have almost disappeared from the estuary. On the other hand, irrigation and electricity production are of outstanding importance for the population and the fishery in the Aswan High Dam Lake has become an important source of income. The case illustrates the great complexity of sustainability assessments.

The Green River case study gives a detailed assessment of how the construction of a reservoir can adversely change the downstream ecology. The decreased sediment transport and the reduced flood peaks are considered the main reasons for a severe decline of four native fish species. The ecological problem has grown substantially due to the invasion of both terrestrial and aquatic species that have adapted better to the changed conditions than many of the natural species. Proposals have been made for increasing flooding artificially both in magnitude and duration which to some extent could alleviate the negative impacts of the dam construction. The many difficulties to overcome before the management policy of the river basin could be changed are highlighted. There are strong economic interests involved and many different federal and state agencies are players. Even agreement to perform limited experiments in order to achieve a stronger scientific background for a new policy has not been reached. The Green River case study illustrates how difficult it can be to solve conflicting

interests and highlights the risk that sustainability issues will carry the least weight in the decision-making process.

In Japan there is a strong need for utilization of reservoirs but also an increasing awareness of the need for sustainable development. Thus a new policy has been introduced with more emphasis than before on, among other things, rehabilitation of existing dams and establishment of comprehensive water utilization projects. The planning process has been changed in order to allow for public participation, and all new projects are now planned with due consideration of landscaping, reforestation, and recreation facilities for the public.

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