

Cost-benefit analysis can positively influence policies and plans, the Danube Islands - BG

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Sound use of resources and promotion of less resource intensive processes/products
- SUSTAINABLE ECONOMIC GROWTH: Balancing economic, social, cultural development whilst enhancing environment
- SUSTAINABLE ECONOMIC GROWTH: Improving competitiveness

2. Key Approaches

- Participation
- Ecosystems based approach

3. Experiences that can be exchanged

Cost-benefit analysis to provide guidance for decision-making on sustainable management and to provide a basis for the monitoring of socio-economic impacts of land-use changes. Exemplified by the Danube Islands and their floodplains.

4. Overview of the case

The values of biodiversity components have been analysed for the Bulgarian Danube islands in Bulgaria. The results demonstrably favour the restoration of natural forests which is expected to promote the development of tourism and recreation, commercial and non-commercial fishing and hunting as well as supporting ecosystem services such as conservation of globally important biodiversity, flood protection, carbon sequestration and erosion prevention and control.

5. Context and Objectives

a) Context

The Danube River is 2,857 km long; the basin covers 817,000 sq. km in 17 countries in the heart of central Europe. This includes many important natural areas, including the Danube delta - the second largest natural wetland area in Europe. There are 75 Bulgarian Danube islands with a total area of approximately 11,000 hectares. All of these islands, with the exception of Belene Island, are state-owned and managed by the National Forestry Board. The predominant land use of the Danube islands is for poplar monoculture, managed by the National Forestry Board and its regional branches. The natural floodplain forests of the islands have been continuously converted into poplar plantations over recent decades, resulting in the large-scale loss of globally important biodiversity.

Cost-benefit analysis is a widely used analysis technique in project development and assessment. It allows a quantitative assessment to be made of the expected results of a project (expressed as financial, economic or social returns on investment) and to compare the effectiveness of the investment with alternative uses of the resources. Using cost-benefit analysis a valuation in monetary terms is placed on financial, economic and social costs and benefits of a project. Increasingly, cost-benefit analysis also quantifies and includes environmental variables.

b) Objectives

The aim was to define the dimensions of a reasonable economic compromise for the state, based on a forecast of profits from poplar, and estimated loss of income for the state from different protection and restoration options. Possibilities for mitigation of economic losses, economic alternatives, as well as environmental and social benefits from protection and restoration measures were calculated.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

Almost all Bulgarian Danube islands are state owned and managed by the National Forestry Board.

b) ICZM tools

A cost-benefit analysis of alternative land use options for the various stakeholders in the Danube islands focusing, in particular, on the potential socio-economic benefits from the restoration and protection of healthy floodplain ecosystems was conducted. In order to undertake the analysis, it was necessary to identify a set of alternative land use options, describe the range of stakeholders, and quantify the impacts of each land use option on each stakeholder group. The outcome of the analysis of alternative land use options for the different stakeholders was used to identify economically feasible and environmentally sound alternatives to poplar plantations and provide recommendations for the development of these alternatives. The study showed that the National Forestry Board realised only very small profits from these poplar plantations, and in some cases they were operating at a net loss. A small number of private forestry companies seemed to be the only stakeholders deriving clear benefit from the poplar monocultures. The study indicated that further development of poplar plantations at the expense of natural forest would result in the loss of biodiversity and of other non-use and indirect economic benefits. Conserving biodiversity of the Bulgarian Danube islands, on the other hand, would be a source of significant benefits for a wider range of stakeholders. This is especially so for local communities through tourism; small scale resource harvesting e.g. traditional crafts, revival of fisheries; recreation; the flood protection functions of floodplain forests; preservation of genetic biodiversity and a basis for scientific research.

It is expected that the growth of revenues from activities stimulated by biodiversity conservation like tourism, recreation, etc. in the long-term will compensate for the reduction of revenues from the reduced felling of timber from the planted poplar plantations and will provide income for a wider group of stakeholders than just the local timber extraction companies. The alternative development however requires investments in appropriate infrastructure supporting tourism, recreation and other economic activities.

7. Cost and resources

No information is available.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The analysis provided an economic case for changing the previous policy of expanding poplar plantations on the Danube islands. It indicated that profits from poplar plantations should be raised through improved management of the existing ones, as well as through the exclusion from production of areas identified as unsuitable for poplar forestry which were causing economic loss. To take full advantage of the alternative land use values, recommendations were made to protect and restore natural forests, to introduce sustainable forestry practices with extensive management of close-to-natural forests, and to develop a basis for tourism and recreation on the Danube islands. Some of these recommendations, especially those related to improved forestry practices, protection, restoration and extensive forestry management, were included in the Action Plan for the Protection and Restoration of Floodplain Forests on the Bulgarian Danube Islands for 2003-2008.

9. Success and Fail factors

A number of limitations prevented a fully comprehensive cost-benefit analysis in the project area, the most important being

availability of information and local expertise in environmental economics. These limitations should be addressed early in the design of future cost-benefit analyses to ensure successful completion. The uptake of the results of the study depended on the willingness and understanding of regional and local managers in the forestry units. Hence, restoration of natural floodplain forests started on some islands.

10. Unforeseen outcomes

None so far.

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13. Sources

- Action Plan For The Protection And Restoration Of Floodplain Forests On The Bulgarian Danube Islands 2003–2007 (2003) WWF International, Danube – Carpathian Programme.
- Cost Benefit Analysis of Alternative Land Use Options, Bulgarian Danube Islands
- Economic Benefits of Biodiversity Conservation (Case Study of the Bulgarian Danube Islands) 2002. Danchev A. Central and Eastern European Online Library (to be purchased)
- Project (2002) Danchev A The Forest Landscape Restoration Newsletter
- Strategy for the Protection and Restoration of Floodplain Forests on the Bulgarian Danube Islands (2001) WWF International Danube Carpathian Programme
- The Green Buck: Using economic tools to deliver conservation goals: a WWF field guide (2005) Tom Le Quesne and Richard McNally, WWF-UK



Action Plan for the protection and restoration (421.46 KB)



Forest Landscape Restoration newsletter (32.38 KB)



Strateg for the protection and restoration of floodplain forests (1.42 MB)



The Green Buck using economic tools (1.1 MB)