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Biodiversity, Ecological Investment and Sustainable Development in the Danube Delta Biosphere Reserve, Romania

Introduction

The River Danube runs for 2,850 km, from the Black Forest in Germany to its delta at the Black Sea on the Romanian/Ukraine border. With tributaries like the Sava, Drava and Tisa, the Danube forms the largest drainage basin in central Europe, covering over 800,000 km².

The delta area itself is the largest and most natural wetland complex in central Europe (only the Volga delta is larger). Shared between Romania (with about 75% of the area) and Ukraine, the delta region includes extensive examples of unaltered rivers, lakes, reedbeds, marshes, steppes, dunes, shingle bars, coasts, lagoons, saltmarshes and climax forests. As a centre of wetland biodiversity, the Danube Delta ranks among the top sites in Europe (see Table 1). Its waters harbour over 60 species of fish, including several species of sturgeon. Apart from breeding bird colonies totalling tens of thousands of individuals, notably terns and herons, several globally threatened bird species inhabit the area¹. The majority of the world population of pygmy cormorants *Phalacrocorax pygmeus* nest in the delta and most of the world's red-breasted geese *Branta ruficollis* winter around the margins of the wetlands; and the endangered slender-billed curlew *Numenius tenuirostris* occurs on migration. There are also important populations of otters *Lutra lutra* and mink *Lutreola lutreola*.

For thousands of years the Danube has provided a vital navigation link to the heart of the continent and now, thanks to Rhine/Main/Danube and Constanta canals, joins the North Sea to the Black Sea. Moreover, the delta is rich in economically valuable natural resources, principally fish (accounting for about half of Romania's freshwater fish harvest) and reeds. It is an important national tourist centre and has considerable potential for earning foreign exchange from eco-tourism.

Unfortunately, recent decades have seen ill-advised attempts to control the powerful ecological forces that underlie the productiveness of the delta. In Romania, under the so-called 'complex development plan', devised in the 1970s², the delta's biological, chemical and physical systems were subject to rapid and severe degradation as a result of over-development for navigation, fish farming, agriculture, forestry and flood control. Meanwhile, the human population of the delta in Romania has dropped from 21,675 people in 1970 to less than 15,000 in 1992.

The Danube Delta Biosphere Reserve, Romania

After the revolution in 1989, the incoming Romanian administration moved swiftly to halt further damaging works in the delta. In September 1990, most of the delta, the adjacent lake complexes of Razim and Sinoie, and a marine buffer zone were declared as a Biosphere Reserve (DDBR) that now encompasses some 580,000 ha (Figure 1). The reserve was placed under the supervision of a new statutory body, the Danube Delta Biosphere Reserve Authority (DDBRA), which in many respects resembles the English Broads Authority in function and scope. In addition to becoming part of the UNESCO Man and Biosphere Programme, parts of the reserve were also listed under the Ramsar Convention on Wetlands of International Importance in May 1991, and over half of its area was placed on the World Heritage List in December 1991.

The characteristics of a Biosphere Reserve are set below. It can be seen that this type of designation is particularly targeted at the wise use of natural resources and should provide a basis for sustainable development.

- A Biosphere Reserve conserves examples of characteristic ecosystems of one of the world's natural areas (a typical Biosphere Reserve, like the DDBR, contains strictly protected core areas, traditional use areas, e.g. for fishing and reed harvesting, and a buffer zone to reduce external impacts).
- It is a land or coastal/marine area in which people are an integral component, and which is managed for objectives ranging from complete protection to intensive yet sustainable production.

- It is a regional centre for monitoring, research, education and training on natural and managed ecosystems.
- It is a place where government decision-makers, scientists, managers and local people cooperate in developing a model programme for managing land and water to meet human needs while conserving natural processes and biological resources.
- Finally, Biosphere Reserves are a symbol of voluntary cooperation to conserve and use resources for the well-being of people everywhere.

In support of the Romanian authorities, IUCN – The World Conservation Union, led an international consortium that convened a meeting in the delta, also in September 1990, to help establish management planning guidelines for the DDBR. The outcome of the meeting is summarised below, and the process of international facilitation with local participation could serve as a model for similar situations elsewhere in central and east European countries:

- (i) Provide a legal framework to secure the aims and governance of the Biosphere Reserve over the long term.
- (ii) Establish appropriate qualitative and quantitative management capacity for meeting Biosphere Reserve objectives.
- (iii) Establish management procedures and planning processes.
- (iv) Ensure that the local population are aware of the aims, goals and operations of the DDBR and their representatives actively and fully participate in planning and decision-making.
- (v) Ensure wise use of the natural resources of the delta, including protection of rare, endangered and typical species, their communities, and supporting recolonisation and re-establishment of species now extinct in the delta.
- (vi) Ensure that all economic activity is ecologically sustainable.
- (vii) Arrest the decline in local human population levels.
- (viii) Maintain the archaeological and cultural heritage of the local population.
- (ix) Maintain or restore the natural operations and functions of the delta ecosystem.
- (x) Create an integrated monitoring system and evaluate and analyse trends in support of management.
- (xi) Integrate research initiatives and strengthen and link institutions engaged on research and monitoring.
- (xii) Raise the environmental awareness and knowledge of recreational and scientific visitors to the delta.
- (xiii) Provide educational materials about the delta for primary and secondary schools, universities, youth organisations, non-governmental organisations and for adult education.
- (xiv) Obtain international support for protection and restoration of the entire Danube River, the delta and the neighbouring Black Sea areas.

An example of how applying these principles in the DDBR can benefit local people, and thus engender their support, occurred in autumn 1993. The DDBRA and the Council of Tulcea District have agreed on a scale of fees for utilising the reserve's natural resources (principally agricultural in polders, reed harvesting, fishing, and wildfowling). The income was deposited in a special fund that provided interest-free loans to commercial companies so that they could purchase advance stocks of vital foodstuffs (such as sugar, salt and oil) and distribute them to stores within the delta before all the waterways became frozen in winter. Not only were the delta inhabitants assured of their supplies, but were able to purchase them at normal prices.

Investing in the Danube Delta Biosphere Reserve

Following the 1990 planning seminar, which established the need to ensure environmental safety and ecological balance in future development policies, the DDBRA was recognised by the European Bank for Reconstruction and Development (EBRD) as the appropriate vehicle in Romania for channelling assistance for economic development. Similarly, the Global Environment Facility (GEF), administered by the World Bank, is also in the process of assisting environmental management in the region.

EBRD Danube Delta Environmental Programme

The EBRD has offered the Romanian government an initial portfolio of investments for infrastructure improvements to encourage sustainable development in the DDBR. The programme complements others elsewhere in the catchment of the River Danube and around the Black Sea basin, and amounts to a total of some 3.9 million ECU. The portfolio, which includes the construction of a visitor centre, providing water supplies in remote villages, and enhancing tourist facilities, has the following objectives and justifications:

1. *Enable the economic resources of the delta to be developed in harmony with the conservation objective, so that the revenue base of the delta will increase.* The delta has considerable economic resources. Currently the delta receives government subsidies in the form of grants for research, funds for the DDBRA, subsidised local transport, and so on. Increased revenues from the delta will enable the region to become more self-sufficient, will reduce the need for government funds, will benefit the existing population, and may even generate resources for conservation of other national parks which do not have a significant resource base.
2. *Ensure that local people benefit from the management of the delta.* It will be impossible to achieve the conservation objectives of the DDBRA unless the local population are actively involved in the management of the delta, and have an incentive to promote conservation because it benefits them.
3. *Support development of the private sector.* As with the whole of Romania, the economy of the delta is in a state of transition. Economic activities in the delta are carried out largely by state enterprises, but there is a nascent private sector, struggling to develop under difficult economic conditions. A basic concept for this project is that it will be essential to develop the management of the delta through actions which take full account of the dynamics of the local and national economy, and the project will support the development of public infrastructure which will enable private sector activities to emerge.
4. *Develop the capacity of DDBRA to co-ordinate international activities in the delta.* The Danube Delta is the focus of considerable international attention. The DDBRA is increasingly developing its capacity to coordinate international initiatives in the delta. This project will support the development of the DDBRA's capacity to coordinate this and other initiatives.

The investment portfolio would thus assist the Government of Romania in carrying out sustainable environmental management of the delta, and meet the substantial international commitment which the Government has made in designating the Danube Delta as a Biosphere Reserve, and supporting its status as a World Heritage Site and Ramsar Site. The investment portfolio is also intended to develop modest public infrastructure and catalyse investment in the delta, in particular private sector investment both from within Romania and from outside. Finally the investment portfolio would start the process by which, in the long term, the delta can become self-sustaining both in terms of its conservation needs and its economic development, particularly by breaking the grip on capital and labour held by companies descended from the former Communist era.

GEF Danube Delta Biodiversity Project

This project builds on and complements the EBRD technical cooperation and investment projects. It has four major objectives:

- to enhance the capacity of the wardens to control activities within the DDBR;
- to establish information systems and monitoring systems to support management and research activities in the delta;
- to identify two fish polders suitable for pilot wetland rehabilitation projects;
- to develop a series of feasible project proposals for ecosystem rehabilitation.

The GEF allocation for Romania amounts to \$4.5 million and for Ukraine \$1.5 million, over a five-year period. The project is now under negotiation with the Romanian authorities and is expected to commence in mid-1994. Like the EBRD technical cooperation project, and in contrast with the EBRD investment portfolio, the GEF Biodiversity Project budget is basically a grant.

Investment Implementation and Impediments

In order to strengthen the capacity of the DDBRA to manage the reserve and eventually to implement the investment portfolio, the EBRD set up a technical cooperation project (with a budget of some 700,000 ECU provided by the European Union) to supply office equipment, staff training (locally and abroad) and local and foreign consultants to advise on legal, administrative, public relations and ecological matters. This project commenced in February 1993 and is being carried out jointly by Euroconsult and IUCN. It will continue until February 1995 and involves nearly four man-years of expert assistance.

However, despite the careful planning and good intentions described above, during the preparation phase a number of actual constraints and potentially serious problems became apparent. These arose from the structural difficulties and to some extent differing motivations and perceptions of the local, national and international bodies involved, compounded by the feeling that "something ought to be done urgently" to "save the Danube Delta".

Within the DDBRA itself, the main issues revolve around attitudes and scarcity of suitably trained people, able to cope with the new management and market approaches. After decades of centralised decision making, it is hard to develop a flexible, delegated management approach required (Figure 2). Even with the sums of money on offer, there are simply not the people available (let alone willing to work for the relatively low government salaries) to take up the required functions, whether in administration, legislation or conservation management, and to prepare and implement a management plan of the sophistication required to ensure development is ecologically sustainable.

At the international level, the participating bodies themselves have particular interests which must be accommodated. In the era following the publication of the Brundtland Report⁴, Caring for the Earth⁵, Agenda 21⁶ and the creation of the UN Commission on Sustainable Development, an organisation like IUCN, which was among the pioneers of the concept, is now under considerable pressure from some quarters to demonstrate that ecologically sustainable development can actually be delivered. It could be argued that the DDBR is one of the best available candidates for serving as a model of ecologically sustainable development yet, if this has to be proved within a relatively short time, there could be compromises over making better decisions for the long term.

The EBRD has a mandate to invest in central and eastern Europe, and the pressure from environmental organisations to make sure such investment is "green" is keenly felt. The Danube Delta Environmental Programme is the first which concerns conserving natural resources rather than, for example, clean water supply, sewage treatment and pollution abatement. Credit must be given to them for involving IUCN in the project, and appointing an ecologist to the key post of Resident Adviser. Nevertheless, the technical cooperation project could be deemed a failure by some senior EBRD managers if investment loans are not made in due course, even though two years is manifestly too short a period for effectively changing a management culture that has arisen over 40 years.

Meanwhile, the progress of the investment portfolio has been beset with many difficulties: its very novelty combined with its relatively small size has made it awkward to pass through both the EBRD and Romanian government acceptance procedures (which includes Parliamentary approval) that are designed more for large infrastructure projects with quantifiable rates of return. This is a recurrent problem with efforts by the EBRD to provide investments at the micro-level where sustainable development must be engendered.

In this regard, a fundamental restraint, which is not unique to Romania or even eastern Europe, is the lack of guaranteed title to land and property. Real markets can only operate when private ownership of goods can be demonstrated and easily and cheaply exchanged³. In the case of Romania, property law is vague and the process of land privatisation has hardly commenced. Even though the DDBRA is supposed to control the land within the DDBR, this right is challenged by a number of other public and private bodies and there is no modern legislation to test these competing claims in court. Similarly, the object of encouraging private enterprise in and around the DDBR is undermined because local people possess little if any collateral against which to borrow money for investment, although there is a good deal of enthusiasm for starting up private companies. Today, £1,000 is a small fortune, yet the minimum amount the EBRD can efficiently loan is about £33,000. IUCN is now investigating this issue in more detail in central and eastern Europe.

As the GEF Biodiversity Project is still under negotiation is not appropriate to examine it in any detail here. Moreover, there has been plenty of discussion elsewhere about the usefulness and effectiveness of the World Bank/GEF as institutions charged with funding projects under the terms of the Biodiversity Convention⁷. While recognising the enormous benefits which will accrue to the DDBR as a result of the project, there are, however, two related aspects worth comment. First, the commitment to spend a relatively huge sum of money in a fairly short period thanks to the criteria and targets set by the GEF subscribers will severely strain the management resources of the DDBRA. It is unfortunate that a substantial proportion of the grant was not amortised in the form of an endowment fund as suggested by IUCN and its partners at the 1991 seminar. Second, because the GEF funds are grant, it is natural that implementing the project will assume a high priority and profile. Yet, the scope of the projects funded is quite narrow and there is the danger of diverting focus from the longer-term integrated strategy needed to achieve ecologically sustainable development.

Conclusion

Now that the major indigenous impacts of intensive wetland transformation in and around the DDBR have been largely alleviated, the main ecological problems are external, principally river water regulation and pollution. Barring a very improbable return to previous attempts at intensive land use in the DDBR, the ecological situation today is about as bad as it is likely to get, particularly as the Danube River Basin programme encourages the better treatment and disposal of wastes and agricultural extensification spreads.

Given the relatively large area and integrity of the DDBR, the low population density, the confidence of financial institutions, and the support of national and local government, the opportunity for establishing a model of sustainable development does exist. In fact the main impediments for achieving this goal are all basically structural and have to be addressed over a sustained period of time: the difficulty of new and reforming governments to absorb large quantities of money quickly and to good effect; the absence of clear and enforceable environmental legislation; the rigidities still remaining in the labour and property systems; the lack of trained personnel in almost all areas of modern management; the lack of basic equipment and infrastructure; the loss of confidence by local people in government agencies; and the lack of capital among local people who want to start businesses.

The problem, of course, is that there are differing views on what ecologically sustainable development means in reality. The crucial factor here is the timescale employed: investors and local communities tend to have much shorter time horizons than ecologists, for whom "perpetuity" means at least 50 years. It is now quite possible to design an ecologically viable strategy of natural resource utilisation that could lead to much improved living standards for the people living in and around the DDBR over the next 10 years or so. The question is, will the DDBRA then be able to contain the likely demands for further growth which would compromise the ecological capacity to sustain it? Clearly, preparations (especially creating environmental awareness) must be made to address this issue long before the situation arises.

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[4 to 7 to be supplied]

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