GLOBAL ENVIRONMENT FACILITY

ROMANIA DANUBE DELTA BIODIVERSITY PROJECT LOCAL BENEFITS CASE STUDY REPORT

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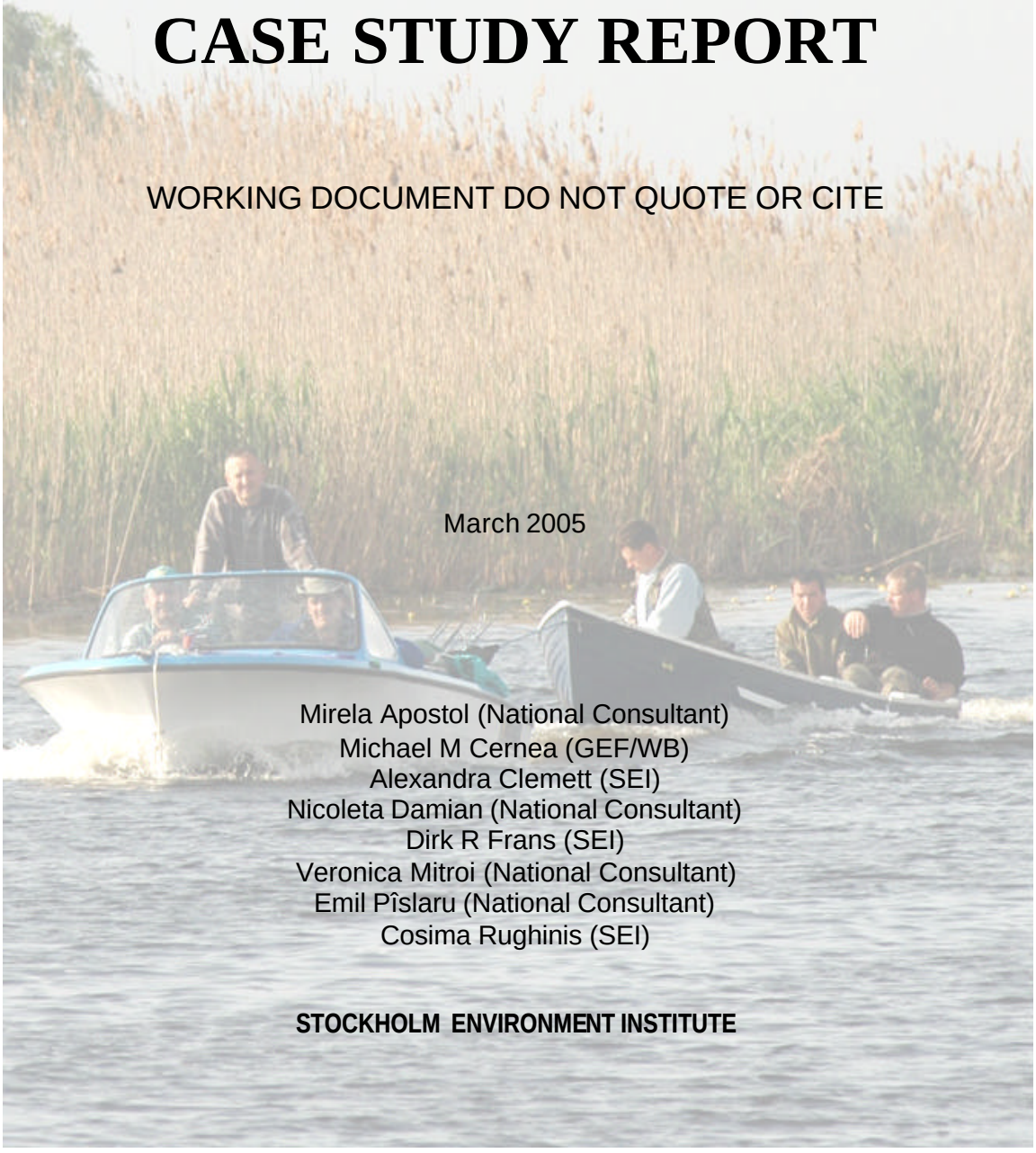

March 2005

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TABLE OF CONTENTS

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In Bucharest the team met a number of officials from the Ministry of Waters, Forests and Environment Protection, which provided overall guidance and coordination of the Project. The team would like to thank Mrs. Adriana Baz (Director), Mr. Florin Stadiu (Secretary of State), Dr. Calin Sinescu (Minister's of Environment Adviser) and Mrs. Liliana Chirila (GEF Operational focal Point) as well as Ms. Valeria Grigoras (Consilier, MMGA).

In the Danube Delta itself the team had extensive talks with the staff of the two main institutions involved in the Project, namely the Danube Delta Biosphere Reserve Authority (DDBRA) and the Danube Delta National Institute (DDNI). At the DDBRA the team would like to particularly acknowledge the input from Dr. Grigore Baboianu (Executive Director, DDBRA) and Dr. Vigil Munteanu (Governor, DDBRA). Both went out of their way to answer the many questions of the team, make logistical arrangements to visit the Delta, read and comment on the draft summary report and organize the stakeholders' workshop. The team remembers their personal commitment to the Danube Delta and its wellbeing. Seeing their professionalism it is no wonder that in 2000 the DDBRA has been awarded the European Diploma for protected areas. The team also had interviews with many of the scientists at the DDNI. Through Dr. Romulus Stiuca (General Director, DDNI), the team would like to acknowledge their professionalism as well as personal dedication to the biosphere reserve.

The international and the local teams had the privilege of interacting with close to 100 other individuals, from local councils, NGOs, Universities and also with inhabitants of the Delta. Though they are not mentioned here by name, their input and insight is kindly acknowledged.

Finally the team would like to acknowledge the guidance received from the GEF staff and the study team. Dr. David Todd and Dr. John Soussan have not only drawn up the ToR for the study but were also most helpful in guiding the team along the way.

While acknowledging the input from so many people, the study team members remain responsible for the content of the report.

One member of the study team, Dr. Gonzalo Castro, Head of Biodiversity in the GEF Secretariat, adopted a different perspective on the project from that of the other team members. His viewpoint is presented in Appendix F of this report.

March 2005

The GEF-SEI Romania Danube Delta Biodiversity Project local benefits study team

EXECUTIVE SUMMARY

The Global Environment Facility helps countries fund activities that protect the global environment. In 2002 the GEF started a study to *"analyze how attaining global environmental goals can contribute to the generation of local benefits and how local benefits can contribute to the attainment of global environmental goals, in accordance with the GEF mandate"*. This is the final report of one of 18 GEF projects selected to study local impacts, the Romania Danube Delta Biodiversity Project (DDBP).

The Project intended to protect the Romanian Danube Delta ecosystem, contribute to the conservation of biodiversity in the Delta, strengthening the capacity of the Danube Delta Biodiversity Reserve Authority (DDBRA) and the Danube Delta National Institute (DDNI). The Project was very successful in strengthening both institutions and this has left them well positioned to contribute to the sustainable management of the Delta, one of Europe's most important wetlands.

However, an analysis of the four stages of the project cycle shows that there was very little conceptualization of the role of local people. The Project document sees local people as the main threat to biodiversity through their almost unrestricted access to fish, the major natural resource in the Delta. While the study team agrees that overexploitation of the natural resources, such as fish, had to be stopped, it believes this could have been done differently, namely by ensuring that the local population was involved in changing management approaches and became part of the solution.

The Environmental restoration component of the Project, to the extent that it was implemented, was quite successful. However, only a small proportion of the planned area was restored and in consequence the global, national and local benefits were considerably less than planned, mainly because local tenure arrangements had not been taken into account. The Project's impact on the sustainable use of the Danube Delta's fish resources will benefit in the long term from the strengthening of the DDBRA and the DDNI, but other components had only marginal impacts. For example, pilot projects for alternative income generating activities under the Project, such as for handicrafts and eco-tourism, have had only a very minor impact.

The study looked into the various natural resource management approaches used in the Delta over the last two centuries, focusing particularly on the latest regime, that of private concessions. Although introduced only after project completion in 2002 this system builds on and is in line with Project arrangements. While on paper the concessions have controlled the amount of fish caught, it remains unclear whether this arrangement has actually done so. What is very clear is that the concessions have reduced the income of professional fishermen by between 30-50% and made subsistence fishing by local inhabitants more difficult. The concessions have increased the amount of tax received by the government and the income of the private concession owners.

In summary, the analysis of the field data shows that while the Project has been somewhat successful in conserving nature and its biodiversity, the livelihoods of many of the inhabitants have been negatively impacted. The Project has missed many opportunities to benefit the local population and thereby enhance the sustainability of the global environmental benefits.

An alternative perspective on the project from that of the other team members has been provided by Dr. Gonzalo Castro, Head of Biodiversity in the GEF Secretariat. This is attached as Appendix F.

The report concludes with eight recommendations to the GEF:

1. At the time of project design and appraisal ensure a balance between Global-National-Local benefits and include a sociological appraisal.
2. Co-interest local communities in protecting resources and ensure their livelihoods and properly compensate for Project Affected Persons.
3. Study the impact of current privatized natural resources management arrangements.

4. Ensure ongoing and independent monitoring of sensitive biosphere resources.
5. Strengthen harmonization of the activities of the various in-county administrative levels.
6. Monitor key indicators and ensure greater flexibility during implementation to respond to changing circumstances.
7. Strengthen the socio-economic capacity of implementing agencies.
8. Proactively identify and follow up local development initiatives for GEF support.

ABBREVIATIONS AND GLOSSARY

AVPS	Association of Sports Fishers and Hunters
CITEC	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DDBP	Danube Delta Biodiversity Project (Romania)
DDBR	Danube Delta Biosphere Reserve
DDNI	Danube Delta National Institute
DDBRA	Danube Delta Biosphere Reserve Authority
EBRD	European Bank for Reconstruction and Development
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GIS	Geographic Information System
GNL	Global, national and local (benefits)
GoR	Government of Romania
IUCN	International Union for the Conservation of Nature
IA	Implementing Agency
ICR	Implementation Completion Report
LBS	Local Benefits Study
M&E	Monitoring and Evaluating
MWFEP	Ministry of Waters, Forests and Environment Protection
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
PAP	Project Affected Persons
SEI	Stockholm Environment Institute
UNDP	United National Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	World Bank
WWF	World Wildlife Fund for Nature

Currency Unit = Romanian Leu (ROL)

1 ROL = 0.0000249134 EUR

1 EUR = 40,139.04 ROL

1 INTRODUCTION

1.1 Background to the GEF and the study

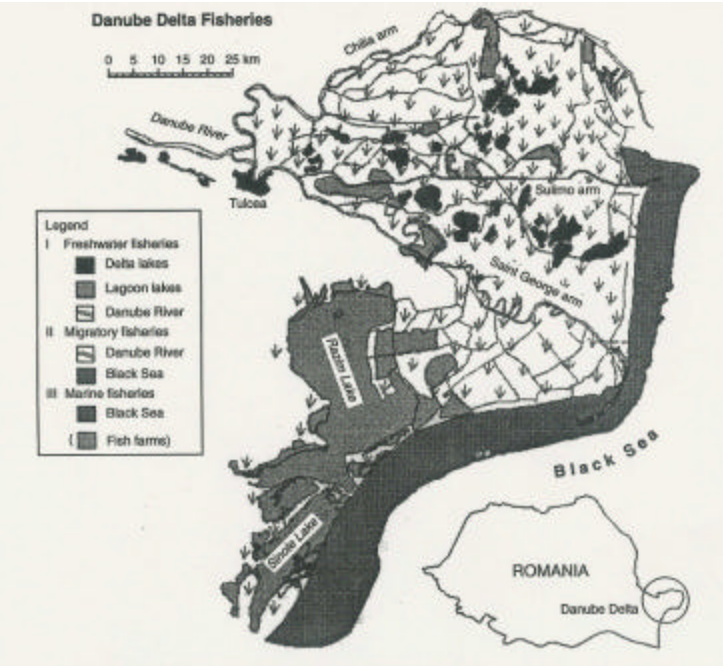
The Global Environment Facility (GEF), established in 1991, helps developing countries fund projects and programs that protect the global environment. GEF grants support projects related to biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants. Since 1991, the GEF has provided $4.5 billion in grants and generated $14.5 billion in co-financing from other partners for projects in developing countries and countries with economies in transition.

GEF funds are contributed by donor countries. In 2002, 32 donor countries pledged $3 billion to fund operations between 2002 and 2006. Since 1991, GEF has provided grants for more than 1,300 projects in 140 countries. GEF's implementing agencies, the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP) and the World Bank (WB) play key roles in managing GEF projects on the ground (see www.thegef.org).

In 2002 the GEF decided to conduct a study to *"analyze how attaining global environmental goals can contribute to the generation of local benefits and how local benefits can contribute to the attainment of global environmental goals, in accordance with the GEF mandate"* (Todd et al, 2003, 5). The multi-phased methodology of what has become known as the 'Local Benefits Study' (LBS), includes a desk review of more than 125 GEF projects, a detailed review of secondary data of 35 projects and detailed field-based case studies of 18 GEF projects (Todd, 2003b, 2).

The 'Romania Danube Delta Biodiversity Project' (DDBP), is one of the 18 GEF projects selected for a field-based case study. This is the final case study report of the DDBP local benefits case study. For a map of the Project area and its location in Romania, see Figure 1.

Figure 1: Danube Delta Biosphere Reserve Area (source Navodaru, 2001)



1.2 The Danube Delta and its global importance

The Danube River is the second longest river in Europe (after the Volga), traveling 2800 km from the Schwartwalt Mountains (Black Forest Mountains) in Germany to the Black Sea in Central Europe. Near the Black Sea the Danube River forks out into a delta of about 6,000 km^2 of which 4,500 km^2 lies in Romania and one quarter in the Ukraine. The Danube Delta is one of the few remaining extensive wetlands in Europe that remains more or less in its natural state.

In Europe the Danube Delta plays a role as a chemical and physical filtering system for water flowing from the river basin. It forms a unique series of interrelated ecosystems, with its large reed beds, maze of tributaries, wild willows and poplars, canals and lakes with aquatic plants and dunes and a mosaic of forests and semi-arid grasslands.

In 1990 the Romanian government, in recognition of the global importance of the area, declared the Danube Delta an international biosphere reserve (DDBR) and established a special authority, the Danube Delta Biosphere Reserve Authority (DDBRA) to administer the reserve. The DDBRA structure and attributions were defined in 1994 by Government Decision 248/1994. The Decision stipulates that *"The mission of the Reserve Administration consists in creating and applying a special regime of management in order to conserve and protect the biodiversity in the natural ecosystems of the reserve, to develop human settlements and to organize economic activities in correlation with the support capacity of these ecosystems"* (GoR Decision 248/1994, Article 5).

The DDBR area supports a wide variety of fish, flora, fauna, birds and other wildlife and provides a home and livelihood for around 15,000 people. According to the DDBRA there are 3491 species of which 3018 are invertebrates (protozoan, worms, mollusks, crustaceans and insects) and 473 vertebrates (fish, amphibians, reptiles, birds and mammals). Of the 331 bird species, 172 are nesting, 57 are resident or partially migratory and 9 are declared 'national monuments', amongst them the red breasted goose (*Branta ruficolis)*. The delta is of major importance to the migratory pelican population. Among the fish species a number are protected, among them the best known the sturgeon, prized for its caviar. Sturgeons are the most strictly supervised species, as they fall under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to which the Romanian state is a signatory party.

1.3 The Romania Danube Delta Biodiversity Project

In 1993, shortly after the overthrow of the old regime, the Ministry of Forests, Waters and Environmental Protection (MFWEP) of the Government of Romania proposed the 'Danube Delta Biodiversity Project' (DDBP – hereafter the Project). The GEF recognized the importance of the Danube Delta for the global environment and saw the window of opportunity early in Romania's transition period. The GEF reacted immediately with a specially financed project grant of US $ 4.5 million.

The objective of the DDBP was: *"... to protect the Romanian Delta ecosystem. It would contribute to the conservation of the biodiversity within the Delta, strengthen the capacity of the DDBRA and the Danube Delta Institute (DDI)... enable the DDBRA and DDI to monitor and manage protected areas effectively, working with local community groups to ensure sustainable resource use, and restoring some wetlands to their natural conditions."* (World Bank, 1994, 2).

Project components

The DDBP had the following six components

a) Strengthening the wardens department, to support nature protection, surveys, public awareness and nature interpretation in the Delta, through the provision of equipment to enhance mobility and surveying, infrastructure and training (US $ 1.48 million);

b) Monitoring, through improved population and species inventories, ecosystem surveys, and development of an integrated database using GIS technology to provide the basis for development of resource management plans (US $ 0.64 million);

c) Restoration of abandoned fish and agricultural polders to their natural condition with impact and hydrological monitoring, together with applied research into reed restoration (US $ 0.57 million);

d) Protection of a lake from direct inflow of Danube water; willow planting; village woodlots; pilot protection of fish fingerlings from an irrigation pump station intake; removal of some deteriorating metal structures for aesthetic enhancement; sturgeon propagation following studies; and establishment of a small grants fund to fund research proposals with a special focus on management of buffer zones (US $ 1.18 million)

e) Public awareness, including support to the wardens to work with schools and local communities, support to the DDBRA in production of public awareness material, and support to local NGOs to enable them to expand their public awareness activities (US $ 0.15 million);

f) Assistance with coordination of activities between Ukraine and Romania, and limited technical assistance for project management, especially for procurement and disbursement (US $ 0.19 million)[1] (World Bank, 1994, 4)

Implementation modalities

The Romania Ministry of Forests, Waters and Environmental Protection (MFWEP) proposed the Project and coordinated the activities at national level. The World Bank Romania managed the Project on behalf of the GEF. The project was jointly implemented by DDBRA and DDNI. In additional four NGOs (ProDelta, Friends of the Delta, ECOS and the Romanian Ornithological Society) were involved in the public awareness component. Although the Project Document called for a Project Implementation Committee this was not established.

1.4 Study Terms of Reference

The Terms of Reference (ToR) for this case study state the following objective *"...to understand the relationship/linkage between local benefits (and/or negative impacts) and the attainment of global environmental benefits of the GEF supported project: Romania Danube Delta Biodiversity Project."* (p 2). The ToR define local benefits for this study as: *"Project outcomes, which directly or indirectly have positive impacts upon people and ecosystems within or adjacent to project areas, and which provide tangible gains in the livelihoods of communities and the integrity of ecosystems."* (p 2). For the full ToR, see Appendix A.

[1] This last component of the Project is not dealt with in this study as it has no direct bearing on local benefits.

1.5 Methodology

Overall methodology

The methodology followed in this case study was derived from the methodology of the overall LBS (Todd et al, 2003b) and the DDBP ToR and has four components:

- Conduct national and state level stakeholder interviews with:
  - The Ministry of Forests, Waters and Environmental Protection, the GEF focal point in Romania
  - World Bank as the agency that managed the DDBP
  - Government Ministries and Departments
  - Autonomous bodies such as the DDBRA and DDNI
  - Independent institutions such as Universities
- Survey project documentation, correspondence and logbooks etc.
- Conduct open interviews and group discussions with key local stakeholders such as local government representatives, local beneficiaries, project-affected people, NGOs etc.
- Direct observation in the Danube Delta and the local impact of the DDBP.

The ToR also called for an initial, broad study by an international team, followed by follow-up study by local consultants. The findings of these two studies would then be summarized in a draft report that would be presented for discussion and feedback at a stakeholder workshop. The final report would take into account the feedback from this workshop. Finally the key institutions would be asked to officially comment on the final report and those comments would be included in an appendix of the report.

Broad study

The initial, broad study was conducted between 11 and 21 May 2004 by an international team of five members[2]. To get a broad and historical perspective, Dr. Michael M Cernea interviewed a number of people in Washington who, over the years, had been involved in the DDBP. The in-country work of the team started with discussions at the World Bank with the task manager of the DDBP. This was followed by a meeting at the MFWEP, the GEF focal point in Romania. After that the team traveled to the Delta (Tulcea) and was briefed by the DDBRA and the DDNI on the Project and the activities of both institutions before and after the Project.

The team then spent four days in the Delta, meeting local stakeholders, community members and leaders, fishermen, local officials, concession owners and staff, NGO representatives and DDBR officials and observing project and other impacts on the region. The team returned to Bucharest where it had more meetings with key actors, academics (geographers, agricultural scientists, etc.) as well as a de-briefing meeting at the World Bank. The international team then drew up the ToR for the follow-up study (see further below).

After the follow-up study was completed the study team leader compiled the main findings of the international and follow-up studies in a draft summary report, which was distributed to over 30 key stakeholders for feedback. These stakeholders were invited to a local stakeholders workshop held on 27 July in Tulcea, in the office of the DDBRA. At that workshop the 13 participants gave helpful comments and feedback on the draft summary report and these have been taken into account in this final report.

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[2] Michael M Cernea (GEF/WB), Dr. Gonzalo Castro (GEFSEC Biodiversity Team Leader), Alexandra Clemett (SEI), Dirk R Frans (SEI – LBS Team leader) and Cosima Rughinis (SEI – National Consultant).

Throughout the study the team stressed that its aim was to look into the inter-linkages between global, national and local benefits and not to evaluate the DDBP, nor the contribution of the various organizations involved.

Follow-up study

In line with the overall methodology the broad study led to an in-depth follow-up study by a team of national local consultants[3] led by the national consultant on the international team. The objectives of the follow-up study were to pursue the following research questions:

1. Was there any impact, positive or negative, of the global benefits of the Project on local communities?
2. How was the impact of the Project influenced by the private concession enterprise system for fishing introduced in the Delta in 2003?
3. What opportunities for local benefits were missed by project design and implementation?

The follow up study aimed to address these questions by documenting several issues:

1. Identify the relevant socio-economic developments during the post-communist transition in the communities of the Danube Delta, and in particular the impact of DDBRA interventions.
2. Investigate the linkages between the global benefits pursued by the Project and the impact on local stakeholders
3. Investigate the achievement of the specific global benefits that were linked with local benefits, and their sustainability
4. Investigate the main changes in the livelihoods of the major local stakeholder groups that occurred as a result of the Project, and their sustainability
5. Assess the missed opportunities for delivering local benefits within the Project, given the main socio-economic trends in the DDBR.

For more details on the methodology of the follow-up study, such as selection of localities and of people to be interviewed, see appendix B.

1.6 Scope and limitations

The scope of this case study was limited in a number of ways. The main limitation is related to the methodological issue of 'attribution'. At the time of the fieldwork, four years after the DDBP was completed, it was very difficult to determine which developments concerning the DDBR could be attributed to the Project. Apart from the time lag, attribution is difficult because at the time the DDBP was not the only intervention relevant to the DDBR. There were a number of simultaneous nation-wide developments as well as local developments and parallel projects concerning the DDBR, the DDBRA and the DDNI. During the five-year project period the Project-related budget allocation for the DDBRA and the DDNI was around one third of their overall budget. All interventions had local, national and sometimes global impacts and it is almost impossible to attribute the visible changes in the delta to specific inputs.

[3] The national consultants team members were: Mirela Apostol (political scientist, Bucharest University), Nicoleta Damian (geographer, The Institute of Geography), Veronica Mitroi (sociologist – urban planning, Bucharest University), Emil Pîslaru (sociologist – community development, Bucharest University), and Cosima Rughinis (sociologist – social policy, Bucharest University and team leader). All of them worked on the team in private capacity.

Secondly the benefits of a biodiversity project like the DDBP cannot be simply allocated to the categories of 'global' or 'local'. The benefits identified in the project represent a continuum spanning a large geographic scale (going all the way from global to the level of the local communities), as well as temporal (benefits that will be fully realized over time as a result of ecological restoration). This multi dimensional concept of benefits further complicates the study.

A final limitation of the study is related to data reliability. This is particularly the case with the fish stock in the DDBR. The project aimed at protecting the biodiversity within the Delta, of which fish is one of the major components under threat. At the moment the DDBRA and the DDNI use the fish stock monitoring procedures recommended by the FAO, which depends heavily on official fish landings. However, all concerned are well aware that this procedure, which is the current 'best practice', does not account fully for the actual catch.

1.7 Lay-out of the report

This report has four more chapters. Chapter Two presents the main findings of the study. It starts with an overview of the main findings, followed by a detailed description of those findings, such as the place of local benefits in the project design and findings related to the relevant Project components. The third chapter deals in depth with the current concession system of fish exploitation, which is the most important factor influencing this crucial element of the biodiversity in the Danube Delta. Chapter Four analyses the impact of all these developments on the lives and livelihoods of local people, starting with a description of the main livelihoods, followed by an analysis of the impact of the various Project components on the local population, using a livelihoods framework. The chapter is concluded with a section on missed opportunities and a conclusion. In the last chapter the lessons learned and the recommendations for the GEF are presented thematically. The appendices contain relevant supporting documents. Appendix F has been supplied by Dr. Gonzalo Castro, Head of Biodiversity in the GEF Secretariat and presents his alternative perspective on aspects of the project.

2 MAIN FINDINGS ON PROJECT IMPACTS

2.1 Overview of findings

In this chapter the main findings of the case study are presented in detail. The chapter starts with an overview of the main findings after which each of them is dealt with in more detail in a sub section.

The main findings of the study are:

1. during project preparation and appraisal there was no concern for identifying and channeling explicit benefits to local communities;
2. the Project has contributed to the strengthening of the institutional capacity of the DDBRA and the DDNI;
3. the strengthening of the Warden's Department initially seemed to succeed but ultimately fell short of expectations, mainly due to a severe lack of manpower;
4. the capacity of the DDBRA/DDNI to monitor the fish stock in the Danube Delta initially improved considerably, but is currently under threat due to its heavy dependence on reporting by fisheries concession owners;
5. the major ecological component of the project, restoration of polders to their natural condition, has fallen far below expectations, as 60% of the area aimed for has not been restored despite the success of the areas that were restored and its importance for global, national and local benefits;
6. a variety of small scale eco-restoration and other pilot activities has had limited impact, mainly because there was no scope for expansion of successful pilots;
7. the awareness raising component of the Project was quite successful in schools, but its overall impact was limited, not least because the Public Awareness Strategy was not drafted until June 2000 (the last month of the Project) and because it followed a top-down rather than participatory approach;
8. the natural resources management systems introduced during and after the Project have had a clearly negative impact on benefits to the local population in general and the professional fishermen in particular;
9. the current concentration of power in the hands of the concession owners raises serious doubts about the sustainability of the fish resources in the Danube Delta.

2.2 Local benefits in project preparation

To understand the actual local impacts of the Project it is necessary to look into the role that local benefits played in the project generation and preparation. The findings reported in this section are based on discussions with project staff (both in Washington and in the World Bank Bucharest office) and with Romanian project officials.

Project preparation and project concept

During project conceptualization and preparation the main objective was to identify risks and priorities for preserving the Danube Delta biosphere. However, neither the project preparation effort nor the

appraisal document itself focused in depth on the local communities living on the Delta and on local benefits. References to communities or local inhabitants in the appraisal report are made only in passing, in connection with some limited information-awareness provisions.

The project preparation phase failed to include a social study, i.e. a sociological appraisal of the local area population, its role in natural resources management (NRM) and its needs, among other things, as is now standard World Bank procedure. There is virtually nothing in the project appraisal document about the local communities, their socio-economic status, production practices, traditions and culture.[4]

As a result, the project appraisal report and the project's technical design were only rather anecdotally informed about the local population. The appraisal document lacks analysis of what the local community role was and what their future role could be concerning biosphere protection. The local population is mentioned in initial documents mainly as a threat to the reserve. The main emphasis of the project design was on the indispensable macro level measures at the state and biosphere reserve level but not at the community level.

A major assumption at the time was that the European Bank of Reconstruction and Development EBRD) would provide the Government of Romania with a loan for the socio-economic development of the Danube Delta population. This may have influenced the level of social analysis done under the Project.

The project design premise – correct, but in the view of the study team badly one-sided – was that two main threats were confronting the preservation of the biosphere resource:

1. The destructions and degradations inflicted on the reserve under the pre-1990 state administration of the Delta. Amongst others, that regime had excised over 60,000 ha of the Delta wetland area, transforming them in polders (for corn, wheat, forest, etc.) and also imposed an exploitative, extractive regime on the remaining Delta areas. The solution envisaged in the Project was the ecological re-conversion of 25 polders, totaling 37,765 ha, to their natural state.
2. The lack of monitoring of fishing by local fisherman and others, leading to, for example poaching and over-fishing. The solution envisaged in the project design was consolidation of the Warden department, a considerable increase in the number of ecological guards and the regulation (via permits) of the industrial fisherman profession. Implicit in the Project and part of the solution was the setting up (through auctioning) of private enterprise-type fishing and marketing 'concessions' assumed to better protect the resources (a rather doubtful 'solution' as became apparent through this case study).

In sum, the analysis of the generation, preparation and appraisal of the project has concluded that the need for a sound balance between global, national and local (GNL) benefits was neither conceptualized adequately in the project documents, nor translated operationally into Project components.

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[4] The analysis of local communities inhabiting ecologically sensitive areas has been traditionally found useful and recent experiences increasingly consider indispensable the use of such social-analytical tools for environmental projects. For instance, the most recent study (2004) on the 'Millennium Ecological Assessment' defines in detail the *"rationale for conducting community-based assessments*" emphasizing that they "*represent the most appropriate (some would say the only) way to obtain fine-grained information about ecosystem services and processes"*. The reasons indicated for this conclusion refer to the community's *"most direct link to the ecosystem"*,the *"local ecological knowledge"* and the local users ability to *"detect and respond to early signs of fluctuations in the flow of ecosystem goods and services"* (Millennium Ecological Assessment study, Sub-global Working Group Report, Ch 10, 2004).

This finding reflected a broader lack of explicit guidance for GEF projects typical in mid-1990s regarding how to reach a balance between GNL benefits, rather than only an oversight of the project team. As a result, the potential reinforcing links between GNL benefits remained unexplored in the DDBP. The concern for ensuring local benefits and for deliberately making the local population directly partners in protection was not explicitly operationalized [5] into the Project's design.

Furthermore, at the Project preparation stage the assumption was that the European Bank for Reconstruction and Development (EBRD) would extend a loan to the Government of Romania (GoR) to support socio-economic development among Delta communities. Unfortunately, – as will be shown below – neither this plan nor any similar interventions came to fruition until the time of this study.

Design

At appraisal, the Project design was predicated on restricting the illegal fishing by local fisherman. In retrospect this was a necessary orientation for the Project. Globally and nationally unique biosphere resources have to be protected against abuses by any stakeholder, including local communities. The Project Appraisal considered incorporating into the Project's design some alternative means of income generation, so as to relieve resource pressures by economic levers and by alternative incentives, rather than only through control and command measures. However, these alternative means of income generation were only of a demonstration nature.

> *"The DDBRA is all about conservation, conservation, but what about us, local people?"* (Professional fisherman in Mila 23)

The restriction of access by local fisherman was bound to affect their incomes and it was predictable that the restrictions would have lowering effects on their already low living standards and would therefore be resisted. The Project did envisage pilot projects and demonstration activities for alternative income generating as well as long-term restoration of fisheries. However, the Project did not envisage nor promote any large-scale, immediate or long-term alternative income generation for fisherman. The SAR did not mention any plans to involve organized local fishermen in the exploitation of the local fisheries resources.

The near absence of specific provisions within the Project design, or in the appraisal report, about local communities and the kind of benefits which the Project would channel to them, was not corrected during implementation. The implementation effort proceeded consistently with the Project design, without any significant redesign in midstream to compensate for gaps regarding communities in the initial design. The appraisal did have some references, as mentioned before, to awareness building and regarding support to fisherman associations. This can be seen as being related to local communities, more or less indirectly. However, as shown later in this report, the awareness building component, which was minor from the outset and had the smallest allocated financing, did not lead to any intensive awareness building and educational campaign.

As to the fishermen's association, after some initial attempts to explore their professional role, nothing more has been done and this type of community-based professional local organization 'fell off' the Project's screen. Indeed, when the Project advanced later toward auctioning off fishing areas to commercial enterprises, the possibility of evolving fishermen's associations into competitive participants in the auctions was given up altogether. No fishermen's association was strengthened enough by the Project to become a credible bidder in the auction and to assume responsibility for

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[5] This is surprising because the Staff Appraisal Report states: Lessons learned from previous Bank involvement.... *"Experience with biodiversity projects in other countries emphasizes the importance of securing the support of local communities for conservation programs, and the need to adapt project design to the implementation capacity of local institutions."* (Project Document, p 4, point 13)

further fishing and managing in a subsection of the Delta as a local enterprise, benefiting most directly the locals themselves. The lack of fishermen's associations or trade unions has had a negative impact on their subsequent bargaining capacity in relation to the concession owners. As will be shown later in detail, the fisherman were left only with the option of hiring themselves out as individual workers to those entrepreneurs coming from outside the Delta who succeeded in obtaining a concession.

To clarify the perception of Project officials and of local authorities regarding the role of local communities in the Project and channeling of benefits to those communities, the study team consistently asked them whether the issue of benefits was introduced in some way during project implementation. All officials answered that this was not an objective of the Project and was not 'on their screen'. The President of the Tulcea County Popular Council stated: *"This project did not aim to produce benefits for the local population. I cannot give you examples of such project benefits."*

When the EBRD loan for socio-economic development of the Delta population fell through, the Project did consider assisting local fishermen to get organized. The Implementation Completion Report (ICR) states the following about this process:

The development objective was not revised but, following the cancellation of the EBRD loan to support socio-economic development among Delta communities, the project objective was augmented under supervision to include working with community groups to enhance economic development that is linked with sustainable natural resources management and biodiversity conservation objectives. (ICR, 2000, p. 2). The Project also involved an important aspect of local level benefits namely, the role and interests of the local authorities in management of, and benefiting from, the polders in the DDBR. As mentioned earlier, over 60,000 ha of the Delta had been lopped off by state decision under the prior regime and transformed into polders of which over 18,158 ha was to be restored to its natural condition under the Project. The authority over these polders, as production units for immediate experimentation, had been transferred to the local County Council. The exploitation of the polders became a revenue source for the local Tulcea County Council, thus benefiting the local community, which they were not willing to give up.

At appraisal, the Danube Delta Project focused on the ecological restoration and re-conversion of the polders as one of its major objectives. However, as mentioned above, the preparation and appraisal effort did not include a local socio-economic assessment, which would have covered tenure regimes in the Delta. It was precisely the complexity of the tenure issues that led to the failure of this major project component. As will be shown later in this report, only 40% of the planned polder area was ecologically re-converted to its natural state, with immediate and important benefits, while the major part of the qualifying polders, (72% of the abandoned area) have not been reconverted.[6] At the time of the fieldwork (mid 2004) they still exist as polders and are under the administrative authority of the local County Council of Tulcea. Under the present administrative and legal arrangements the re-conversion of the remaining abandoned areas seems highly unlikely.

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[6] The ICR mentions that approximately 7,300 ha of the envisaged 37,765 ha were restored (p 20). However, the figure envisaged appears to be wrong due to double counting. In the Project Document (1994) page 37, a Table details abandoned areas within named polders totalling 26,340 ha (not 37,765 ha). However, on page 38 the document states: *"From the list of 16 polders in the Table, it is expected that the project will be able to initiate restoration of four polders to wetland conditions during the first two years of the Project. Of the remaining 12, Pardina (polder with an abandoned area of 8,182 ha) is too large and the least likely to become available for restoration."* (p 38, point 3.82). This leaves (26,340 - 9,182) = 18,158 ha to be restored under the Project. (See: World Bank, Implementation Completion Report on a GEF Grant for the Danube Delta Biodiversity Project. December 20 2000 (Report No.: 21537), pp 36-38).

The inability of the project to achieve much of its the ecological conversion component was due primarily not to any technical reasons, but was caused by the entrenched resistance of the powerful local County Council to the modification of the usufructury tenure regime of the polders, given vested local interest in tax revenues. The authority of the County Council was also consolidated by the national legislation. This situation highlights a significant aspect of the correlation between global/national and local benefits: namely, a situation where local authorities did not appreciate the long term national/global benefits of a biosphere resource within their territory, nor the potential benefits to the local communities and clung to short-term local revenue benefits. This was essentially detrimental to both national and global benefits. The competition and conflict between these different types of benefits is, of course, not new in the GEF experience, but the Danube Delta is a remarkably significant case.

Failure at the time of Project preparation to conduct a systematic socio-economic assessment of all relevant indicators, prevented the project from fully understanding local tenure and administrative complexities. As a result the Project design did not incorporate adequate measures and solutions—legal, economic and financial—to resolve these issues by addressing both the local and the central government levels. Despite continuous and laudable efforts by the DDBRA managers, this local 'obstacle' was not overcome by the Project.

The study team has not found evidence that either the World Bank as the managing agency, or the GEF, have used their potential leverage with the Romanian government to explain and argue the case for a wise and ecologically sound resolution of this important GNL issue regarding polder re-conversion, by taking into account all relevant interests. A more flexible and pro-active approach to implementation could have resulted in more global, national and local benefits.

Operation/follow-up

In sum, the analysis of Project stages shows that a systematic concern for incorporating local communities into the design of the Project as important actors has not been present as a major concern at any particular turning point or key stage in the Project cycle. This, of course, does not mean that communities were totally ignored; there were a number of pilot and demonstration projects, but those were very small-scale, rather tangential activities, not structural ones. They were not motivated by a deliberate concept of identifying the needs of the communities, giving them as such a structured role in natural resource management, and deliberately channelling a stream of benefits to them.

With hindsight, all Project officials whom the research team met and interviewed specifically about this, consider that it was a major weakness of the Project that it did not take into account the need for ensuring a certain level of community involvement and community benefits. The study team noted repeatedly that former project officials, and other specialists in DDBRA and in other local authorities, now believe and state that if local community responsibilities and benefits had been specifically included in the Project, it could have considerably helped the Project's effectiveness and outcomes.

During discussions, DDBRA officials emphasized that the conclusion about the strong need to address local benefits came up during the 2001 visit of the World Bank director for Romania. At that time it was agreed by all that the then envisaged follow up project (Danube Delta 2) would have to explicitly address local community benefits. This was highlighted in the formal letter sent by the Director to the GoR and to the DDBRA officials, stating that *"The proposed project would address both the environmental concerns and the sustainable development of local communities living in a biosphere reserve. We will work closely with the Government in developing this concept."*[7] On that basis, the

[7] Andrew N. Vorkink, Letter to the Minister of Public Finance, Government of Romania, January 25 2002

DDBRA prepared a comprehensive 'Concept Note' for a second GEF project titled *'Sustainable Development Project in the Danube Delta Biosphere Reserve"* and submitted it to the World Bank and GEF.

However, the possibility of a similar project supported by NORAD led to the shelving of the DDBRA-GEF proposal. As of mid 2004 it seems likely that that NORAD project *'Support for sustainable development in the Danube Delta Biosphere Reserve"* (total budget €60 million) will materialize[8]. The findings of the DDBP local benefits study support fully the reasons and the timeliness of such a project and a possible GEF-supported component to maximize the global environmental benefits of this local initiative.

2.3 Capacity building of DDBRA and DDNI

Global and national commitments to protect biodiversity can only be achieved if there is sufficient political commitment as well as local institutional capacity to translate that commitment into reality on the ground. The Project clearly benefited from high level political support and from capable staff in the two organizations that are crucial to the management of the DDBR, the DDBRA and the DDNI, which acts as the research institute supporting the DDBRA.

Almost immediately after the overthrow of the communist regime in December 1989, the GoR showed extraordinary commitment to preserving the unique Danube Delta wetlands. Within a year the GoR declared an international biosphere reserve covering the Danube Delta as well as the adjacent coastline and established the DDBRA to administer the reserve. Furthermore by decree the GoR established the policy that gives priority to conservation in the delta and stopped all future wetland reclamation (polderization) activities as well as sand mining.

The GoR continued its efforts to safeguard the reserve and by 1991 the biosphere reserve was declared a World Heritage site by the World Heritage Commission operating under UNESCO. In 1994 Romania became a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This was crucial to the conservation of the sturgeon; one of the Delta's most endangered fish species.

The study team notes the high professional level of the staff of both the DDBRA and the DDNI. Many of the staff are from the Delta itself and therefore bring professional as well as personal commitment to their work. The capacity of key officials combined with the political commitment are a major reason why both the DDBRA and the DDNI are now internationally recognized and well placed to contribute to the long term conservation of the DDBR.

The Project envisaged strengthening the capacity of the DDBRA and the DDNI. It is impossible to segregate out the impact of the Project from that of other projects and the core GoR support to both institutions. Over the years of Project implementation, its contribution to the overall budget of both institutions varied from 30-50%. However, officials of both organizations stated that the Projects came at the right time and with the right mix of capacity building inputs. Crucially, the GoR took care of basic necessities such as salaries while the Project provided much needed 'topping-up' facilities such as additional capital investments, training and capacity building.

In relation to local benefits and capacity building there is one area where the Project did not have an impact, that being strengthening the sociological capacity of the institutes. This is not surprising as the Project design lacked attention for local benefits as well as a social assessment. In line with what is commonly found in many 'technical' organizations, both institutes have few staff with a sociological or related background. While the incumbents did all they could in the given circumstances, this

[8] For details see http://www.norvegia.ro/info/business+news/danubedelta/danubedelta.htm

fundamental weakness in their staffing setup remains. As a result, during implementation of the Project there was little scope for enhancing the local benefits of the Danube Delta population.

2.4 Component 1: strengthening of the Warden's department

The strengthening of the DDBRA Wardens Department was the biggest single component of the Project, claiming 35% of the total budget (World Bank, 1994, p 7). This component was complicated by numerous factors such as understaffing and the conflicting and changing roles of wardens as "ecological wardens" and "guards" and specific activities that have alienated the community. The institutional strengthening of the Ecological Wardens Department was an attempted reform of the resource management system in the Danube Delta, which included several components:

- Improved technology for the wardens, in order to enable them to guard the resource more carefully;
- Training sessions, to redirect wardens from enforcement towards community involvement and awareness;
- Increasing the number of wardens;
- New licensing rules for fishing boats and for professional fishermen.

In 1994 the Warden's Department consisted of 20 support and 100 field-related staff. These 100 included a Director, a Deputy Director, an 'inspectorate team' of 15 professionals and 83 'guards'. At Project negotiations there were proposals to increase the number of guards to 200.

Through training and the provision of essential equipment such as speedboats, the Project has certainly contributed to increasing the competence, capacity and effectiveness of the wardens. One of the main tasks of the wardens was to check the use of illegal fishing tools. As far as threats to the sustainability of fishing are concerned, the nylon nets (*setci monofilament*) are the most important threat as they are used very frequently. For example, in 2003, out of the 4432 confiscated tools, 3898 tools were nylon nets (DDBRA 2003). For trends in sanctions applied by the wardens, see Table 1.

Year	No of warning notices	No of fines	Fishing tools seized	Boats seized
1999	67	1056	3542	4
2000	64	937	5936	16
2001	9	580	8997	34
2002 (Environmental Guard staff departs from DDBRA)	22	333	6363	24
2003	58	123	4432	3
1st trimester of 2004	7	8	533	0

Table 1. Sanctions applied by the DDBRA wardens, 1999-2004 (Source: DDBRA)

> *While the wardens had a positive impact on the conservation of the DDBR natural resources, villagers generally had negative impressions about the wardens. These were often related to incidents involving sanctions. The idea that DDBRA started with 'the wrong foot' was recurrent throughout the interviews. The emphasis on control instead on educating and discussing with fishermen, was perceived, according to one respondent, as imposing a certain behavior without giving an alternative.*

Several respondents complained about a particular situation when the DDBRA agents were considered by fishermen as unfair:

> *At the cherhana they said that tomorrow [that would be the first day after the prohibition] they will receive fish at 8 or 9 p.m., and all fishermen went on the lake to install the tools, in order to collect the fish in the morning. But at 11.00 in the night [one hour before the prohibition would be over], in the last hour of prohibition, they came and confiscated all tools. They would expect the fishermen to go out in the middle of the night to set the tools, which is not humanly possible…. (fisherman)*

Nevertheless, it is generally agreed that the institutional strengthening of the warden department has contributed to restraining poaching, especially the use of illegal tools, such as the nylon nets. This in turn has led to an increase in the rate of repopulation of the fish resources, which will in time have positive global, national and local benefits.

While the wardens employed had a positive impact on the conservation of the Danube Delta resources, during and after the Project the wardens' scope of action and effectiveness has always been constrained by understaffing and underpayment. During Project negotiations, the Government of Romania *"agreed to or confirmed the following:.... (d) recruitment by DDBRA of...20 wardens per year through the five-year project period..."* (Project Document, 1994, p 5-6, point 17). However, in spite of repeated attempts by the DDBRA to get the core funding necessary to appoint additional staff, the government did not agree to that. The government did not even accept the compromise proposal of adding an additional 32 staff, which would have allowed coverage of all 12 districts with one warden per canton and one coordinator per district. By summer 2003, before the concession system was introduced, the number of wardens was down from the original 100 to 53 (see Table 2).

At the appraisal stage of the Project, achieving the agreed number of wardens was considered crucial to the success of the Project. The SAR states: *"The second major risk concerns the difficulties of recruiting sufficient additional wardens at the government salaries offered. This risk will be mitigated by improving working conditions and providing housing and training for staff."* (Project Document, p 53, point 5.09). Apparently the Project has not been able to mitigate this risk.

In the summer of 2003, after the concession system was introduced, 15 inspectors and 11 wardens were moved from the DDBRA to the newly established institution 'The Environmental Guard', under the National Control Authority. The DDBRA only includes currently 36 wardens or 'ecological agents', of whom 34 agents undertake fieldwork and two agents work at the Center.

	1994	1995	2000	2003	2004	Ultimate
Agreed	100	120	152	-	-	200
Revised proposal	100	-	132	-	-	-
Actual	100	100	-	53	36	-

Table 2. Number of agreed and actual wardens (Source: DDBRA)

Apart from the clear understaffing, the warden's work was affected by underpayment. In May 2004 wages were 3.3 – 3.8 million lei, compared to a national net average wage of 6.0 million lei in April 2004 and the minimum guaranteed wage of 2.8 million lei[9]. Furthermore, according to the DDBRA Warden Department Chief, the wardens still lack essential pieces of equipment; for example, only some of them have cameras in order to document the use of illegal tools.

> *"With his miserable wage, a warden should be too stupid not to be interested in poaching for valuable fish" (fisherman, Crisan)*

Another relevant point is that unlike other control agents, ecological wardens of the DDBRA live in the Delta villages. This imposes additional constraints on their guarding activities, because it situates them in a position of conflict between their professional interests and their neighborhood interests. On the other hand, this position is convenient for their mediation and information responsibilities.

Through the support of the Project under this component, the DDBRA introduced fishing permits. Issuing fishing permits was used to regulate the total fish capture and to distribute it across the various Delta regions. It allowed not only limiting the number of fishermen but also the number and types of tools used. Fishing permits were first introduced in 1997 when the DDBRA initiated the process of issuing individual fishing permits, according to Governmental Decision 516/1997. According to interviews with fishermen, many of the seasonal fishermen and other fishermen who did not fulfill a minimum annual quota that qualified them as professional fishermen, did not receive authorization.

The policy of DDBRA has been to control the number of fishermen, and therefore new permits have been granted only if a number of professional and social conditions were met, such as being a professional fisherman, having no other source of income, etc. Fishermen who did not catch a minimum annual quantity of fish, to prove that they were professional fishermen, could not renew their authorization. On balance, this issuing of fishing permits seems to have achieved its aim; reducing the quantity of fish caught by reducing the number of fishermen and thus the fishing effort. Fishing permits have also been important as a mechanism for monitoring the amount of fish caught in the Delta as catch data was available from all who claimed to be professional fishermen.

During the field work respondents mentioned that it was difficult to get a permit for professional fishing. One option was to buy a permit from a fisherman who was willing to sell. The price for a permit was estimated at between 10 and 60 million lei (USD 300-2000). Professional fishermen mentioned that the restrictions on equipment during the time of the Project were significant obstacles for their activity: *"with 30 nets one cannot catch anything"*. Currently, after the concessions, the number of active professional fishermen is in the hands of the concessionaires, who can ask for

[9] National Statistical Institute (INS), according to Rompres, presented in http://financiar.rol.ro/stiri/2004/05/135181.htm; and HG 1515 / 2003 concerning the minimum wage, http://www.expertus.ro/contabilitate

additional permits if needed. In practice, DDBRA data indicate a steady decrease of the number of active professional fishermen since 2000 (see Table 3).

Year	Self-employed fishermen[10]	Total no of fishermen
1999	178	1667
2000	454	1725
2001	602	1657
2002	584	1613
2003	791	1546
May 17, 2004	954	1375

Table 3. The number of self-employed and total number of fishermen (Source: DDBRA)

2.5 Component 2: capacity to monitor and manage natural resources

The second component of the Project was to enhance the capacity of the DDNI to monitor the status (quantity, quality and diversity) of the various natural resources in the DDBR. The assumption was that this in turn would lead to better management plans by the DDBRA.

Alongside other international institutions (such as the Dutch RIZA), the Project has substantially contributed to increasing the levels of scientific and technical competence of the DDBRA and DDNI staff in monitoring the situation of Delta natural resources. The study team found that the Project has greatly contributed to better GIS capacity at the DDNI, improved data bases, resource maps etc. The scientific achievements of the DDBRA and the DDNI are now recognized internationally; amongst others expressed when in 2000 the DDBRA was awarded the European Diploma for protected areas. This level of institutional capacity represents an example of best practice for capacity building. Romania has also become partner to CITES which requires a high level of scientific capacity to monitor, amongst others, the status of the sturgeon population in the Danube Delta and the adjacent Black Sea area.

During the Project, and until 2003, harvest levels for sustainable fishing were established taking into account two sources of data:

- Monitoring fishermen capture, by registering individual capture recorded in payment notes; a minimum capture of 2.5 tons per fishermen per year was necessary to renew the fishing permit;
- Monitoring the capture, through the official capture reports by the 100+ enterprise active in the DDBR.

This monitoring procedure is in line with the current best practice for such monitoring as advocated amongst others by the Food and Agriculture Organization (FAO). As expected in the institutional settings of the last few decades to date, there is general agreement that all along fishermen and fishing enterprises considerably underreported the actual fish capture. This has impeded the calculation of relevant sustainable harvest quotas. DDNI experts confirm that the sustainable quota for fishing is estimated using a mathematical model which uses as inputs data from reported fish captures. Although the biased input data generates biased results, this method is used worldwide and there are reportedly few cost-effective alternatives. The DDNI scientists estimate that a more accurate alternative, an independent survey of the fish population conducted during the two months of the yearly prohibition period, would cost around € 200,000. The current budget of the DDNI cannot support such expenditure.

[10] Self-employment was regulated by Decree Law DL 54 / 1990 and then by Law L 507 / 2002.

During the first years of the Project, it has been widely assumed that the black market for fish would disappear after state-owned companies were privatized or replaced with competitive private enterprises that will pay market prices. That has obviously not happened. The desire to avoid taxation and to fish in excess of quotas provides incentives for underreporting, especially given the weak law enforcement system.

After the introduction in 2003 of the concession system, concessionaire enterprises are the only ones responsible for reporting fish capture to the DDBRA. Concessionaires are also responsible for managing their relationship with the fishermen. Therefore the DDBRA has ceased to monitor the fish capture of individual fishermen and now only focuses on enterprise captures. From the field work it is clear that practices of 'unofficial' employment and underreporting continue. As a result the efforts of the DDBRA and DDNI in monitoring fish capture and estimating sustainable fish capture levels are hampered. A major factor is that it is difficult, if not impossible, for the various law enforcement agencies to implement effective control now that power is concentrated in the hands of just over a dozen concessionaire enterprises.

It is difficult to determine whether currently, under the concession system, the fish resources are managed in a more sustainable way than during the project. The system for natural resource management introduced during the Project, centered on fishing permits, allowed considerable autonomy for fishermen, while at the same time limiting the number of professional fishermen and professionalizing the occupation. The high costs of requisite equipment in order to obtain and maintain a permit have also contributed to limiting the fishing effort.

To conclude, the limitation of fishing permits and fishing tools were quite effective constraints on the previously unrestrained exploitation of the DDBR fish resources. On the other hand, it is unclear to what extent fishing quotas, as currently applicable under the concessions system, are actually effective in limiting fish captures, given the persistence of the black market and the low monitoring and enforcement capacity of the DDBRA. The substantial improvement in DDBRA and DDNI capacity to monitor environmental indicators is limited by the delegation of responsibilities for data collection (reporting) on fish catches to concessionaires.

2.6 Component 3: restoration of polders

The third component of the Project, restoration of wetlands, converted under the previous regime into units for agricultural and aquacultural production, to their natural state, claimed 14% the Project funding. Based on recent international experience this component of the Project was of critical importance to the overall aim and objectives of the Project. The GEF and the DDBRA can be commended for rapidly realizing the importance of polder restoration and for restoring four polders in the early stages of Project implementation.

The biodiversity of the DDBR was strongly affected by the measures of the communist government to intensify exploitation of natural resources by taking extensive land surfaces out of the natural circuits. According to DDBRI and DDNI experts, polder restoration is therefore of vital importance for the Danube Delta.

As to the polder area available for restoration to its natural condition, the Project document states: *"A total of 16 polders, covering 60,260 ha... have been identified by the DDBRA as abandoned in whole or part and potentially suitable for restoration. The total abandoned area within these 16 polders is 26,430 ha. However, the abandoned empoldered land that is available for restoration is currently limited by a Protocol between the county of Tulcea and the DDBRA, dated 28 January 1993. This protocol defines which of the polders are to be retained for commercial production. The areas which are excluded from the protocol agreement (i.e. are available for restoration) total 11,425 ha."* (World Bank, 1994, p. 36). As detailed in the footnote in section 2.2.3., the total area available for restoration

during the Project was 18,158 ha. According to the Implementation Completion Report (ICR) the initial restoration of Babina, Cernovca, Enisala and Popina polders (7,289 ha – being 40% of the project target) proved to be *"spectacularly successful"*. (ICR 2000, p.6).

However, during project implementation new conflicts arose over tenure/ownership rights concerning the polders to be restored. Ownership arrangements, as established by Law 69/1996, set these polders under the administration of the County Council. Legal provisions that stipulate the necessity of ecological rehabilitation for abandoned polders run against the interests of the Council, since the County budget derives revenues from concessions of polder surfaces. Lacking strong enforcement measures from the Central Government, the legal provisions concerning ecological rehabilitation are not applicable. The lack of clarity of the legal status of ownership of some polders resulted in delay in achieving quantitative targets for restoration envisaged in the SAR (18,158 ha).

Despite efforts to resolve the conflicts over the polder restoration, made by the DDBRA, the World Bank Romania office, the GEF and supervision missions, the constant resistance of the Tulcea County authorities frustrated the process. It is not clear however whether the World Bank as the managing agency, has been energetic enough in using its broader leverage with the central Romanian government to explain the case for a wise and ecologically sound resolution of the issue limiting polder re-conversion. In summary, a more pro-active approach to implementation could have resulted in more, and better balanced, global, national and local benefits. In any case, at the time of the study the area actually restored remains stagnant at 40% of the target and 18% of the abandoned area that the DDBRA had identified as having potential for restoration.

The role and interests of the local authorities in managing the resources of the Danube Delta show a significant case of a conflict between national long-term interests and local short-term interests in controlling natural biosphere resources. The exploitation of the polders (and their fertilizer-based and polluting agriculture and electricity-based aquaculture) became a revenue earning source for the local County Council Tulcea. It is clear that the local authorities did not appreciate the national/global benefits of a biosphere resource within their territory. They continued to cling to short-term tax revenue benefits opposing ecological restoration and thus undercutting national and global benefits. The competition and conflict between these different types of benefits is, of course, not new in GEF practice, but the Danube Delta is a remarkably significant case.

One of the main factors behind this local-national-global conflict has much to do with the preparation of the Project. As mentioned above (section 2.2), failure of project preparation work to conduct a systematic socio-economic assessment of all relevant indicators prevented the project from fully understanding local tenure and administrative complexities and from incorporating into the project design adequate measures and solutions — legal, economic and financial — to resolve this issue by addressing both the local and the central government levels. Despite continuous and laudable efforts by the DDBRA managers, this kind of local 'obstacle' was not overcome by the Project. Ultimately, the omission of a socio-economic assessment led to the failure to fully implement this major project component.

As to the local benefits of restoring polders to their natural state, areas that have been restored are opened for fishing and they have therefore contributed to income generation for local fishermen as well as benefited tourism, particularly sport fishing. Nevertheless, after the concession of the professional fishing activity in 2003, the control over the fishing activity in these polders and a substantial amount of the benefits has been transferred to the concessionaire, thus reducing the benefits to the local population.

2.7 Component 4: ecosystems restoration and pilot activities

The fourth, and second largest component of the Project, included a wide variety of activities, such as the protection of a lake from direct inflow of Danube water; willow planting; village woodlots; pilot protection of fish fingerlings from an irrigation pump station intake; removal of some deteriorating metal structures for aesthetic enhancement; sturgeon propagation following studies; and establishment of a small grants fund to fund research proposals with special focus on management of buffer zones. The total budget for these activities was US $ 1.18 million, 28% of the project budget.

Most of the activities under this component were pilot project type activities. The study team has not been able to look into the details of all the activities undertaken in detail, but briefly looked at blocking of channels to protect lakes from early sedimentation and alternative income generating activities such as rural-tourism.

Under the Project a number of channels bringing sediment laden water from the Danube River to DDBR lakes were closed. Those interviewed say that these closures had a positive impact on the water quality in Lake Fortuna, and this is confirmed by water analyses. Moreover, there is general agreement that channel closures reduced the rapid silting processes that threatened the very existence of the lakes and as such the Project has achieved one of its conservation aims.

However, from a local benefits perspective, villagers in Gorgova have strongly opposed the measure of closing channels leading to the Lake Fortuna, because it makes access by boat more difficult for them. Fishermen mentioned that in order to prevent one of the closures, they organized a boat barrage. When later on the closure was nevertheless made with earth, fishermen dug a channel through it. Finally, the authorities rebuilt the dike with stones and it has thus become impossible to breach.

The DDBRA says it has reached a compromise with villagers by closing only the narrower channels that impacted the lake more directly and allowing access on the broader channel that surrounds the Lake. Yet, fishermen complain that as a result of the channel closure, they must now take a long detour. Fishermen in Gorgova report that in a boat without a motor it now takes 6 hours to arrive in Lake Fortuna, while before the closure it only took 2 hours. Alternatively, they must drag their boats and the fish over the dyke, with considerable effort and incurring risks for the boats. Some of the better off fishermen maintain two boats – one in front of the closure and the second behind the closure, in order to facilitate the transportation. In Maliuc there was similar discontentment related to the closure of a channel. For example, one respondent argued that the closure has prevented tourists who are going to Fortuna Lake from passing through the village, and she no longer had any opportunity to sell them dairy products.

Villagers are aware that this closure was meant to prevent sedimentation in Lake Fortuna, which they appreciate, but they resent the measure because the closure of the channels has imposed significant costs on their activity. Despite strong villager opposition to closing the channel, the project continued to implement the measure, according to the interviewees without putting in place any compensation measures.

The Project included several pilot projects for the creation of alternative income generating activities such as rural-tourism, medicinal plant harvesting and handicrafts using reeds and raw materials from willows. These activities could have led to clear benefits for the local population. However, four years after the Project was completed it appears that the impacts were minimal. While the handicrafts pilot projects had negligible local impact, the rural-tourism pilot project is the only one with results that are still visible in one tourist residence in Rosetti.

The aim of the rural-tourism activity pilot project was to encourage this income generating activity in one of the most isolated villages in the Delta. The hope was that this would contribute to an integration of the locality in the tourist circuit and by doing so to decrease its isolation. The rural-

tourism in Rosetti has supported a previous initiative of World Wide Fund for Nature (WWF) to constitute a rural-tourism association. The association included five families and WWF granted US $ 8,000 for household improvements, especially running water. The WWF project focused on four requirements:

- Running water, and toilets
- Cleanliness
- Punctuality, and adaptation to tourist schedule and requirements
- Home-made food, preferably with as few commercialized ingredients as possible.

Two families out of five withdrew completely; another two have received some money but they did not finalize their planned projects. The remaining family received the approval to use the total remaining amount. The household introduced running water, bought furniture and construction materials, and they changed the structure of the house to match the requirements of a tourist residence. Currently the residence is operational and charges € 20 per person for accommodation, three meals and transportation. This is the general market price in the official Danube village tourist residences (where prices oscillate between € 20 – 30). The WWF has continually sent tourists and researchers and it has supported the publicity on the Internet and to the travel agencies.

According to one of the owners of the residence, rural-tourism in Rosetti as a whole is impeded by the lack of wells for drinkable water, which makes impossible the installation of household water pumps. There are only four drinkable water wells in the entire village; the owners of the residence has been fortunate to have such a well in their yard, because in this region of the village the water had a better quality.

The Project has funded a tractor and a cart for use in rural-tourism. Unlike the WWF project, which has granted money, the Project was managed by the DDNI and its materials, the tractor, the cart and a motor boat, were given in kind. The recipient family believes that it would have been more efficient if they were allowed to spend the money directly, making a better choice of equipment.

The ecological restoration works have also led to local benefits via tourism. For example, the Project has supported channel restoration and thus it contributed directly to an increase in the number of tourist boat routes, from 7 to 19 routes. Tourist information points were opened in Sulina and Crisan. Measures that contributed to the general restoration of the Delta ecosystem, such as polder restoration, protecting lakes from silting, and species monitoring, also lead to increased attractiveness of the Delta for tourists.

There are substantial differences in the development of tourism in Delta villages. Eco and professional tourism in the last years has increased substantially in Crisan and Sf. Gheorghe, which became veritable tourist residence centers, from where day trips are organized to other parts of the Delta. Rural-tourism is in competition with tourist facilities operated by national companies, including some owned by the concessionaire companies. In those cases the part of the total benefits from tourism that actually go to local people is less than in the case of rural-tourism.

Tourism was also indirectly influenced by the concession system, through which control over sports fishing was partially transferred to the concessionaires. As the concessionaire companies do not sell fish locally and fishermen and other residents of the Delta are not legally allowed to sell their daily consumption quotas, it is virtually impossible to legally purchase fish for consumption by tourists in the Delta. It can be inferred that most of the fresh fish that is currently available for consumption in the Delta villages is bought in through the informal sector.

From the above, one thing is however clear; four years after completion of the Project, none of the pilots have led to widespread implementation. The two main reasons for this seem to be that first of all there was no systematic analysis of the outcomes of the pilots and secondly there were no provisions to facilitate the replication of successful interventions.

2.8 Component 5: public awareness and community involvement

The Project included a public awareness component, including support to the wardens to work with schools and local communities, support to the DDBRA in production of public awareness material, and support to local NGOs to enable them to expand their public awareness activities. This component cost US $ 0.15 million (4% of the budget).

During the Project period the DDBRA and local NGOs have undertaken several successful initiatives in schools thorough out the Delta. The DDBRA has also established a number of well equipped, attractive and interesting information centers such as in Tulcea and Crisan. With funds from the Project the DDBRA produced a 'Public Awareness Strategy' in June 2000, the last month of the Project. The strategy of the DDBRA is guided by a general view described by Michael M. Cernea as "*a psychological and educational approach directed primarily to the individual's misconstrued perceptions and attitudes*" (Cernea, 1995, p. 20). The educational approach may be influential for school programs, but it is likely to have little effect on the involvement of the general population of the Delta in managing the natural resources in relation to their livelihoods. Implementation of that strategy is ongoing.

The DDBRA officials are aware of the fact that their approach is somewhat top-down and focused on conservation of nature rather than on an approach that integrates such conservation with benefits to the local population. The presentation of the DDBRA of itself and its activities is focused on ecologic activities related to the protection of fish and birds and restrictions imposed on fishermen. Since many other ecological activities of the DDBRA in general and of the wardens in particular, are of no direct interest for the local people, they have only a marginal and vague role in the public perception of the DDBRA.

As voiced in Rosetti, villagers see the DDBRA as being involved mostly with nature:

> *They've got nothing to do with the village, they take care of the ponds… the fish, the birds, the forest… As the Police take care of the people, they take care of the fish (Woman, aged 18, Rosetti)*

The fisherman interviewed said that the DDBRA should be more active in informing the population about the ecological reasons underlying various restrictions, such as the restriction on burning reed, or on hunting. Fishermen also say the DDBRA should represent fishermen and the local population in negotiations with concessionaires.

The local authorities in Rosetti were aware of the pilot component of the Project that funded the local tourist residence. The fishermen were also aware of the rehabilitation of the Babina-Cernovca polders, and also of the rehabilitation of ponds 21 and 22. In Crisan, although interviews reveal widespread awareness of DDBRA existence, its actual role is rather unclear for local villagers. The wardens ("*ecologistii*"), who are the DDBRA interface with the local population, are perceived as people who take care of natural habitat (ecological disasters, etc), but they are considered rather ineffective. It thus appears that the interviewees had no clear idea of what an ecologist should do and why their responsibility is not limited to controlling fishermen.

> *"Their activities [of the DDBRA] are irrelevant for me… but maybe they are relevant for fishermen…" (Woman, librarian, aged around 30)*

As far as local perceptions are concerned, the way the DDBRA started off its activities was labeled by one local NGO representative as *"a bad one"*, lacking a good communication with the population in general and the fishermen in particular. Respondents mentioned situations when DDBRA imposed restrictions without any prior consultation and with direct negative impact on fishermen, thus leading to an overall mistrust of the DDBRA. The main example is the concession: according to the respondent, DDBRA's initial statements clearly stated that the concession would involve fishermen, but according to the fishermen this then changed radically. Other examples of lack of communication and community involvement are:

- unilateral closing of channels;
- imposing limits on the number of legal fishing tools;
- the delineation of the family fishing zones;
- the prohibition for the fishermen to burn reed.

In Sarichioi, a village situated on the border of the DDBR, local authorities, fishermen and their families perceive the DDBRA as a regulator of fishing activities, involved in activities of environmental protection, issuing fishing permits etc. Residents not involved in professional fishing did not know anything about the DDBRA. None of the interviewees in Sarichioi was aware of the existence of the GEF-World Bank project. However, local authorities were aware of the on-going Rural Development project of the World Bank, which finances infrastructure improvements in the county.

The Project included an economic appraisal study to assess the economic feasibility of a *cherhana* (fish collection point) operated by an association of fishermen. The study concluded that a fishermen's association should have at least 30 members, have exclusive access to 2500 ha of water and direct access to the market or to wholesaler buyers, who would give them better prices than fishermen could obtain individually at private *cherhanas*. However, following this appraisal study, the Project took only limited actions to encourage the creation of fishermen's associations.

However, it must also be mentioned that given the economic and social circumstances, including the widespread black market, fishermen found it easier from a bureaucratic point of view and more profitable from an economic perspective to rely on individual trade with private *cherhanas*. Consequently few fishermen's associations were started and none of them gained enough organizational power and momentum to be able to apply for a concession. For example, in Sfintu Gheorghe the association 'Pescarusul Alb' included 64 members, but they did not manage to participate in the auction process. Members complained about the lack of transparency and pressures from private enterprises but also of conflicts between members. The enactment of the concession system spelled the end of any attempt to organize fishermen into associations and the associations that were started all dissolved.

A consequence of the failure to unite fishermen in associations is the current lack of mature community-based professional associations of fishermen (or trade unions), to act as representatives in relation with concession owners and to oppose their pressuring downward the incomes of local fishermen. Currently fishermen in Sfîntu Gheorghe, Murighiol, Dunavat and Sulina are affiliated to the 'Free Trade Union of Danube Delta Fishermen'. Though not very active or mature yet, reportedly the trade union includes 1600 members and plans to affiliate to the National Union Block confederation (BNS).

In summary, local people see the DDBRA's intensive involvement in school activities and in information provided to tourists, but they regret not being involved at all in decision making over

regulations that affect their livelihoods. Many of the interviewees say that they think the DDBRA has little or no control over the concession owners.

2.9 Natural resources management systems and local benefits

From the above it is clear that during and after the Project local natural resources have been managed more strictly than before. As a result of these tighter controls one would expect that over-fishing has been reduced, though it is impossible to get trustworthy figures on the actual catch. If over-fishing is now reduced, that would be a major achievement in terms of national and global environmental benefits and in due course local benefits through sustainability of the resource.

However, what is also clear is that the fishing permit system introduced during the Project period and even more so the recent concession system, has had a negative impact on the income of DDBR households in general and particularly on the incomes of professional fishermen's households (for more details see chapter 3). These negative impacts on the local population have not been compensated at all by the Government of Romania or any other institution, in spite of the provision therefore in Law 82/1993. As such the national and global benefits have been achieved at the expense of the local population, which has not been compensated at all.

2.10 Long term impact of the concession system on fish stocks

As mentioned above (section 0) the study team is of the opinion that the Project rightly aimed at reducing over-exploitation of the fish stock in the DDBR. Given the overall aim of maintaining the biodiversity in the Danube Delta the GoR, the DDBRA and the GEF had no other option. As described in various sections in this chapter, the Project successfully introduced restrictions on the fishing capacity of the fishermen in the DDBR, thus contributing to the global conservation aim of the Project, as well as to the long-term sustainability of the resource,

Since 2003 the natural resources management arrangements introduced under the Project have been replaced by a concession system, under which private entrepreneurs 'manage' the fish stock and its exploitation in well defined geographic areas. Among the team members there was extensive discussion on whether or not this local benefits study should look into the post-project concession system of fisheries resource management. One team member argued strongly against this, mainly on the ground that since the system was introduced after project completion, it is not a legitimate subject for under this study. The other team members believe the concession system should be looked at for the following reasons:

1. According to the ToR, the objective of the local benefits study is to *"to assist in maximizing the level of local benefits included in future GEF policy, strategies, programs, project design and implementation within the context of GEF's mandated focus on global environmental benefits."* (Appendix A, ToR, p 2). This objective calls for a much broader approach than for instance an evaluation of the Project done immediately after project completion and with a narrow scope (such as in the case of the "implementation completion report").
2. According to the ToR, the scope of the study includes: *"Assessment and description of the types and scale of local benefits and negative impacts, intended or unintended, which have resulted from the GEF project, including local perceptions of the benefits and impacts."* (Appendix A, ToR, Section D). At the time of the study, four years after project completion, it is virtually impossible to find out the perceptions of local people about Project benefits while ignoring the current situation. The concession system has had such a major, immediate, visible and negative impact on benefits of local inhabitants in general and professional fishermen in particular, that it cannot be ignored.

3. The fact that the concession system to manage fisheries was introduced about three years after project completion does not mean the Project had nothing to do with it. In fact, during the Project a number of preparations for the concession system took place. Actually, the possibility of a concession system pre-dated the Project, as it was included in the 1993 law that formalized the earlier establishment of the DDBR by executive order (in 1989). Law 83/1993 states: *"In order to utilise the terrestrial and aquatic resources within the economic zones the Reserve Administration may, according to the provisions of this law, award concessions or lease land and waters to legitimate companies, local populations having the rights of pre-emption. (p 4, article 10)"*.
4. Furthermore, according to the ToR the scope of the study includes: "*Evaluation and description of the extent to which the strategy and environmental management options in the project design and implementation properly incorporated the opportunities to generate greater levels of local benefits: essentially looking at what the projects did not do, as well as what they did do."* (Appendix A, ToR, Section D). As will be argued later, the way in which the concession system was introduced reflects a major missed opportunity by the Project – the opportunity to empower local people, in line with the DDBR mandate, to co-participate in the management of the Delta and to reap at least the equivalent of their previous level of benefits. The creation of Fishermen's Associations became an augmented Project objective, introduced under supervision, when the GEF Project had to deal with the fact that the socio-economic development oriented EBRD loan was cancelled. This effort was based on the preemptive rights of the local population to benefits from local resource utilization. However, the effort to create Fishermen's Associations was apparently too little and too late. By the end of the Project there were no operational Fishermen's Associations, yet through concessions outsiders were able to reap substantial benefits from the Danube Delta natural resources.
5. Finally, not dealing with the concession system would obscure the truth of the great endangerment of the Danube Delta's unique resources by a flawed natural resources management system.

Three things can already be pointed out here concerning the impact of the concession system on the sustainability of the fish stock and biodiversity in the DDBR. First of all, the monitoring of the stock done by the DDNI, on which allowable fishing quotas are based, now depends 100% on the data provided by the 15 concession companies, which have no incentive to report any incidence of over-fishing or unsustainable exploitation. The current system replaces the previous system that used data from companies as well as individual fishermen. This was equally ineffective, but the new system has not improved it in any way. Secondly it is clear that the concession system concentrates power in the hands of the concession owners. Their economic power, combined with their socio-political connections (including for example links to the parliament), makes it very difficult, if not impossible to get a clear picture of actual catches, let alone impose sanctions if need be. Thirdly, although it is not at all certain that less fish is being caught under the concession system, there is little doubt that the professional fishermen's households have lost a considerable part of their income.

3 IMPACTS OF THE CONCESSION SYSTEM

3.1 Key characteristics of the concession system

A concession system for fishing has been debated in the GoR and the DDBRA for several years. A first attempt was initiated in 1996, by Government Decision 1360/1996. The Decision was abolished next year by Government Decision 516/1997, that stipulated *"In case that the regeneration limit of the fish resource is larger than the fishing capacity of the fishermen who obtained the right to fish, the amount in excess over this limit will be auctioned for concession, according to the law"* (HG 616/1997, art. 11).

Activities of fishing (and also reed harvesting) in the DDBR territories of national interest were finally leased to private investors in 2002. The concessionaire companies began their actual activity in 2003. The concession fees are revenues for the national budget; they are not collected by the DDBRA or other regional institutions, and they do not directly contribute to public expenses in the Delta.

The concession process aimed to implement three principles:

1. *"Respecting the ecological conditions for using natural reed and fish resources";*
2. *"Addressing social problems of the local population in the DDBR, by involving them in collection and processing activities";*
3. *"Providing revenues for the national budget from the proceeds of the reed and fish resources"*. (DDBRA, 2004, pp. 1-2)

For reed harvesting activities, the DDBR was divided in 12 exploitation zones, with a total surface of 46,735 ha. Reed concession contracts extend over 10 years. After two auctions, in 2002 and 2003, only seven zones have been leased to three enterprises (50.8% of the total area), indicating a rather low interest in this resource. Moreover, only 11.6% of the total quantity of reed available in the leased areas has been effectively collected in 2003/2004. Still, enterprises have paid their due concession fees to the state budget, totaling 5.21 billion lei (approx. US$157,000[11]). Because of the low collection activity and lack of maintenance, the quality of the reed areas has decreased, affecting future reed outputs (DDBRA 2004, pp 2 to 3).

The fish resource turned out to be considerably more attractive to private investors. Out of the 25 concession areas, 24 were finally leased out after two auctions (in 2002 and 2003) to 15 companies. The total concession fees for the first year have been 19.289 billion lei (approx. US$582,000). The total yearly revenue from concessions in the DDBR to the state in 2003/2004 was US $ 739,000.

To put the revenue from concessions into perspective, it is necessary to compare it with the investments from public funds in the Danube Delta. The current State budget for the operation of the DDBRA in 2003 was 39.890 billion lei (US $ 1,204,000). While there is neither a legal provision, nor even a suggestion that the DDBRA should generate its own funds locally, these figures do put the income from the concessions into perspective.

The concession companies are also bound by contract to reinvest profit into ecological maintenance of the Delta regions. In the first year of the concession an estimated total of 17.3 billion lei (about USD 523.000) and an additional US $ 98.000 were reinvested by concessionaire companies (DDBRA 2004).

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[11] The average exchange rate USD – ROL in the period February 2003 – January 2004 was 33,126.74 (see www.bnro.ro)

3.2 Nature of the concessions system

Under the concession system, each locality falls under the area of a specific concessionaire. There are cases in which fishermen close to the border of two concessions have the theoretical option of working for two concessionaires (such as Gorgova or Periprava). In practice though, most contracts between a fisherman and a concessionaire stipulate exclusivity. Furthermore, a fishing permit mentions the areas in which the fisherman is allowed to fish, which in practice all belong to the same concession area. A fisherman can theoretically give up one contract and choose to switch to another concessionaire, but such cases are rare. Out of 1934 licensed fishermen, DDBRA data indicate that only 124 (6.4%) have contracts with two concessionaires, and only 40 (2.1%) have switched from one concessionary to another.

The concession system has reversed the trend towards market access for the fishermen that existed during the Project period. P. H. Stahl and M. Constantin note a similarity between the communist administration of fishing and the concession system: *"While in the communist times they [fishermen in Doborgea] were employed by the state, lacking the possibility to sell their fish on their own, they are currently confronted with an ownership regime that excludes any direct negotiation between those who catch the fish and the customers"* (Stahl and Constantin 2004, p. 95).

Concessions have also transformed the access to detailed information. Because leasing contracts are confidential, stakeholders have no access to information related to the concession process such as the concession fees or quotas, provisions related to employment, or to investments. Fishermen report this, although reports on concessions are periodically made available by the DDBRA, while other information may be available by request. The confidentiality prevents more precise processes of monitoring by third-party actors, such as organizations of the civil society, but it also restricts fishermen's access to information that is relevant for their livelihoods. In summary the concession system is a *de facto* monopolistic regime of ownership of fishing rights.

3.3 Current regulation of professional fishing

Currently professional fishing is regulated by several ecological and economical mechanisms. First of all the professional fishermen must have fishing permits issued by the DDBRA, introduced in 1997. Secondly the fishing permits must be renewed each year and they stipulate the areas where the fisherman is allowed to fish and also the number and type of tools that he may use.

Professional fishermen can work in two different labor relationships: they can be employed, or they may be self-employed (*persoana fizica autorizata* - PFA). For the employed fishermen, it is the employer who must pay taxes and social insurance fees, besides the wage. Wage payments depend on the quantity of captured fish. During prohibition months the employed fishermen do not receive wages.

Self-employed fishermen are individually responsible for all their contributions to state and insurance budgets. They conclude commercial contracts with concessionaire enterprises, contracts that stipulate that fishermen must bring all their capture to the concessionaire, where they are paid by weight. Payment rates differ from case to case, and they are established by bilateral negotiations, without any other mediation or regulation. Fishermen work, as a rule, with only one concessionaire. Because of geographical constraints on fishermen's access to fishing areas, and because of contractual restrictions, each concessionaire creates virtually a monopsony, i.e. a market situation in which the product or service of several sellers is sought by only one buyer. .

In practice almost all professional fishermen work with their own tools and boats, and enterprises support them with equipment only in rare exceptions. Fishermen are subject to control by several agencies, including the DDBRA wardens, the Frontier Police, the concessionaire private guards, the

Delta police, and the local police. Controls are frequent, and they impose strong constraints on fishing with illegal tools and fishing in waters other than stipulated.

The concessions system initiated in 2003 has significantly impacted fishermen's employment situation and incomes. Given the uneven distribution of bargaining power between concessionaires and fishermen, benefits derived from improved fish resources will accrue predominantly to the first, as profits, and not to the latter. The payment levels that concessionaires give for fish has decreased and we can conclude that the concession tax claimed by the state (minimum 20% of the yearly estimated catch) has been thus integrally transferred on fishermen.

Fishermen lack an institutionalized representation of their interests, such as fishermen's associations or trade unions. Mayors and the Lipovan Union are the main institutions responsible in practice for defending their interests in relation to the DDBRA, while the DDBRA is responsible in practice for defending them in front of the concessionaires. The DDBRA has repeatedly mediated conflicts between fishermen and concessionaire companies; still, as DDBRA officials acknowledge, until fishermen's interests are represented by a powerful association, the balance of bargaining power is not even. The main legal mechanism that defends the interests of fishermen is the provision that concessionaire companies may not hire their workforce from other localities than the Delta; this gives potential leverage to a fishermen's association that could mobilize fishermen into refusing to sign contracts perceived as disadvantageous. Individual fishermen cannot use this mechanism for negotiation, as in practice they are dependent on the concessionaire company for employment.

3.4 Concessions and fishermen's incomes

The legal owner of the fish resource of the DDBR is the state. During the Project, partly because of the institutional void in controlling fishing activities in the open access regime, the captured fish was *de facto* owned by the fisherman, who could sell it to the highest bidder. This regime of ownership was not sustainable due to over-fishing, and the lack of adequate investments of resources in ecological maintenance; all benefits from fishing turned into private incomes for fishermen and profits for the *cherhana* operators.

In the concession regime, the captured fish is the property of the concessionaire; fishermen no longer have the right to sell it. Fishermen must turn the fish over to the concessionaire, who registers the quantity (per species) on a special delivery note (*bon de predare*). Fishermen are then paid according to the quantity of fish that they have captured, recorded on the delivery notes.

The 2003 concession is described by the NGO activist in Crisan as a process of rapid disempowerment of fishermen, which they perceive as a form of 'privatization' of Danube Delta:

> *..The people were hurt in their feeling of ownership, they felt hostility from the concessionaires… While the DDBRA took nothing from them [only imposing rules and regulations], fishermen felt the concessionaire took their 'property' (NGO activist, Crisan)*

The amount of money to which a fisherman is entitled per kg of a certain species is established by the concessionaire, through direct negotiation with fishermen. These rates amount in some cases to 50% of the prices at which fishermen could sell the captured fish during the open access regime. There is also considerable variation from one concession to another, as it can be seen in the table below.

Species	Periprava		Crisan		Gorgova		Sfintu Gheorghe		Sarichioi	
	Current	Before	Current	Before	Current	Before	Current	Before	Current	Before
Caviar	-	-	-	-	-	-	4,000	10,000	-	-
Sturgeon (sturion)	-	-	-	-	-	-	100	150		-
Sheat fish (somn)	35	60	22-25	45-50	-	-	40	60	15-22	45-50
Carp (crap)	35	50	22-25	45-50	-	-	35	55	15-22	45-50
Crucian (caras)	10	25	-	-	-	-	-	-	-	-
Chinese carp (crap fitofag)	7	25	-	-	-	-	-	-	-	-
Pike perch (salau)	-	-	17-20	40-45	-	-	-	-	40	60
Mackerel (scrumbie)	-	-	20-28	35	-	-	20	35	20-28	35

Table 4. Fish prices (thousand lei/kg), paid to independent fishermen with their own tools currently and before the concession system (source: fishermen in case study villages)

In some cases, the money that the fisherman is entitled to receive per kg of delivered fish is theoretically correlated to the price with which the fish is sold on the market by the concessionaire (the prices at the collection point, not at the final destination). For example, according to their contract, self-employed fishermen in Sarichioi and Gorgova would receive, 40% of the *cherhana* market price. In Gorgova the contract also stipulates that the payment rates should be adjusted to the market price every two weeks. However, this adjustment does not take place and fishermen do not know what the exact percentage that they actually receive is.

This contractual provision of correlation with the market price is at best implemented partially, because fishermen do not have the monitoring capacity to see whether this percentage is respected precisely. Another inbuilt limitation is the fact that the *cherhana* price sometimes reflects the transition of the fish from the collecting enterprise of the concessionaire to an intermediary distribution enterprise belonging to the same owner, and it is thus not representative of the market situation.

Representatives of the concessionaires admit the decrease in payment rates to fishermen, but attribute this to the burden of taxes and concession fees. They point out that under the previous system payments, taking advantage of a widespread black market, were not subjected to any taxation.

Fishermen's income is of course determined by the quantity caught and the price per kg. After the introduction of the concession system, there are no signs that the quantity of fish captured has either decreased or increased. Apart from occasional exceptions, of a seasonal nature, fishermen have not complained about restrictions on the quantities of fish. Given the effort involved it seems highly unlikely that the professional fishermen have been able to increase their catch to such a level that they could compensate for the reduction in price per kg. Therefore, as a result of the substantial decline in their income per kg of fish, the overall income of the fishermen has most probably declined, as is confirmed by the interviews.

Another element of the concessions system affecting the income of professional fishermen is the new ownership and employment arrangements. By reorganizing labor relations towards self-employment, concessionaires have also transferred on to the fishermen all expenses with equipment, income tax, and social insurance. While the transfer is not a problem per se if it is compensated by corresponding

increases in income, given the actual decrease in the price paid per kg of fish, this transfer of responsibility becomes a substantial burden.

Overall, the concession system has contributed to extracting revenues for the State budget, but it has also redistributed legitimate benefits from fishing, decreasing the share of benefits to local households and increasing the benefits to concession owners.

3.5 Concessions and labor relations

As stipulated by the concession contract, concessionaires have hired or contracted all authorized fishermen in the area. In 2003 - 2004 DDBRA registered 1542 fishermen, employed or contracted by concessionaire companies (DDBRA 2004, p.8). There are cases of complaints that concessionaires refuse to conclude contracts with local fishermen, such as in Periprava village, where the concessionaire is more interested in tourism and sports fishing than in professional fishing.

Concessionaires have provided strong incentives for fishermen to become self-employed and they have usually made commercial contracts with the authorized fishermen. Contracts between fishermen and the concession company are not supervised by the DDBRA, because they are considered of strictly private relevance. Before concessions, the DDBRA received a copy of the contractual agreements between fishermen and enterprises, as confirmed by a contract shown to the study team in Crisan, which was concluded in three copies: one for the fisherman, one for the entrepreneur and one for the DDBRA. After the introduction of the concession system the new contracts are concluded only in two copies.

Because the distribution of power between the concessionaire and the fisherman is unchecked, contracts may include provisions that transfer entrepreneurial risks onto the fishermen, or otherwise reduce their bargaining power. For example, in Sarichioi contract, provisions include the fact that if the company does not manage to sell the fish, the fishermen will not be paid. This provision transfers the entrepreneurial risks onto the fishermen, who, by virtue of their position, lack any capacity to control or influence the selling process.

In order to renew his fishing permit, the fisherman must obtain the approval of a concessionaire. The enterprise is the one that collects all the permits and obtains the yearly approval. This makes fishermen feel ever more dependent and vulnerable in front of the concessionaire, who has in practice the power to withdraw their authorization to fish. The concession contract also stipulates that: *"In the situation in which the concessionaire associates cancel the employment contract of a fisherman, the DDBRA will cancel his fishing permit and will issue another permit according to Governmental Decision HG 516/1997, at the request of the concessionaire associates"*[12]. The same provision applies for self-employed fishermen whose commercial contract is cancelled.

Fishermen of course feel very uncomfortable with the fact that the renewal of the fishing permits is mediated by the concessionaire as this leaves them with little room for bargaining. This arrangement was seen as helpful (as a service offered by the employer) when the competition among employers existed. After the concession though, this has become a way to emphasize the dependence of fishermen on the concessionaire.

[12] Concession contract, chapter XIV. Source: DDBRA. The concession contract also stipulates that the concessionaire is not allowed to unilaterally cancel fishermen contracts for just one year, unless fishermen break their contractual provisions.

> *..The fishing permit for me is like a driving license for a professional driver. Without it I am like a driver without a driving license: I have no bread to put on my table. If a driver doesn't get along with the employer, the latter can't suspend the driving license or refuse to give a new driving license. Only the Police can do that. So how come for us this is different?" (Fisherman aged 53)*

In Crisan, a fisherman compared the relationship between the DDBRA and the concessionaire with the saying, "*before you get to see God, the saints will give you trouble*". In other words the concessionaire is an essential intermediary link in obtaining the permits issued by the authority of DDBRA.

In Gorgova respondents mentioned that it is difficult to obtain a professional fishing permit. The main difficulty derived from the high costs of the requisite equipment that would qualify a new fisherman for a permit. Fishermen without proper tools could only obtain family fishing permits.

3.6 Concessions and family fishing

By law subsistence fishermen are entitled to a family quota of 3 kg of fish per day. Since 2001, all families in the DDBR that want to fish for their own consumption must have a family fishing permit. This permit is issued by the local Mayor in collaboration with the DDBRA and it also stipulates specific fishing areas and tools. It is noteworthy that the contract between the DDBRA and the concessionaire companies does not mention explicitly the obligation of the concessionaire to allow this quantity of fish for family consumption. Professional fishermen are not eligible for family fishing permits; their fish quotas are only regulated by tradition and by their contracts with the concessionaire. Therefore the concessionaire has the right to decide on the amount of fish that can be taken home by fishermen.

The DDBRA policy has been to separate areas for family fishing from areas for professional fishing. This was done in order to improve fishing control activities and to prevent unauthorized residents from fishing for commercial purposes. Even so concessionaires have imposed additional restrictions on family fishing zones, restricting access (formally or informally) to the more productive fishing areas.

For example, villagers in Gorgova complained that lake areas destined for family fishing (Lake Fastic, Lake Rotund, Lake Cuzmintiu Mare) are out of reach and in any case poor fishing areas. They also reported being harassed by concessionaire guards when fishing on the Sulina channel, although access was stipulated in their permits. As a result of these restrictions, villagers with family fishing permits fished in waters in which they were not allowed to. In Rosetti villagers also reported that family fishing on the Central Channel is obstructed by the concessionaire, although mentioned in the permits.

> *"You must go and ask the concessionary where to put your tools. When leaving you first go to him, you keep 3 kg of fish and you sell the remaining fish there. However, if the Coast Guard catches you along the way, you pay a fine. It is like in the joke with the rabbit: if you have a blue hat, you get hit; if you don't have a blue hat, you get hit". (Villager, Rosetti)*

3.7 Concessions and sport fishing

The concession contracts stipulate that concessionaire companies are entitled to organize sports fishing activities. The Association of Sports Fishers and Hunters (AVPS) can also issue sports fishing permits. Permits for sports fishing are theoretically issued jointly either by the AVPS or by

concessionaires, but only to members of one AVPS. The table below gives an overview of the cost of sports fishing permits.

Association	AVPS "Bradul"	AJVPS Tulcea	AVPS "Zimbru"
Membership card	200,000 lei / year	500,000 lei / year	200,000 lei / year
Fishing permit	90,000 lei / day 900,000 lei / year	1,500,000 lei / year	150,000 lei / day

Table 5. Costs for sports fishing permits in 2004, in three Associations (Source: DDBRA[13])

In practice the AVPS has protested against the clause allowing concessionaires to issue sports fishing permits. The AVPS argues that this clause allows concessionaires to issue permits to tourists to fish in their allocated waters in exchange for a tax, even if they are not members of an AVPS[14].

3.8 Concessions and poaching

Traditionally poaching in the Danube Delta mainly concerned two types of activities: fishing in order to sell the captured fish to buyers other than the authorized parties and fishing with illegal tools (especially with nylon nets or with electricity). There is widespread consensus among fishermen, villagers and local authorities that guards employed by the concessionaires, together with the Frontier Police, have imposed considerable restrictions on both types of activities, which if left unchecked would directly affect the interests of the concessionaires.

In the DDBR there were a total of 123 guards employed by the concessionaire companies (DDBRA 2004, p.8). The number of concessionaire guards differs from one enterprise to another. At one extreme, the concessionaire at Jurilovca employs 90 guards equipped with motorboats. The concessionaire of Babadag Lake has also invested efforts in developing a guard force. The concessionaire in Crisan employed six agents. At the other end, the concessionaire in Rosetti employs only one guard, as does the one in Gorgova, while the concessionaire in Maliuc employed two guards.

Restrictions on illegal tools are beneficial for the fish resource because they allow the reproduction of fish and the maturation of hatchlings. Some respondents stressed that, although in decline, the use of nylon nets is still widespread. These nets are cheap to buy, easy to carry and hide and easy to dispose of as they are cheap. If faced with an unexpected control, a fisherman can simply throw them away in the water and thus hide all incriminating evidence. This aspect was especially prominent in Gorgova.

According to interviewees, the use of electricity, previously widespread, is restricted to poachers that benefit either from very rapid boats and thus can escape guards, or from protection within the ranks of high political authorities or Police officers.

Although there is no official link between the concession system and the Frontier Police (*Politia de Frontiera*) the two are actually linked, since they became active in the DDBR around the same time. The Frontier Police was established in 2001 by Emergency Governmental Ordinance 104/2001 (approved by Law 81/2002), through a transformation of the former institution of Border Guard (*Graniceri*). The Frontier Police has substantially more responsibilities than the former *Graniceri*, and

13 Text available at URL: http://www.crap.ro/articole/articole/200405taxedeltadunarii/index.html

14 Article available at URL: http://www.crap.ro/articole.articole/adunare8nov2003/

it is in particular responsible for fighting poaching [15]. For example, throughout Romania, in the period January-September 2003, the Frontier Police have captured 138 boats, 4000 illegal fishing tools, 20 tons of fish, 71.5 kg of black and red caviar. In the same period they have sent 1903 persons to trial for poaching activities (see Adevarul de Cluj, October 22, 2003).

The Frontier Police has been consolidated and equipped with EU assistance, considerably increasing its efficiency. Its area of intervention extends to the territory 20 km from the border, covering most of the DDBR. The LBS fieldwork indicates that the intervention of the Frontier Police has been a major constraint on poaching. This is especially the case in localities closer to the border, such as C.A. Rosetti, Periprava, Sf. Istofca and even Sf. Gheorghe. In these villages fishermen mentioned the Frontier Police as the most effective and intransigent of all controlling agencies. In Crisan its activity was also acknowledged, but in Gorgova, a locality situated further away from the border (see Map 2), the presence of the Frontier Police was less visible and its efficacy was disputed. A fisherman in Gorgova explained that the officers of the Frontier Police do not patrol the lakes and they cannot therefore prevent or even detect poaching; their activity was limited to two checkpoints situated on the road.

With the introduction of the concession system for fishing a third type of 'poaching', not traditionally so defined, has come up. Apparently, officially registered fish is marketed alongside an unofficial flow. Unofficial/unreported fish may come from fishermen that work for the concessionaire without any authorization, such as the field work indicates happens in Periprava. It may also come from legally employed or contracted fishermen, in a circuit that parallels the registered one. For example respondents in Crisan estimated that the total amount of captured fish may be actually double compared to the reported quantities.

Alternatively, fishermen who are officially employed (such as in Sfistofca, Gorgova and Crisan) receive a constant salary on paper throughout the whole fishing season, although their actual cash income is correlated with the quantity of fish delivered to the collection point. Apparently the surplus income is unregistered and so is the corresponding amount of fish. The situation is not much different for self-employed fishermen. For example, in Crisan, one fisherman said that the concessionaire "*did whatever he wanted with the invoices, he wrote the amounts that he wanted*". Understandably the study team was unable to get facts and figures concerning this new type of 'poaching'.

According to the general understanding of the interviewees, the Frontier Police do not control the concessionaire activities. For example, our respondent from the Frontier Police in Periprava was aware that concessionaires employ fishermen in the informal sector (*la negru*), but believed that it was not within their authority to sanction this.

> *"How can we control the concessionaire? It's he who is giving us orders!"(Frontier Police agent)*

Many respondents, especially in Rosetti, have recalled the period immediately following the institutionalization of the Frontier Police, when controls of villagers and tourists were very frequent. Guards would check ID papers, passports, and fishing permits. The controls decreased in frequency and intensity later. Our respondents attribute this decrease to various factors: awareness that controls were bothering tourists, decline due to routinization and lack of pressure from upper hierarchical levels.

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[15] After the completion of the study, a change in the national legislation (L 298 / 2004) removed poaching control attributions from the Frontier Police and from DDBRA; the new law is still under dispute.

3.9 Concessions, reported captures and the black market

Before concessions, in the open-access regime, large amounts of fish were sold on the black or informal market and thus were not reported. At the time quota restrictions on fishing were not enforced. Amongst other changes, the concession system has been put in place in order to increase control over the commercial circuit of the fish resource. Concessionaires have the duty to register all captured fish and to report it to the DDBRA. All captured fish must be transported accompanied by explanatory registration papers. The decrease in the number of commercial agents potentially also facilitates the control over the registration and reporting processes.

Concessionaire companies can be controlled by several agents:

1. The Ministry of Agriculture, Forests, Water and Environment
2. The Ministry of Finance
3. The DDBRA
4. The National Environmental Guard (comprising inspectors formerly included in the Wardens Department of the DDBRA, currently active under the National Control Authority).

Nevertheless, in spite of all the potential controlling authorities, there is evidence that considerable quantities of fish continue to circulate unregistered by the concessionaire enterprises and thus unreported. In its reports, the DDBRA acknowledges underreporting of fish capture (DDBRA 2004). From an analysis of the control system and the interviews in the field, it seems that the actual economic and ecological control on the activities of the concessionaires is weak.

As mentioned in the preceding section, a quantity of unofficial/unreported fish is traded. State authorities lack the capacity to enforce labor provisions of the concession contract (for example, informal labor is widespread). During the open access regime the fishermen had to come to the DDBRA with their delivery notes in order to prove that they have captured a minimum level of fish (around 2500 kg / year) on which the renewal of their permits was conditional. Currently the DDBRA does not monitor the capture of fish for individual fishermen any more and it only relies on the enterprise reports.

For the first year of the concession, fish captures reported were 2,760 tons, which continues a decreasing pattern and has now reached the lowest level in the last four decades (1960-2003) (DDBRA 2004, p. 5). The fish capture was also low in relation to the approved quotas (see Table 6). The DDBRA attributes this partly to the low water levels in 2003 (which also reached the lowest levels in the last 160 years), and partly to underreporting: *"The quality of capture reports is far from reflecting the reality of effectively captured fish. For various reasons, fishermen in the Danube Delta fisheries as the ones in other fishing areas outside DDBR report lower quantities than the real levels they have attained"* (DDBRA 2004, p. 5)

	Approved capture quota according to environmental authorizations, 2003 (kg)	Total capture 2003/2004 (kg)	Total capture 2003/2004 (% of approved quota)
Total, of which:	4,967,250	2,708,263	54.52
Fresh water and sea fish	4,375,300	2,457,880	56.17
Danube mackerel (*Scrumbie de Dunare*)	500,000	214,917	42.98
Sturgeon (*Sturion*)	30,950	18,065	58.36
Caviar	2,653	1,512	56.99
Frogs[16]	57,600	13,543	23.51
Crawfish (*Raci*)	3,400	3,860	113.52

Table 6. Approved capture quotas and reported total capture in the first year of the concession system (Source: DDBRA 2004, p. 12)

The DDBRA report acknowledged the persistence of underreporting and introduced the hypothesis that this practice has decreased by half due to the concession system and the improved guardianship over the resource[17]. However, the study team has not found evidence to support this hypothesis. Moreover, there is no intuitive connection between the improved guardianship over the fish resource and the reporting process. Furthermore, while underreporting by individual fishermen before concessions was due to lack of institutionalized control, the continuation of this practice in the new system by a limited number of rather powerful concessionaires is worrying.

The structure of the fish capture has remained relatively unchanged in the last years (see Table 7).

Species	Proportion in total capture (%)
Crucian (*Caras*)	34.2
Bream (*Platica*)	33.4
Carp (*Crap*)	7.0
Roach (*Babusca*)	4.6
Sheat fish (*Somn*)	3.7
Pike perch (*Salau*)	2.4
Pike (*Stiuca*)	1.6
Other	13.1
Total	100.0

Table 7. Structure of reported fish capture, 2003/2004 (Source: DDBRA 2004, p.4)

In 2003-2004 there have been four cases of captures that exceeded the bidding documents (see Table 8). Three cases were due to the fact that the environmental authorization revised the bidding document provisions and enlarged quotas considerably. The concession fees were subsequently revised to match the new quotas. In the fourth case (SC Amorel SRL, SC Wela SRL) the excess capture was due to a change in the fishing policy in the concession zone (Golful Musura), which allowed the capture of fresh-water fish in 2003, which was not included in the bidding document.

[16] A total of 11 companies and 72 individuals were authorized to capture frogs (DDBRA 2004).

[17] "*For 2003, we assume the hypothesis that, due to the concession of the use of the fish resource, underreporting captures has decreased to half comparing to 2002, emphasizing a better guardianship over the fish resource by concessionaires"* (DDBRA 2004, p. 6).

The environmental authorization operated substantial revisions in the quotas established in the bidding documents. For example, in the fishing area 22 (Bratul Chilia Câsla Vadanei), for all sea fish species, the bidding documents stipulated a total quota of 38,506 kg of fish, while the environmental authorizations only stipulated a total of 26,448 kg (68.7%). For the sturgeon species, the environmental authorization lowered the bidding quota of 5,247 kg to 78.3 % (4,104 kg). On the contrary, the mackerel quota was raised from 1,656 kg to 12,600 kg (760.0 %). It is not clear on what bases these changes were made.

Fishing area	Company	Bidding document quota (kg)	Environmental authorization quota (kg)	Final capture, 2003/2004 (kg)
8	SC Wela SRL	6,990	13,775	17,143
9	SC Thalasa SRL, SC San Stel Mar SRL	9,623	35,250	31,685
10	SC Kaviar House SRL	9,782	24,768	14,483
22	SC Amorel SRL, SC Wela SRL	45,662	39,048	97,405

Table 8. Capture in excess of bidding document quotas, 2003/2004 (Source: DDBRA 2004, p. 6)

Besides underreporting, the monitoring activities of DDBRA have been affected by a technical problem of the reporting processes: captures are accounted for by concession regions, while the DDBRA estimates take into account the evolution of fish population in narrower lake complexes. Aggregated capture data cannot thus be effectively used to estimate the fish stock in a particular water area. The DDBRA report (2004) recommends that captures be reported distinctly on each lake complex (p. 5).

For 2004, the Romanian Academy (the official authorizing agency) has approved a sustainable fish harvest of 6,155,179 kg distributed as shown in **Table 9**. These figures take into account the fact that each pelican needs about 5 kg of fish per day that it spends in the DDBR. Their total consumption may well be several million kg per year.

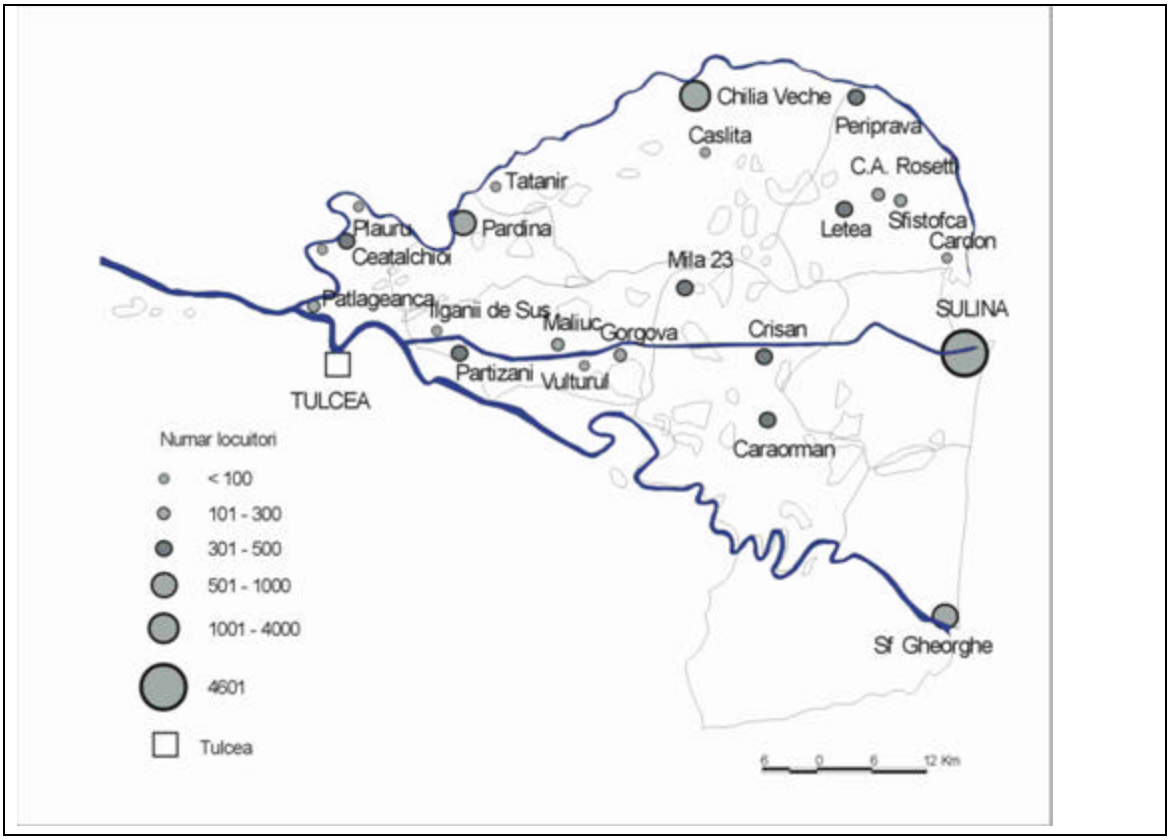
Types of fishing	Quota (kg)
Sustainable commercial capture	3,252,179
Family fishing capture	2,503,000
Sportive fishing capture	400,000
Total RBDD sustainable capture for 2004	6,155,179

Table 9. DDBR sustainable fish capture for 2004 (Source: DDBRA 2004)

4 ANALYSIS

4.1 The Danube Delta population and their livelihoods

This study is concerned with local benefits and by definition those accrue to the people living in or adjacent to the biosphere reserve. The population of the DDBR itself is spread over 23 settlements (see Map 1) of which the harbor town of Sulina is the largest with close to one third of the current population.



Map 1. Distribution of population in the Danube Delta (2002 census data)

In addition to the people inside the boundaries of the reserve there are those in the town of Tulcea (over 100,000 inhabitants) and in settlements adjacent to the biosphere reserve such as the village of Sarichioi visited by the team. Though these people are not 'local' in the strict sense of the word, the lives and livelihoods of many of them are related to the Delta. However, in this study we will focus on those whose livelihood clearly relates to the resources of the Danube Delta and are therefore potentially impacted, for better or for worse, by the Project.

Historically the population inside the biosphere reserve reached a maximum of 19,718 inhabitants in 1966 but has decreasing gradually ever since. In recent history there has been quite some change in the population in the various settlements (see **Table 10**). For instance, the town of Sulina reached its peak in 1992 and has lost 16% of its residents in the period 1992 – 2002, through migration to larger urban settlements such as nearby Tulcea.

Locality	**1977**	**1992**	**2002**	**Change between 2002 – 1992 (%)**
Sulina	4911	5484	4601	83.9
C. A. Rosetti	2157	1256	1179	93.9
Ceatalchioi	728	495	752	151.9
Chilia Veche	3652	2985	3606	120.8
Crisan	1763	1362	1414	103.8
Maliuc	1275	1089	1060	97.3
Pardina	620	791	712	90.0
Sf. Gheorghe	1387	1068	971	90.9
TOTAL	16493	14530	14295	98.4

Table 10. Population in DDBR localities according to census data (source: DDBRA)

The main ethnic groups in the DDBR are Ukrainians and Lipovani. The official number of Ukrainians decreased dramatically between the two censuses (see Table 11). Local respondents attributed this decrease to a trend of switching ethnic self-identification from 'Ukrainian' to 'Romanian', especially among the younger generations, who no longer speak Ukrainian and do not feel attached to the ethnic identity of their parents.

Locality	Population (2002)	Romanians (2002)	Ukrainians (2002)	Lipovans (2002)
Sulina	4601	3955	59	470
C. A. Rosetti	1179	803	8	354
Ceatalchioi	752	729	1	22
Chilia Veche	3606	3351	25	143
Crisan	1414	921	145	342
Maliuc	1060	1012	5	37
Pardina	712	679	23	9
Sf. Gheorghe	971	946	21	0
Total DDR 2002	**14295**	**12396**	**287**	**1377**
Total DDR 1992	14564	11493	1329	1663

Table 11. Ethnic structure of population in DDBRA localities according to census data (Source: DDBRA)

4.2 Livelihoods, gender and local needs

4.2.1 Fishing

Fishing, both professionally and for subsistence use, is the single most important livelihoods activity in the DDBR. DDRBA data for the year 2004 indicate that 1375 professional fishing permits have been issued in the Delta. Also, almost all households living in the DDBR (except professional fishermen) have family fishing permits, for family consumption, to which they are entitled according to law (L 82/1993, HG 248/1994, OG 27/1996, L 192/2001). The Law 192/2001 is the first to limit family fishing to 3 kg day per household. In 2000 there were approximately 4500 family fishing permits (according to DDBRA).

State-owned enterprises that employed fishermen until mid-90s also provided the fishermen with all necessary equipment. The collapse of these enterprises transferred the responsibility for buying and maintaining the fishing equipment (tools, boat, motor etc) to the fishermen, at considerable costs. Many fishermen were not able to mobilize the necessary resources and felt they were thus gradually excluded from this income generating activity. The initial costs of equipment (estimated to about 50 million lei – US $ 1,500) also limits the entry of new fishermen. It is important to notice here that while legal tools (*setci*, *vintire*, *taliene*) are relatively expensive, ranging from 1 million to 4 million, (US $ 30-120), illegal tools such as nylon nets (*setci monofilament*) are very cheap (around 100.000 lei, i.e. US $ 3) and thus easily affordable for anybody.

The benefits of professional fishing for the local fishermen of the Danube Delta increased during the first few years of the Project that is from 1994 – 1997 as a result of extensive involvement of private enterprises in commercialization. The number of professional fishermen was controlled by the

DDBRA in 1997 by the introduction of fishing permits. From the interviews it appears that for those who managed to get a professional fishing permit the benefits remained relatively constant after that until 2003, i.e., after the end of the Project. According to the interviewees, the profitability of fishing for the local fishermen decreased significantly after 2003 as a result of restrictions related to the introduction of the concession system.

It is difficult to estimate average fishermen's incomes. Interviewees were elusive when the issue of income levels came up, stressing that incomes depend on month, equipment, weather and especially on luck. It has been also difficult to estimate average costs for fishermen and expenses while taxes and insurance payments are generally surrounded in uncertainty.

In Sfîntu Gheorghe, which is the main fishing center for sturgeons, the official income level estimated by fiscal authorities for fishermen is 72 million/year (US $ 2,200), for which one has to pay 15 million (US $ 460) in taxes. Given the fact that fishing takes place for around 8 months/year (there is a two-month period of prohibition, and maybe another two months of underemployment during winter), this means an average official income from fishing of 7.1 million/month during fishing season. In the other localities fishermen had an official income threshold of 40 million/year, for which one must pay 9 million in taxes, which would amount to an official monthly revenue of 3.9 million lei. To these amounts the value of daily fish ration should be added (around 5 kg / day)[18].

Expenses for social insurance have been estimated to be around 3 million/year for health care, 1.2 million/year for unemployment insurance, and 1.5 million/year for retirement benefits, totaling 5.7 million lei/year. One fisherman respondent estimated that his average yearly expenses for equipment are 5 million lei (Crisan). In Periprava a fisherman's wife recalled borrowing 5 million lei to buy fishing tools (10 nets of 500,000 each) and spending another 2-3 million for maintaining the wooden boat. We can assume that about one months' income from fishing is reinvested into equipment.

One interviewee pointed out that while the income of professional fishermen might have declined since the start of the concession system, nevertheless they earn more than many others.

4.2.2 Agriculture

As in most rural areas, villagers depend on a number of income generating activities to make a living. Apart from fishing, agriculture is a major source of income in the DDBR. While some localities have access to significant agricultural resources, others have no other options (see Table 12).

Locality	**Total unemployed population**	**Total employed population**	**Main employment in %:**			
			Fishing, aquaculture	**Agriculture, silvi-culture**	**Public and social services**	**Other**
Sulina	342	1516	11.1	**1.4**	23.6	63.9
C. A. Rosetti	12	757	7.9	**76.2**	6.5	9.4
Ceatalchioi	47	176	0.6	**72.7**	9.7	17.0
Chilia Veche	240	594	11.6	**34.5**	31.1	22.7

[18] According to the World Bank report on Poverty Assessment in Romania, 2003, the minimal food needs in December 2002 prices were estimated to be 875,000 lei / person, and the severe poverty line was 1,060,658 lei / person. The inflation level from January 2004 compared to January 2003 has been 13.9 %, and food prices have increased with 12.5 % (http://financiar.rol.ro/stiri/2004/02/127472.htm).

Crisan	144	318	47.8	**5.0**	17.0	30.2
Maliuc	81	245	18.4	**30.2**	16.7	34.7
Pardina	46	237	2.1	**69.2**	16.0	12.7
Sf. Gheorghe	30	266	48.1	**3.0**	24.8	24.1
Total	942	4109	15.3	**29.0**	19.7	36.0

Table 12. Economically active population in DDBR, according to the 2002 Census (Source: DDBRA)

In the DDBR, agriculture provides essential resources for family subsistence, but it is a much poorer source of cash income than fishing. Animal husbandry is also practiced for subsistence needs, rather than for commercial purposes. Animals are often raised in the wild, even during winter, when they suffer high mortality rates.

The high costs of transportation are a major obstacle for commercial livestock production. Merchants come to buy cattle in the villages, but residents complain about the low prices and many prefer to keep the animals for their own consumption or undefined future needs. One resident in Rosetti estimates that he could sell a cow in the village for 4-5 million, compared to what he considered a fair price of around 8 million. Another Rosetti villager mentioned village prices for beef at 25.000 / kg (alive), while in Sulina one can sell it for 70.000 – 80.000 / kg (slaughtered). Since travel costs are prohibitive for trade, the only possibility is to sell small quantities of products through relatives or acquaintances in town, sending them as a package on the boat. Occasionally one can slaughter a cow, divide it into portions and transport it to town (Sulina or Tulcea) to traditional customers.

4.2.3 Tourism

After 1989 tourism in the Delta declined significantly, because of many factors, including the collapse of the state-organized tourism and changing patterns of tourism at national level. Hotels built in the Delta in the communist era were closed down, and their privatization was a failure. Chart 1 illustrates this decline in numbers of tourists in Tulcea County. Around 98-99% of tourists in the county actually visit the Danube Delta (Apolon 2003). Still, tourism has started to re-develop in recent years, along new lines. After a brief increase in 2001, the numbers have stabilized in 2002 and 2003.

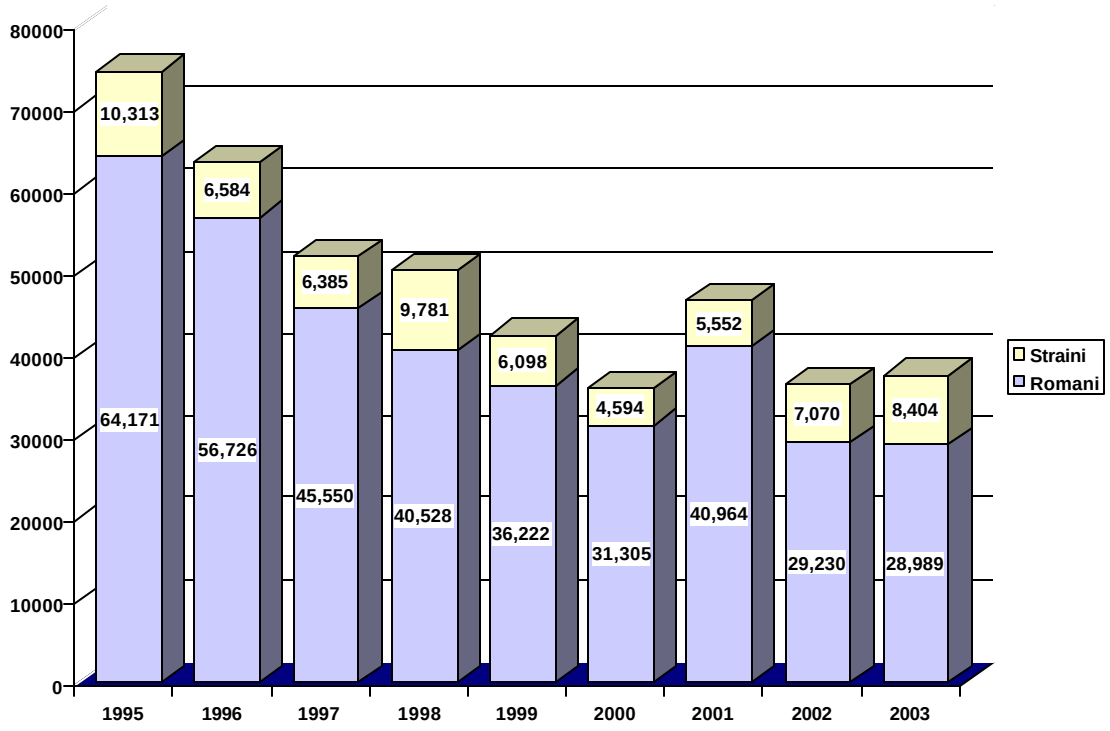


Chart 1. Registered tourists in the Tulcea County, 1995-2003 (Source: Apolon (2003))

There is a consensus among local people and policy-makers at various levels that tourism and in particular rural-tourism has the potential to provide a significant alternative to fishing in the DDBR, and to become a source of welfare for the region. Recent years have witnessed a gradual development of rural-tourism facilities, with increasing numbers of households investing in their accommodation capacity, but also an increase in tourist facilities operated by private businesses. The restoration of the Delta and its sustainable management, amongst other as a result of the Project, could become a major asset for the populations living in and around the Delta.

Tourism is widely practiced in the informal sector and not registered. Many households accommodate families in the tourist season, in one or two rooms available in their house. Unofficial estimates of available accommodation for tourists in the Delta villages list 898 places in authorized bed & breakfast (*pensiuni*), and 5928 in unauthorized households (Apolon 2003). Hotels, camping sites and other specialized facilities provide an additional 3128 authorized places and 180 unauthorized places. Overall, the informal sector (approx. 6108 places) has a larger capacity than the formal sector (approx. 4026 places). Assuming an average of four places per household in informal accommodation facilities, it can be assumed that about 1500 households, out of a total of around 4500 households, are involved in these activities.

Authorized rural-tourist residences charge around 20-30 Euros/person for daily accommodation, three meals and also transportation services. These costs are high for most Romanian tourists, who usually choose alternative means. For example, unauthorized residences charge substantially less (starting with Euro 3). Many tourists also choose to camp. Renting a boat from a villager costs around 150,000 – 200,000 lei / day (US $ 5-6). Renting a motor boat with a driver costs around US $ 12-18 / person for a day trip.

Tourist flows are particularly vulnerable to negative publicity about the Danube Delta on the media. According to interviews at the DDBRA and with the residence owner in Rosetti, a few years ago the

number of tourists suddenly dropped after announcements of anthrax cases in the Delta and a fox afflicted with rabies in Rosetti. A policy measure that indirectly referred to tourism was the restriction of hunting in the DDBR to Romanian nationals only, in 2003, in order to protect the avifauna.

4.2.4 The socio-economic position of women

Following the collapse of the state supported fishing and other industries after 1989, most women in the Delta villages have become homemakers, taking care of household agricultural activities and also of tourist reception when it is available. After 1989, employment opportunities for women, outside the few public service institutions (schools, post-office, medical points) and commercial facilities, decreased to virtually zero. Even when employment was possible in Tulcea and Sulina, transportation costs would offset any benefit.

While changes in the institutional organization of professional fishing have affected the household via men's occupations, the decline in rural-tourism and agriculture has impacted the household especially via women's occupations. Women have become increasingly dependent for income and other social benefits (medical insurance, retirement benefits) on their husbands, employed as fishermen or, occasionally, in other occupations.

Young women are increasingly locked in a position of dependency on their family or on the state because of a continuing employment crisis. They have no source of income and will therefore not have retirement benefits. Their medical insurance depends on the contributions of their family members.

Impoverished families also have difficulties in providing education for their children. During the case study research several families were encountered who had to give up secondary education of their children, because they could not afford transportation and accommodation expenses in nearby towns. Lack of educational capital further contributes to high unemployment among young women.

4.2.5 Local needs

The follow-up study briefly looked into the local needs as expressed by the Delta inhabitants. This was done to get an impression of the kinds of outside interventions that might produce local benefits.

General

Delta villages suffer from isolation, as they are located within the delta tributaries and channels and from poor infrastructure facilities. Few villages have running water and none of them have sewage or garbage collection systems. Domestic garbage is generally burned or stored at the border of the settlement. It was only in 2004 that the DDBRA introduced a pilot system for collecting PET bottles and other types of garbage.

Transportation

The lack of road transportation to the neighboring towns of Tulcea and Sulina is widely considered a major obstacle in the development of the Delta localities. Villagers and local authorities deplore the expensive and slow naval transportation means (see **Table 13** and Table 14).

No	Route	Means of transporattion	Schedule/duration	Subsidized price for residents (lei)
1.	Tulcea- Crisan	NAVROM rapid boat ("Rapida")	Leaving Tulcea once a day, with an average duration of one hour	200,000
	Crisan - Tulcea	NAVROM rapid boat ("Rapida")	Stoping in Crisan at return from Sulina in the day	200,000
2.	Tulcea- Crisan	NAVROM regular boat ("Pasagerul")	Leaving Tulcea once at two days, with an average duration of three hours	85,000
	Crisan - Tulcea	NAVROM regular boat ("Pasagerul")	Stoping in Crisan when returning from Sulina in the next day	85,000

Table 13. Transportation options for Delta inhabitants from Crisan - Tulcea (Source: Interviews)

Transportation costs are borne by local people when they travel to town, but they are also reflected in local prices for all types of goods, including food, fodder, and construction materials. Villagers involved in agriculture also resent the lack of access to markets for their goods. Merchants that travel to the Delta in order to buy cattle offer prices that are considered unfair and the owner often prefer to keep the animals, even in a state of semi-wilderness, instead of selling them. People who have acquaintances in town can send them small amounts of agricultural products to sell in a closed circuit, but this form of trade cannot provide significant incomes.

Route	Means of transporattion	Price (lei)
Rosetti-Periprava	Tractor	70.000
Periprava - Tulcea	NAVROM boat ("pasagerul")	95.000 (subsidized rate for residents)
Rosetti-Cardon	Tractor	50.000
Cardon-Sulina	Boat	50.000

Table 14. Transportation from C.A. Rosetti to Tulcea and Sulina (Source: Interviews)

Potable water

In villages such as Maliuc, Crisan, Sf. Gheorghe and Sarichioi there are installations of running water (although in Sarichioi it is running poorly). In Gorgova, villagers drink water directly from the Danube, while in Rosetti the water quality is very poor throughout the village, and people must carry potable water from four public wells; household wells are only used for agriculture and domestic use.

Maintenance of the water resource

The low levels of reed harvests and the failure of local authorities and concessionaire companies (for fishing and for reed collection) to burn un-harvested reed, led to uncontrolled growth of several generations of reed. This in turn has lead to the decay of water quality on surfaces occupied by reed.

In several cases villagers complained about problems deriving from the low maintenance of channels, ponds, shores etc. For example, local authorities in Sarichioi listed shore erosion as a main problem. In Gorgova villagers complained about silting up of channels, which means that fishermen must leave

their boats further away from home. Since fishermen were not allowed to bring digging equipment into the Delta, they could not address this problem themselves. Water quality and levels in lakes as Lacul Rotundu or Lake Fortuna have worsened progressively and fishermen could no longer use them for fishing. In Periprava water from the former aquaculture polder has infiltrated in the village, because the pumps ceased working.

Employment

Villagers have mainly complained about pervasive unemployment, affecting especially the young people. After the end of the open access regime of fishing, restrictions on poaching resulted in serious restrictions on employment. Access to permits for professional fishing is limited by the high costs of initial equipment (about 50 million lei); the number of authorized fishermen has declined steadily in the last three years. Agriculture is limited by the scarcity of land in many Delta villages and employment in towns is limited by isolation, high commuting costs, and regional unemployment.

4.3 Livelihood analysis

4.3.1 Impacts on livelihood capitals

In line with the ToR for the local benefits study, the livelihoods framework is used to analyze the impact of the Project. Much information has already been presented in the previous chapter. For an overview of the impact of the various project components on the livelihoods capitals and other livelihood elements of the local population, see the Table 15 on the next page.

4.3.2 Impacts on livelihood opportunities

As mentioned above, the Law 82/1993 regarding the establishment of the Danube Delta Biosphere Reserve and its administrative authority was in place early 1993, well before the Project was designed. The law strikes a balance between the need to conserve the Danube Delta ecosystem and the rights of the local population to a livelihood, stating the following about the objectives of the DDBR Administration:

> *(d) evaluate the status of natural resources and their level of exploitation in accordance with their potential for regeneration and ecosystem support capacity;*
>
> *(e) to authorise the ways and means of the organization of the economic, productive, tourism and recreation activities by individuals and legal entities in accordance with the requirements for conservation of biodiversity and specific ecosystems;*
>
> *(f) to enforce the authorisations permitted under paragraph (e);*
>
> *(g) to support the traditional economic activities of the local inhabitants;...*
>
> *(n) to cooperate with local public administrations to defend the interests of local inhabitants and to improve their quality of life and standard of living*;...(Page 3, Article 6)

Furthermore the DDBR Law states: *"The local population within the Reserve have the right to continue local and specific traditions and economic activities. The Reserve Administration will ensure*

where appropriate and if necessary by compensation[19] *the continuation of traditional economic activities. (Article 8)"* Finally the Law mentions concessions and the right of pre-emption of the local population: *"In order to utilise the terrestrial and aquatic resources within the economic zones the Reserve Administration may, according to the provisions of this law, award concessions or lease land and waters to legitimate companies, local populations having the rights of pre-emption. (p 4, article 10)"*

The Project aimed, intentionally or unintentionally, to impact on livelihood opportunities via several circuits:

- Restraining poaching, by improving the warden service
- Encouraging the consolidation of fishermen's associations to participate in concession bidding
- Protecting the fish resource, and therefore encouraging sustainable fishing incomes
- Several pilot projects for encouraging alternative sources of income (rural-tourism, medicinal plant harvesting, reed and willow handicrafts).
- Restoring the ecosystem with the potential to increase incomes generated from natural resource use, including tourism.

From the fieldwork it is clear that in spite of the provision in the law, neither the DDBRA nor the Project have achieved much in the area of ensuring a viable livelihood for the local population to. In fact the Project and particularly the concession system have resulted in a deterioration of the livelihood opportunities of the local population for the foreseeable future. This is not only a major missed opportunity but also undermines the sustainability of the global environmental benefits of the Project.

[19] Apparently the GEF, from its creation, also had the principle that GEF interventions should offset losses caused by restrictions (personal communication by Ian Johnson, one of the GEF founders).

Table 15. Livelihood analysis of Project components

	Polder restoration	**Lake protection**	**Warden Department and resource management system**	**Monitoring**
Natural capital	Fishermen gained access to the fish resource of restored polders. Access in Babina-Cernovca was subsequently reduced by the concessionaire	Increased restoration of ecological functions of lakes	Improved guardianship contributes to decreased poaching The trend was reinforced by the establishment of the Frontier Police (2001) and by concessions (2003) The decline in DDBRA warden staff in 2002 affected the department capacity	Increased scientific and technological capacity for monitoring contributes to the sustainability of resource management Persistent capture underreporting affects the assessment of sustainable harvest levels
Financial capital	Financial gains by fishing in the polders were offset by the concession restrictions	Costs for fishing in Lake Fortuna have increased, especially due to limited access	Improved guardianship decreased incomes from poaching Restrictions on professional fishing permits controlled access to fishing incomes for local people	-
Social and institutional capital	-	Channel closure was accompanied by fishermen uniting in protests and intensive local deliberations	Delta villagers are well aware of the conservation mission of the DDBRA, but there is little awareness of the development mission of the DDBRA Relationships between DDBRA and fishermen concerning authorization are currently mediated by concessionaires	-
Physical capital	-	Boat access to Lake Fortuna was considerable reduced by closing channels from Gorgova and Maliuc villages, however, this resulted in much higher transport cost and time as well as conflict	-	-
Human capital **Vulnerability**	- Improvements in DDBR eco-	- -	- Concessions have increased the	- -

	system increased sustainability of fish stock, benefiting concessionaires not local people		dependency of the fishermen on the employer	
Gender equity	-	-	-	-

From the fieldwork it appears that the pilot project component of the DDBP has had negligible impacts. The main reasons are their small scale and the fact that there were no provisions to multiply successful activities. In other words, the pilot activities were not sustained or replicated.

The consolidation of the warden department during the Project is unlikely to have impacted seriously the incomes of fishermen. The most drastic cuts in poaching have been attributed to the Frontier Police and to the private guards of the concessions. The system of fishermen's associations was not supported strongly enough to become viable; concessions have been finally attributed to commercial agents, despite the above mentioned legal provisions that aimed to guarantee the preemptive rights of local communities.

As detailed above, the concessions system initiated in 2003 has significantly affected fishermen's incomes resulting in an estimated decline of between 30-50%. This is not a result of less fish being caught but, given the uneven distribution of bargaining power between concessionaires and fishermen, it is likely that benefits from improved fish resources are accruing to the concession owners as profits, instead of to the fishermen.

As a side effect of the concessions, it seems that family fishing of the Danube Delta residents has become more difficult, because of more rigid zoning. In order to minimize surveillance costs access of residents to fishing is only permitted in designated areas.

4.3.3 Impact on gender equity

The Project as such has had little impact on gender equity. At the same time the nation-wide developments in Romania, such as the closure of many state enterprises that employed women, has negatively impacted the women in the DDBR area.

4.3.4 Impacts on stakeholder vulnerability

Fishermen are vulnerable mainly because they lack an institutionalized representation of their interests, such as fishermen's associations. Mayors are the main institution responsible for defending their interests in front of the DDBRA. However, fishermen generally feel the DDBRA should do more to defend them vis-à-vis the concessionaires. The DDBRA says it does mediate when asked to, but cannot intervene in the contractual arrangements.

Concessions drastically limited the liberty of trade of fishermen, who are now virtually bound by contract to a particular concessionary and must therefore accept the given price. Competition has been replaced by a *de facto* monopsony. Concessions have also made it easier to police the fishermen, who must now face higher risks and costs when engaged in poaching. There are also several state authorities that inspect fishermen, which extract formal and informal payments from them (as fines or, more often, in kind as a bagful of fish).

4.4 Missed opportunities

4.4.1 Opportunities for project design and implementation

As detailed in Section 2.3, little attention was paid to the possibility of enhancing local benefits during the various stages of the project cycle. In this respect, a major negative development was the cancellation of the EBRD loan early on during Project implementation. Of course neither the GEF nor the World Bank can be blamed for the cancellation of that loan. However, there were at least three 'driving-forces' to ensure that the population of the Danube Delta would not suffer from the global conservation objectives of the GEF Project, namely:

1. the provisions in the DDBR Law 82/1993 ensuring the rights of the local population;
2. the standard practices concerning sociological appraisals and project affected people in the Bank in effect since the 1980s, and
3. regular supervision missions were aware of the cancellation and consequences of the EBRD loan, but did not revise the Project objective but only augmented it *"to include working with community groups to enhance economic development that is linked with sustainable natural resource management and biodiversity conservation objectives."* (ICR, 2000, p 2).

Nevertheless, in spite of all these provision, the following opportunities were missed:

- Realization of a social assessment study which would have identified bottlenecks as well as opportunities for actively involving local people in achieving the objectives of the Project
- Participation of national stakeholders (such as Ministries in charge of environment and agriculture, the County Council) in the design of the restoration of polders to the natural state
- Participation of local stakeholders (fishermen, local authorities) in the design of channel closure in order to protect the lake complexes
- Separation of wardens' attributions of control and public awareness, in order to professionalize attributions of social research and community involvement
- Development of the capacity for social research within the DDNI

4.4.2 Opportunities for further intervention

The findings (see Chapter 2, section 2.6 and following) of the follow-up study identified a number of areas where a more flexible and pro-active approach during implementation could have resulted in increased global, national and local benefits, such as:

- Apply measures for polder restoration, according to the legal provisions
- Improvement of monitoring and quota assessment processes by enforcing economic and ecologic legislation and supporting research for stock assessment,
- Increasing transparency related to contractual responsibilities of the concessionaires concerning restocking/repopulation[20]
- Regulation of contractual relationships between fishermen and concessionaires, including: transparency of concession contracts, mediation of contractual relationships between concessionaires and fishermen, support for the creation of fishermen trade unions
- Develop support programs for alternative economic activities, such as reed harvesting, commercial agriculture and rural-tourism.

[20] A very different arrangement would have been to have the concessions pay more to the State, but release them of their obligations to repopulate the waters with fish. Under the current arrangement, concessionaires have a common and a long-term interest to repopulate, but an individual and short-term interest to skip this expensive operation. The field work suggests that the short-term interest is more prominent. In the current arrangement the State should function as a monitor, but the State's monitoring capacity seems to be really weak. Instead of the current arrangement the State could have been responsible for repopulation and infrastructure investment in the Delta. Of course state agencies may be inefficient and corrupt, but it would be in the direct interests of private actors (fishermen as well as concessionaires) to ensure the repopulation measures of the State, and thus chances would increase that this would actually happen. Moreover, the State actors do not have a personal interest in skipping repopulating, and also faking papers is more difficult and dangerous in the public sector. There would also be less personal benefit in doing so. So concessionaires would push for repopulation, and their power would serve the common interest.

4.5 Conclusions

The Project has certainly succeeded in one of its aims, namely to make a contribution to increasing the capacity of the DDBRA and the DDNI. The competence of the two institutions is internationally acknowledged and they have been continuously active in a wide range of international partnerships.

However, the project has failed in several important respects. The main obstacles towards fully implementing a sustainable pattern of organization of economic activities in the Danube Delta derive from incomplete law enforcement and support for the DDBRA from central government agencies. The polder restoration program, although it has been successfully implemented on 7,289 ha, still has to be implemented on a remaining surface of 30,476 ha. Restoration has clear ecological benefits for the Delta ecosystem, partially reversing the damage induced by the communist policies of extensive exploitation of Delta resources. Restoration also has benefits for fishing enterprises and fishermen, extending the water surface and improving water circulation.

The regulatory capacity of the DDBRA and the DDNI is also impeded by the lack of reliable information sources regarding fishing capture. The estimates of sustainable harvest levels depend essentially on reported capture levels, which have been constantly lower than actual capture levels. There are no documented estimates of the current share of the black market within the fish trade and there are also no direct indications that the reporting process has been improved in the last few years. As long as there continues to be a sizeable difference between the reported figures and the actual figures, estimated harvest levels cannot be a guarantee of sustainability and of conservation of the biodiversity.

A possible strategy to adding to the institutional capacity of the DDBRA and DDNI to manage the natural resources would be to invest in the local capacity for social research, which is currently underdeveloped, following the general pattern of the Romanian public administration. This would help mainstream issues of community participation and development in the DDBRA, and would contribute to the capacity of the DDNI to conduct social research.

While national policies of weak law enforcement concerning polder administration and economic reporting have affected the capacity of the DDBRA and the DDNI to manage the Delta resources in a sustainable way, the concessions of the fishing activity have been a powerful force distorting the distribution of benefits at local level, after the project ended. The DDBRA sees the concession system as a correction for the open-access regime that dominated the use and the abuse of the fish resource prior to 2003. Still, while addressing important issues, such as reducing the use of illegal fishing tools, concessions have had significant counter effects in introducing powerful private entrepreneurs.

Concessionaire enterprises are local monopolies that interact with fishermen without a third party monitoring agency. Consequently, the economic position of fishermen has declined significantly. Payment rates have decreased between 30-50% (effectively transferring concession fees entirely on fishermen), employment contracts are poorly monitored, and the economic dependency of the fishermen on the concessionaires has increased.

The DDBRA authorities have been aware that the Project, as it was designed, would not bring significant benefits for the local communities directly and they have planned a number of follow-up projects aimed at local development. One of these, the Danube Delta-2, initially received strong support from the World Bank (see section 2.3.4.) and was labeled as a project qualifying for GEF support. However, the World Bank kept this project on hold when the Nordic Bank indicated support for a similar, but much larger scale project called *"The Sustainable Development Project for the*

Danube Delta Biosphere Reserve". This project, with a total proposed budget of Euro 60 million[21], is currently under negotiation with the Nordic Bank committed to fund half the budget and the GoR having to counter-fund the other half. An improvement of the local economic environment, by diversifying income sources but also by increasing the transparency and accountability of professional fishing, could bring great benefits to the Delta. Were the GEF to provide counterpart funding for this project, the economic changes could be matched to the necessary measures of environmental restoration to maximize the potential of the Delta to support its inhabitants and at the same time secure the long-term ecological sustainability of the resource that supports local and regional economies..

[21] For details see: http://www.norvegia.ro/info/business+news/danubedelta/danubedelta.htm.

5 LESSONS LEARNED

This chapter summarizes the lessons learned from the case study of the local benefits of the Romania DDBP. Following a summary of the findings - most of them building on the 'missed opportunities' of the previous chapter - the lessons learned are printed in bold and in italics. **These lessons learned focus on how in future projects and programs the GEF might better achieve, sustain and replicate global environmental impacts.**

5.1 Project cycle

Analysis of the project cycle stages indicates that in all four stages the need for a sound balance between global, national and local (GNL) benefits was neither conceptualized adequately in the project documents, nor translated operationally in a sufficiently diversified spectrum of project components. It must be noted that, in fact, around the mid-1990s this reflected a broader lack of explicit guidance for GEF projects regarding the balance between GNL benefits, rather than reflecting strictly an oversight of the project team only. As a result, the potential reinforcing links between global and local benefits remained unexplored in this case. A concern for ensuring local benefits and for deliberately making the local population directly co-interested in protection was not explicitly operationalized into the project's design.

It is of fundamental importance for GEF project success and sustainability to focus during its initial stages of project preparation/appraisal on achieving an effective balance between Global-National-Local benefits. This can be done by analyzing the contextually specific and diverse linkages between the largely overlapping, but at times also conflicting types of interests and benefits. An indispensable instrument for an analysis of Global-National-Local benefits, additional to the basic tools for assessing global ecological benefits, is the sociological appraisal (or social assessment) of the project area population and of its local socio-cultural and economic issues. This will not only supply the knowledge necessary for an informed integration of local actors in the various GEF project strategies, but also act as a baseline against which to measure project impact in due course.

5.2 Benefiting direct stakeholders and compensating Project Affected Persons

Without specific compensation measures, protecting natural resources in a biosphere reserve is likely to have a negative impact on the socio-economic position of some local stakeholder groups. In the DDBP the households in general but in particular the professional fishermen, were negatively affected. However, in spite of the provision in Law 82/1993 to protect the livelihood rights of local people and World Bank practices to ensure proper compensation in such cases, very little was achieved in this respect. This has resulted in a growing gap between the professional fishermen and the authorities and to problems implementing some of the conservations measures.

GEF projects should ensure that local communities become partners in protecting the resources deemed to be of global and national importance. To support this, the economic and financial analysis done at project appraisal should explicitly consider how project financing is allocated towards achieving global, national, and local gains. GEF projects should also ensure that all project affected persons are compensated one way or another in line with current best practices.

5.3 Privatizing Natural Resources Management

The concession system for exploitation of the Danube Delta fisheries and reed resources has introduced a market-based, profit oriented natural resources management system in a sensitive biosphere area. As some of the field study data indicate, this may pose significant new risks to the ecologically-minded conservation of the natural resource itself as well as to the livelihoods and incomes of local stakeholders. In many countries, particularly those in transition, the state of civil society is such that there may not be enough checks and balances to ensure resource sustainability under conditions of privatized natural resources management.

The GEF should carefully study current privatized natural resource management arrangements to find out under what conditions and with what specific checks and balances, they can guarantee the sustainability of the natural resources concerned, as well as the livelihoods of affected persons.

5.4 Independent monitoring

The current monitoring arrangement for the biodiversity and stock of the fish population in the Danube Delta depends on self-monitoring by the commercial agents who exploit resources in a biosphere reserve. This arrangement, while very cost effective, is not sufficiently transparent and lacks independent checks and balances.

Monitoring of sensitive biosphere resources requires an independent and fully empowered monitoring system that has no interest in commercial profit, and budget provisions must be sufficient to ensure implementation.

5.5 Harmonizing activities at various administrative levels

In the case of the DDBP, local regional/county administrative institutions, whose territory encompasses a biosphere reserve of national and global importance, have pursued interests which are contrary to the scientifically based management pattern of the biosphere reserve. This prevented the ecological restoration of about 20 polders, as intended under the GEF project. In the case of the DDBP the current oversight and management situation of the polders by the local county needs to be reexamined.

More attention needs to be given to the functions of local administration in reserve areas to ensure that priority is given to national interests for global resource preservation.

5.6 Ongoing monitoring and greater flexibility to adjust projects during implementation

Originally the Project was to be integrated with an EBRD loan to support socio-economic development among Delta communities. When this loan was cancelled no alternative arrangements were made by the Project to compensate for the loss of local benefits. Apparently the monitoring and reporting arrangements were insufficient and the flexibility of the parties concerned too little, to respond appropriately to this major change in circumstance affecting the Project. Greater flexibility of all parties concerned (GoR, World Bank and the GEF) would have led to decisive steps to ensure that the originally envisaged local benefits were achieved.

During implementation, the GEF should ensure ongoing monitoring and reporting of all factors that impact the direct stakeholders and the objectives of the Project, i.e. both conservation goals and the welfare and benefits of the population dependent on natural resources. All parties involved should show greater flexibility during implementation to proactively intervene if such changing circumstances threaten to affect the project, when new opportunities for synergy arise or when, for whatever reasons, local interests are negatively impacted. In that case it is the responsibility of the project management to identify alternatives or compensatory adjustments.

5.7 Strengthening socio-economic capacity in implementing agencies

The two main organizations involved in managing the Danube Delta Biosphere Reserve, the DDBRA and the DDNI are very well equipped in the field of natural and physical sciences. However, both institutions are rather weak when it comes to the social sciences. However, sustainable natural resource management involves social issues and capacity in this area needs to be expanded.

The GEF should scrutinize the socio-economic capacity of implementing agencies and strengthen this where necessary.

5.8 Pro-active GEF interaction with promising local development initiatives

After the completion of the Project the DDBRA prepared a 'Concept Note' for a second GEF project titled Danube Delta - 2 and submitted it to the World Bank and GEF. While the World Bank Romania office initially made a strong commitment to this project, the possibility of a similar project supported by NORAD led to it shelving the DDBRA-GEF proposal. As of mid 2004 it seems likely that the NORAD project *"Support for sustainable development in the Danube Delta Biosphere Reserve"* will materialize[22]. The findings of the DDBP local benefits study support fully the reasons and the timeliness of such a project and of a GEF-supported component to maximize the global environmental benefits of this local initiative. In general, procedures should exist to ensure that the GEF is fully aware of such opportunities as and when they arrive.

The GEF should pro-actively scan for, identify and follow up potential local development initiatives, which it can support to ensure maximum global environmental benefits.

[22] For details see http://www.norvegia.ro/info/business+news/danubedelta/danubedelta.htm

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APPENDIX A: TERMS OF REFERENCE

GEF

Global Environment Facility

March 22nd 2004

THE NATURE AND ROLE OF LOCAL BENEFITS IN GEF PROGRAM AREAS

CASE STUDY

Romania: Danube Delta Biodiversity

TERMS OF REFERENCE

For

Study Team

TERMS of REFERENCE

Duration:	11 day
Start date:	May 11 – 21th
GEF Team Leader	Dirk R Frans (SEI)
Team Members	Michael Cernea (GEF)
	Gonzalo Castro (GEF)
	Amanda Clemett (SEI)

A. Objective of the Portfolio Wide Study

The GEF mandate incorporates the role of local benefits through its emphasis on a sustainable development approach and by requiring that the programs and projects it funds be country-driven and based on national priorities designed to support sustainable development. In this study, local benefits are defined as:

> *"Project outcomes, which directly or indirectly have positive impacts upon people and ecosystems within or adjacent to project areas, and which provide tangible gains in the livelihoods of communities and the integrity of ecosystems."*

The GEF is conducting a portfolio wide study to better understand the relationship between local benefits and the attainment of global environmental benefits. The objective of this study is to assist in maximizing the level of local benefits included in future GEF policy, strategies, programs, project design and implementation within the context of GEF's mandated focus on global environmental benefits. The study includes in-depth desk reviews, internal and external expert interviews as well as primary and secondary fieldwork case studies.

The Danube Delta Biodiversity (Bank-Romania) project has been selected as a case study because of the linkages the project design make between improvements in local benefits and the attainment and sustainability of global environmental benefits. The project has a strong potential to yield critical findings, lessons and recommendations, which will inform the future development of GEF interventions in the Biodiversity Focal Areas.

B. Overview of Investment

CASE STUDY
Project Name: **Romania: Danube Delta Biodiversity**
Project Type: **Full Size Project**
GEF Implementing Agency (IA): **World Bank**
Project Proposer (Executing Organization): **Ministry of Forests, Waters and Environmental Protection; Danube Delta Biodiversity Reserve Authority; Danube Delta Institute**
GEF Focal Area: **Biodiversity**
Total Cost: **$4.8M (US)**
GEF Financing: **$4.5M (US)**
Co-financing: **$0.3M (US)** (Government of Romania in kind)
Operational Program: **OP2 – Marine, Coastal and Wetland Biodiversity**

Romania Danube Delta Biodiversity Full-Size Project objectives are to protect Romanian delta ecosystems. It will strengthen the capacity of the Danube Delta Biosphere Reserve Authority (DDBRA) and the Danube Delta Institute (DDI). It will enable local community groups to ensure sustainable resource use, and restoring some wetlands to their natural condition. Project includes the following components:

a) Strengthening of wardens department, to support nature protection, surveys and public awareness
b) Monitoring through improved species inventories and development a GIS database
c) Restoration of abandoned fish and agricultural polders to their natural condition with impact and hydrological monitoring together with applied research

d) Protection of a lake from direct inflow of Danube water; willow planting; village woodlots; pilot protection of fish fingerlings from an irrigation pumping station intake; removal of unaesthetic structures; sturgeon propagation; small grants fund for research proposals in the buffer zone
e) Public awareness including support for wardens to work with schools and local communities

Project benefits: The project will support local authorities in their effort to develop integrated management of the Delta as a series of interrelated ecosystems, to protect and enhance biodiversity while providing improved well-being for local communities. Pilot wetland restoration and its monitoring to prepare the way for enhancement of biodiversity on a more substantial scale, and will permit sustainable economic activities in fisheries, reed harvesting and ecotourism

The total investment for the project is $4.8M (US) over 5 years. GEF financing totals $4.5M and other Government of Romania providing the balance of funding (in kind). **For the purposes of this study the Local Consultant and the GEF Study Team will take a holistic view of the project, rather than focusing exclusively on GEF financed project components.**

C. Objectives of the Case Study

The objective of the case studies is to understand the relationship / linkage between local benefits (and/or negative impacts) and the attainment of global environmental benefits of the GEF supported project: Danube Delta Biodiversity.

D. Scope of Fieldwork Investigation for the Project

The Study Team working together with the local consultant will report on progress in achieving results relating to project objectives, outputs and outcomes (depending on availability and quality of data), within the specific context of:

- Assessment and description of the types and scale of local benefits and negative impacts, intended or unintended, which have resulted from the GEF project, including local perceptions of the benefits and impacts.

- Examination and description of the nature of the links between local benefits and the attainment of global environmental benefits (according to project environmental indicators)[23]. This will be based on an analysis of linkages in terms of how global environmental benefits can affect local benefit / negative impacts and how the generation of local benefits / negative impacts can affect global environmental benefits.

- Evaluation and description of the extent to which the strategy and environmental management options in the project design and implementation properly incorporated the opportunities to generate greater levels of local benefits: essentially looking at what the projects did not do, as well as what they did do.

[23] See Annex

E. Analysis Framework and Expected Outcome

The case study will address the following questions:

1. **What are the overall objectives and outcomes of the project?**
   a. **Overview of the investment**: a brief profile of the project being evaluated, which describes the project policy and institutional context, structure, objectives and anticipated results (outputs, outcomes, impacts) and relates this to the host country's development context. Specifies intended local benefits and target groups. Based on existing documents and on interviews with stakeholders.

   b. **Overview of Global Environmental objectives and achievements of the project**: This overview will be done based on existing documents and interviews with expert stakeholders. It will include an assessment of the accomplishments of GEF funded activities in supporting institutions, policies and activities that contribute to the improvement in biodiversity conservation. It will include a review of the environmental resource characteristics of the area.

2. **What have been the local impacts (human and environmental) of the project?**
   a. What are the types and scale of local benefits and negative impacts?

      The study will assess the project's positive and negative impacts using a livelihoods approach focusing on livelihood capitals, including natural, financial, social and institutional, physical and human capitals. (See Annex A: Model of Livelihood).

      – This analysis will be differentiated by gender within each stakeholder group. Attention will be paid to indigenous / ethnically distinct people and other disadvantaged stakeholders where they constitute a distinct group.

   b. What are the impacts of the GEF project in the relationship of local level processes to wider social (including gender), economic and environmental processes?

      The study will examine how impacts on the various capitals have affected resilience and vulnerability of local communities to shocks from external factors that are normally beyond their control. Stronger or weaker livelihood capitals are assumed to lead to higher or lower resiliency respectively. The study should try to assess the extent to which this assumed relationship is actually taking place or at least should provide evidence that the impact on capitals is resulting in higher or lower resiliency. This assessment can be done by looking at processes that: occur at different levels but have a direct impact on local populations, two examples are:

      – Processes at the local level such as better-organized communities (social capital) that are more capable to respond to food insecurity and natural resource variations (e.g., drought).

- Changes in external institutions such as laws and regulations that might result in benefits or costs at the local level.

3. **What are the contributions or detriments of the project's local impacts (positive or negative) to the attainment of global environmental benefits?**

   The study will identify the links (positive and/or negative) between local benefits and the global environment. The following are four examples of possible patterns that the study might consider to assess these links:

   - Changes in production and consumption patters that reduce or exacerbate global environmental stresses (e.g., substitution of poultry for game meat).
   - Cumulative local environmental changes that over large areas can have positive or negative global environmental consequences (e.g. deforestation or reforestation).
   - Reduction of vulnerabilities that can contribute to changes to the balance in policy priorities (e.g. moving from the urgency of poverty reduction to improved environmental management).
   - Changes in the external institutiona l environment, (e.g. the development of better governance as a consequence of local level empowerment and greater public awareness and political support for environmental issues)

4. **Considering the projects objectives, did the overall strategies and environmental management options selected in the projects effectively incorporate the opportunities to generate local benefits?**

   Specific attention will be paid to opportunities for women, the poor and minority groups, as these are more likely to be overlooked in project design and implementation.

5. **What are the key findings and lessons to be learned from the project[24]?**

F. Stakeholder Involvement

The Study Team and local consultant will use appropriate participatory methods, to ensure active and meaningful involvement by investment partners, beneficiaries and other interested parties. Stakeholder participation will be integrated in fieldwork design and planning; information collection; development of findings; evaluation and verifying findings.

G. Methodologies

The Study Team and local consultant will develop methodological tools for data collection based on the project contexts. The methods may include quantitative and qualitative

[24] Including any relevant accountability issues, such as elements of approved project plan, which were not implemented?

approaches[25], such as survey questionnaires, focus groups and formal and informal semi-structured interviews. Identification of the suite of methods will be context dependent and take place during the fieldwork initiation phase and be agreed by the Team Leader, Team members and local consultant.

H. Accountabilities and Responsibilities

The Team Leader of the project study is responsible for:

- Overall responsibility and accountability for the case study
- Selection of the Local Consultant in consultation with other Study Team members
- Coordination within the Study Team and with the Local Consultant
- Guidance throughout all phases of execution
- Approval of all deliverables
- Participating in the Stakeholder Workshop to discuss the draft report
- Co-ordination with other case studies

The Team Members are responsible for, where necessary:

- Cooperating with the Team Leader to develop and implement a fieldwork program
- Assisting with day-to-day management of operations in the field
- Progress reporting to the Team Leader
- Co-compiling a report based on initial field study visit under the direction of the Team Leader
- Participating in the Stakeholder Workshop to discuss the draft report (if appropriate)
- In the event of any differences of opinion concerning findings, lessons and recommendations contained within the report, Team Members will submit these in writing to the Team Leader for inclusion in an annex to the final report

The Local Consultant is responsible for:

- Conducting the case study fieldwork
- Day-to-day management of operations in the field during the main fieldwork phase
- Regular progress reporting to Team Leader
- Development of findings, lessons and recommendations
- Production of deliverables within contractual requirements
- Production of a Confidential Back-to-Office Report (BTOR), if appropriate[26]

The Local Consultant will report directly to the Team Leader.

I. Case Study Process

The case study will be carried out in conformity with the principles, standards and practices set out by GEF M&E (including the Code of Ethics).

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[25] Given the time and resource constraint they are may be limited to qualitative approaches.

[26] A standard requirement of all Local Consultants employed is a back to office report (BTOR). The primary objective of the BTOR is to allow consultants to make recommendations, record insights or note any confidential matters that may not be appropriate to include in a technical report. The report will remain confidential to the study and should be submitted to the Team Leader at the conclusion of the consultancy.

The case study process is split into three phases:

1. **Fieldwork 'Initiation' Phase**: For the purposes of the Initiation phase the Local Consultant will be integrated into the 'Study Team'. Firstly, the Team Leader will brief the Local Consultant on case study; discuss terms, and request that the Local Consultant prepare a draft workplan based on the fieldwork initiation period. The case study workplan[27] will:
    a. Develop and direct the appropriate methods, data collection, analysis and reporting during the main fieldwork phase.
    b. Describe how the case study will be carried out, bringing refinements, specificity and elaboration to the terms of reference.

    Secondly, the Study Team and local consultant will:

    - Conduct national-level stakeholder interviews:
        - GEF focal point (Romania)
        - Implementing Agency (Bank-Romania)
        - Government Ministries and Departments.
        - Environmental NGO and Community CBO representatives
    - Conduct an initial scoping exercise of the case study field site to:
        - Survey project documentation and correspondence.
        - Interview key local stakeholders (e.g. project managers, local government officers, representatives of local communities, representatives of indigenous and gender groups, local NGOs / CBOs, and the private sector).
        - Conduct pilot community consultations / interviews that go beyond those individuals and groups nominated by the project managers.

    These activities will further establish the main issues of relevance to the study, enable the selection specific field sites, application of appropriate data collection methods and therefore, allow the Study Team and local consultant to develop, and finalize a case study work-plan. This work-plan will act as the agreement between the Local Consultant and the GEF M&E Unit for how the study will be conducted.

    During the 'Initiation Phase' the Team Leader and other members will hold regular (formal and informal) briefs (with the Local Consultant) to share findings and key impressions to date. The Team Leader will 'sign off' on the agreed case study work-plan, which the Local Consultant will execute. Phase 1 is expected to last approximately 15 person workdays.

2. **Main Fieldwork phase**: The Local consultant will conduct fieldwork at the case study site and write-up a draft report. The draft report will contain key findings and lessons

27 The workplan will address the following reporting elements: Overview of Investment; Expectations of the Case Study; Roles and Responsibilities; Methodology; Case Study Framework; Information Collection and Analysis; Reporting; Work Schedule.

learned, together with the evidence on which these are based. The report will be submitted to the Team Leader for preliminary comments. Phase 2 is expected to be 15 - 20 person workdays.

3. **Stakeholder Presentation and Final Report**: The Local Consultant and Team Leader will organize a brief presentation of the fieldwork results to national and local stakeholders (held at or near the project site) for comment. Following any revisions prompted by this presentation, the final report will be submitted to the Team Leader. Phase 3 is expected to last up to 5 days.

J. Deliverables

The Local Consultant will prepare:

- Case Study Work-plan (to be completed by end of fieldwork initiation)
- Draft and Final Case Study Report

These deliverables are to be:

- Prepared in English only, except for the final study abstract / executive summary that will be submitted in both English and Romanian (or other relevant language) for the benefit of local stakeholders in Romania
- Submitted to GEF M&E Unit electronically via e-mail and / or on diskette in MS Word.
- Submitted in hard copy format direct to:

Monitoring and Evaluation Unit
Global Environment Facility Secretariat
1818H Street NW, Washington DC 20433. USA

Case Study Work-plan
The work-plan will be submitted by the local consultant to the Team Leader and Team Members at the close of Phase 1 of the fieldwork. The work-plan will be submitted electronically, together with 3 copies in hard copy format.

Draft Case Study Reports
The first draft of the report will be electronically submitted to the Team Leader and Team Members on or before 1st July 2004[28]. The Team Leader and Team Members will provide initial comments within 5 working days of receiving the report and these will be incorporated into a stakeholder presentation (scheduled for late mid-July 2004) and summary of key findings (for those unable to attend). Stakeholders (including those unable to attend) will be given 5 working days to provide written comments on the key findings.

Final Case Study Reports
The Local Consultant will electronically submit the Final Report (including an abstract / executive summary in English) within two weeks after the deadline for receipt of final comments from stakeholders directly to the Team Leader. Five hard copies will also be sent

[28] This date may be changed by the Study Team Leader

by courier. Final reports will be distributed either electronically or by hard copy to the key stakeholders. An abstract/executive summary in Arabic will accompany the final report.

ANNEX.

The Conceptual Framework

The main elements of this framework are a typology of local benefits, an identification of the ways that local benefits can enhance global environmental benefits and a model that links both local and global benefits to the dynamics of local people's livelihoods. The framework is depicted in Figure 1.

The typology identifies five generic categories of improvement to livelihood capital, which can be seen as the core of local benefits in global environmental projects:

- Improved access to **natural capital**, including plants and animals harvested from the local resource base, surface and ground water, fuelwood and environmental services such as safe waste disposal and tourism and recreation values. Such changes will increase the sustainability of **resource management**, reflected in factors such as the reversal of ecosystems deterioration, retained biodiversity values, the regeneration of forests, rangelands and wetlands and improvements to water quality.

- Increased **livelihood opportunities, income** and **financial capital**. This includes increases to the productivity of existing and opportunities for new livelihood activities such as farming, fishing or tourism, increases in cash income and improvements to the ability to save or availability of capital.

- Improved **social capital, equity** and **institutional capacities** in local communities. This reflects the enhancement of community-level institutional capacities and contact networks and the improved ability in local communities to deal with outside agencies. It also reflects improvements to gender and social equity at the local level, especially through the empowerment of women and minority groups in decision-making.

- Improvements to **physical capital**, including investments in tools and machinary, access to or the ownership of land and buildings and access to infrastructure such as transport, telecommunications or water supply and irrigation.

- Improvements to **human capital**: the skills, knowledge, work ability and management capabilities of local community members. There is typically a need for a gender focus in this that emphasises issues such as functional literacy and management skills of women.

Increases in the livelihood capitals available to communities will promote improved **health** and **food security**, including improvements to key indicators such as child and infant mortality, reduced morbidity from diseases that reflect poor environmental conditions and improvements to both the absolute level of nutrition and a balanced diet.

Strengthened livelihood capitals and improved health and food security will, in turn increase the **resilience** of local communities to withstand shocks from external factors that are beyond their effective control. Increased resilience in turn promotes reduced **vulnerability** to, for example, natural disasters such as floods, droughts and cyclones, environmental degradation, loss of ecosystem integrity, deforestration and climate change and variability as well as to such forces as social, political and market disruption.

APPENDIX B: METHODOLOGY OF FOLLOW-UP STUDY

Conceptual framework of the follow-up study

The follow-up study was a sociological investigation in the shifting institutional patterns of natural resource management in the Danube Delta. The aim was to understand the "*patterns of social organization within which social actors act"* in the Danube Delta area (Cernea 1995, p. 20). The focus was particularly on patterns of natural resource management and ownership regimes, defined as *"structure[s] of rights and duties characterizing the relationship of individuals to one another with respect to that particular resource"* (Cernea and Bromley 1989, p. 5)

The research analyzes the positions of several social actors in the Delta: the local population, the local authorities al commune level, the DDBRA, the Tulcea County Council, the Frontier Police and other institutions of the central government. Within the general social system of the Danube Delta, the team attempt to trace the impact of the Project at global and national levels and at the local level.

The assessment of the relation between local and global benefits of the Project, four years after the completion of the project, must also take into account the events that have happened meanwhile. The remarkable stability of the staff in the decision-making levels of the DDBRA has considerably eased the research mission, as we had access to accounts of project activities and outcomes and their integration into the broader framework of the DDBRA activity. Therefore the team gained a better understanding of choices and contextual evolutions during the project.

The most significant change in the DDBR situation after the termination of the Project has been the concession of fishing rights and activities to private entrepreneurs. Although it has been implemented in 2002, the idea of a private concession system appeared during the Project as an option for improving the pattern of management of the Delta resources. Plans for concessions have also been a background for some intended project activities, such as the preparation of a Fishermen Association to possibly bid for the management by fishermen of a section of the Delta under the "concession system".

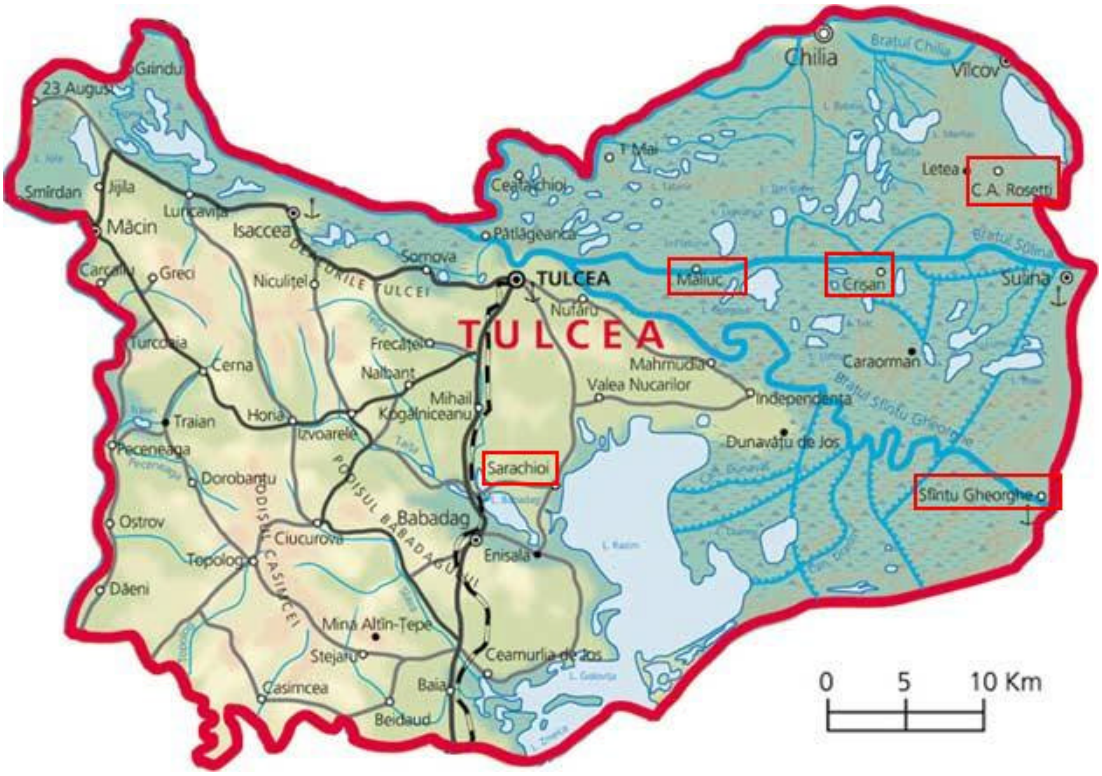
Follow-up study approach

The follow up research is based on extensive discussions with experts at the DDBRA and DDNI, literature and legislation reviews, statistical data analysis and five case studies, each centered on a specific locality. The study included a village bordering the perimeter of the DDBR, but situated outside its administrative area (Sarichioi) and four villages inside the reserve, aiming to maximize the variety of the situations and also to follow some of the specific project components.

The settlement of C. A. Rosetti was chosen, because among the Delta villages it has a distinctly agricultural profile and also because it is one of the most isolated localities. Furthermore the Project included a pilot project in Rosetti, supporting agro-tourism. Periprava and Sfistofca villages were included because they are traditional fishermen villages within the same commune. Fishermen from Periprava village have also been users of the polders of Babina and Cernovca, restored under the Project.

The settlements of Crisan and Sf. Gheorghe have been studied because they are tourist centers of the Delta and also because they depend on fishing as the main source of income. The fourth study site was Gorgova, also a fishing village but with smaller visibility, bordering the Fortuna Lake where the Project has implemented ecosystems restoration works in order to reduce sedimentation. The follow-up study team also visited Maliuc, the administrative center of the Maliuc commune to which Gorgova belongs. Map 1 shows the location of these study sites.

Map 2. Case study localities (in Tulcea county)



In the five case studies the local team conducted a total of 73 individual and group interviews. In each village the interviewees included local authorities (mayors, local councilors, other public officials or professionals) and women and men from various households according to their relative position on a welfare scale in the village (above average, around average and below average) and according to the main types of occupations (fishing, agriculture, tourism).

The team repeatedly tried to interview representatives of the concessionaire companies in each village, but only managed to do so in Gorgova and in Sfintu Gheorghe. During its field work the international team met with a representative of the concessionaire company at Matita Merhei, which is also active in Rosetti area. In Sarichioi, Crisan and Rosetti the local team could not contact the concessionaire company.

Scope and limitations of the follow-up study

The Terms of Reference made by the international team stipulated a qualitative methodology. Therefore the follow-up study team did not pursue a statistically representative sample of respondents. Instead, the team tried to maximize variety in social positions and to conduct in-depth research, through semi-structured interviews, to find the local perceptions and knowledge of Danube Delta inhabitants of their livelihoods and the resource management systems.

During the field work the local team encountered a general consensus on the main issues, with few areas of dispute and uncertainty. The main area where the team lacked reliable data is concerning income levels and poverty rates. The follow-up study method, which relied heavily on interviews, did not aim at generating valid income data. In any case, most respondents were reluctant to provide any

income figures. Furthermore, official estimates are understood to be based on underreported and the few answers that the team received varied widely. Therefore the team could not draw conclusions referring to income poverty in the Danube Delta.

However, the local team could reliably document the process of impoverishment of professional fishermen due to cuts in payment rates after the concession system. Changes in the distribution of benefits from fishing have been acknowledged widely and most stakeholders agree on this trend. The only exception is that the representatives of the concessionaires attribute the undisputable decreases in payment rates to taxation only.

The follow-up research focused mostly on professional fishing, and less on agriculture and tourism, for three reasons:

1. Fish is one of the main connections between global and national ecological benefits in the Project, on one hand, and local benefits, on the other hand. Many types of ecological restoration works (such as polder restoration, protecting lakes from silting) and institutional consolidation can be converted to local benefits through increased incomes from sustainable professional fishing.
2. Fish is an important resource in the Delta Danube that is under constant pressure and subject to considerable risks, as long as accurate monitoring mechanisms and alternative income sources are not put in place. Not only is fish a resource of primordial importance for the local population, as a main source of cash income and a food source in the Delta villages, but it will also potentially support the development of tourism.
3. Fishing has been subjected to major changes in administrative practices during the last 15 years, while agriculture and tourism have changed more as a result of market forces and social transformations than as a result of state policies. Therefore, a study on fishing can draw powerful lessons on what systems of resource management are more sustainable and fair in the distribution of benefits.

APPENDIX C: ACTIVITIES AND PEOPLE MET

ACTIVITIES AND PEOPLE MET

Date	Place	Activities
11 May	Bucharest	• Arrival in country of Mr. Dirk Frans., Prof. Michael Cernea and Dr. Gonzalo Castro • First team meeting
12 May	Bucharest	• Meeting with **Mrs. Ana Maria Ihora** (Program Assistant, World Bank, Romania) to discuss details itinerary • Meeting with **Mr. Qwaise Saadat** (Country Manager, World Bank, Romania) to explain purpose of the mission and be briefed on the WB perceptions • Visit to the **Village Museum** to get acquainted with rural living conditions, life and livelihoods • Meeting with **Mrs. Doina Rachita** (Rural Development and Environment Sr. Operations Officer) to be briefed on the DDBP history and developments since the completion
13 May	Bucharest	• Meeting at the Ministry of Environment and Water Management with **Mrs Adriana Baz** (Director), **Mr. Florin Stadiu** (Secretary of State), **Dr. Calin Sinescu** (Minister's of Environment Adviser) and **Mrs. Liliana Chirila** (GEF Operational focal Point) • Meeting with **Prof. Angheluta Vadineanu**, (Head Dept. of Systems Ecology & Sustainability, University of Bucharest) • Meeting with **Dr. Dan Balteanu** (Director), **Dr. Mircea Buza** (Deputy Director) and **Mrs Serban Mihaela** (Research Assistant) - Institute of Geography of the Romanian Academy • Travel from Bucharest to Tulcea by car
14 May	Tulcea	• Briefing of the team at the DDBRA by **Mr. Vigil Munteanu** (Governor), **Dr. Grigore Baboianu** (Executive Director), **Mr. Ion Munteanu** (Technical Director), **Mrs. Cornelia Aftodor** (head of Public Awareness, Ecological Education and Visitors Centres) • Briefing at the DDNRI Meetings with **Dr. Romulus Stiuca** (General Director), **Dr. Radu Suciu** (Sturgeon Research Group) and **Dr. Juano Gordaro** (Fish Inventory Specialist)? and **Mr. Mircea Staras** (Scientific Director)
15 May	Mila 23 and Matita	• By Jet boat from Tulcea through the delta to Mila 23 • Interviews with **four fishermen** and with the **local Priest** • Discussions with **Mr. Eduard Smaranda** (Tour Manager) and **Mr. Ton Kramer** (Manager) of Danube Delta Canoe Centre (Tourism NGO) • Departure of **Dr. Gonzalo Castro.** Other team members continue and visit **Babina polder restoration** • Travel to Matita fish colleting point and guesthouse • Meeting with **Manager** and **Supervisor** of the fisheries concession and tourism establishment
16 May	Sulina and Tulcea	• Travel by jet boat from Matita to Sulina • Visit DDBRA information centre in Sulina • Visit Saline town, Black Sea beach and graveyard • Meeting with **Mr. Raducu Nicolae** (Friend of the Delta (NGO)) and **Mr.** (Deputy Mayor and Friends of the Delta)

Date	Place	Activities
17 May	Tulcea and Enisala	• Meeting at DDBRA • Meeting with the Public Awareness Strategy head • Meeting with **Mr. Silviu Gheorghe** (President ANTREC (local tourism association) • Meeting with **Mr. Eugen Petrescu** (Zonal Director Romania Ontological Society -Birdlife Romania (NGO)) • Meeting with **Mr. Trifon Belacurencu** (President Local Council) • Visit to Ensisal Fish collection point, discussions with **Mr. Cocias Stephan** (Sr. Scientist of the DDI) • Meetings with guards • Visit to Babadag to meet **Mr. Vanov** fisheries concession holder and owner of Eurofish (private fish farm)
18 May 19 May	Tulcea and Isaccea Tulcea and Bucharest	• Team meeting • Meetings at the DDNRI with **Mrs. Lucia Popa** (Social Geographer), **Dr. Radu Suciu** (Sturgeon Research Group), Mrs. (Anthopologist) and **Dr. Juano Gordaro** (Fish Inventory Specialist) and Dr. Romulus Stiuca (General Director) • Meeting with representative of the National Tourism Board • Meeting with representatives of the Lipovanian Union • Visit to private sturgeon hatchery of **Mrs. Maereanu Marilena** in Isaccea • Meeting with four **fishermen** • Debriefing at the DDBRA with **Mr. Vigil Munteanu** (Governor) and his staff • Team meeting to discuss main findings • Travel by car from Tulcea to Bucharest
20 May	Bucharest	• Meeting with **Prof. dr. Dan Bãlteanu** (Institute of Geography), **Mrs Serban Mihaela** (Research Assistant) and Mrs. **Mrs Nicoleta Damian** (Assistant Researcher) • Debriefing meeting with **Mr. Qwaise Saadat** (Country Manager, World Bank, Romania) and **Mrs. Doina Rãchitã** (Rural Development and Environment Sr. Operations Officer) • Team meeting to decide on ToR for follow up study • Report writing
21 May	Bucharest	• Meeting with **Prof. Catalin Zamfir** (Dean) and **Prof. Ioan Mihailescu** of the Dept. of Sociology and Social Work, University of Bucharest • Team meeting and departure of Mr. Dirk Frans and Prof Michael Cernea

Date	Place	ACTIVITIES
May	Bucharest	• Preparation for follow up study (**Mrs Cosima Rughinis** and team) • Initial draft report circulated to team members
1-15 June	DDBR	• Follow up study
14 July	Bucharest	• Draft summary report circulated to main stakeholders
27 July	Tulcea	• Stakeholder workshop
Aug/Sept.	Netherlands	• Drafting final report

APPENDIX D: INTERNATIONAL EXPERIENCE

Executive Summary of a Review of International Experiences Concerning the Nature and Role of Local Benefits in the Biodiversity, Climate Change and International Waters Areas

"The need to include local benefits in environmental programs is included in statements of policy and intent by most international organisations but the extent of institutional embedding and translation into durable and widespread practice is far more limited.

Actions to preserve environmental resources will benefit someone somewhere, directly and indirectly. The key issue for this evaluation is whether these benefits were an intended outcome of the project or program design and have been monitored, evaluated and reported on.

Where local benefits were a consequence of environmental programs, it was within a context of **multi-purpose approaches** where actions around environmental issues were complemented by interventions with local communities to support benefit streams.

The **upward links** of local benefits are more to poverty reduction, social change and economic development goals than environmental goals. The key linkages issue is how environmental programs relate to poverty reduction and sustainable development.

Linking global environmental benefits and local development benefits is necessary for continued support for environmental programs: most agencies demand direct impacts on **poverty reduction**, and especially the Millennium Development Goals (MDGs), as a priority for program involvement.

The **models of good practice** tend to come from individual projects or programs, rather than institution-wide practices. The extent of effective embedding of good practices within the overall portfolios of institutions is limited.

Reviewed **approaches to local benefits** include participatory development, livelihood approaches, international guidelines for evaluation in development, participatory monitoring and evaluation, and social impact assessment.

The different approaches and methods reviewed all emphasize the needs, priorities, perceptions and capabilities of local communities, with strong participatory biases and a focus on socio-economics and the dynamics of local livelihoods.

Biodiversity programs switched in emphasis from conservation to sustainable management. The programs reviewed include a range of types of local benefits:

- The availability of **resources for consumption** such as fuelwood, foods and water.
- Secure access to **inputs into production** such as water, fodder and timber.
- Improved **food and water security**, health and nutrition.
- **Reduced vulnerability** to shocks and trends, including natural disasters.
- Improved local **institutional capacities** and reduced conflicts.
- Improved **equity** and the **empowerment** of women, the poor and minority groups.
- The maintenance of the **integrity of ecosystems** on which the poor depend.

Benefit flows will only reach their potential if actively supported at both community and policy levels. This includes actions, such as community mobilisation, micro-credit schemes and policy reforms, beyond the scope of biodiversity conservation programs.

Global **climate change** programs, especially in mitigation, take little or no account of local benefits. Carbon sequestration needs to include local benefits in calculations and to avoid monocultures. Climate variability needs to be a focal area for development. Recent initiatives in **adaptation**, responding particularly to the IPCC meeting in Marrakesh and elsewhere, have the potential to generate local benefits. Fresh thinking on how to build these into adaptation programs is needed.

Local benefits are increasingly being recognised in programs on **international waters**. Areas where benefits are being identified include:

- Improved access to **natural capital**, especially water and from aquatic ecosystems.
- Improvements to **livelihood activities** and income.
- Where included, **empowerment** from institutional capacity building.

A **typology of local benefits** has been developed, based on the review of international experiences. This typology identifies eight categories of local benefit:

1. Improved access to **natural capital**.
2. Increased **livelihood opportunities**, income and financial capital
3. Improved **social capital**, equity and institutional capacities in local communities.
4. Improvements to **physical capital**.
5. Improvements to **human capital**.
6. **Reduced vulnerability** to disasters, ecosystems degradation and other factors.
7. Improved **health and food security**.
8. Improved sustainability of **resource management**.

The overall conclusion of the review is that there is a growing trend towards ensuring that local benefits that have direct poverty reduction impacts are an integral part of environmental programs. This reflects the policy context within which these programs are developed. The extent to which such benefit streams are institutionally embedded is limited and actions to make rhetoric a reality are needed, but overall the trend is positive and there are models of good practice for replication and scaling up." (Soussan, 2003)

APPENDIX E: NATURAL RESOURCES MANAGEMENT IN THE DANUBE DELTA FROM 1877-1994

Administration in the 19-th and early 20-th Century

The Danube Delta has seen several patterns of social organization for the management of its natural resources. After the Independence War in 1877 the Law of real estate ownership in Dobrogea in 1882 stipulated that all lakes, ponds, channels and fisheries were state owned and that remain as such (Echim 1995, p. 98). Although state ownership of natural resources has continued since then, the actual system of rights and duties related to the fish resource has changed considerably during the last two and a half centuries.

Until 1895 the Delta was leased for exploitation to various private enterprises. Due to over-fishing and lack of maintenance the fish population declined visibly, and consequently the Delta market value also decreased. In order to address this problem, the Romanian state decided in 1895 to manage its resources directly, by establishing a specialized institution: the 'Office for State Fisheries' (*Serviciul pentru Pescariile Statului*). In 1897 the government issues the first Fishing law and till 1914 the Office for State Fisheries managed fishing in the area, followed by the 'PARID Administration' till the Second World War.

The process of professional fishing and commercialization involved several actors. Fishermen were authorized to fish by the Office of State Fisheries. They were free to fish in the Danube and in the large lakes. Some water areas, usually smaller ponds, were fenced and given as concession to certain fishermen or fishermen associations. The amount of money that the fishermen owed the state depended on the the waters in which he was eligible to fish.

The fishing legislation of 1897 granted all riverside population bordering the Danube, the Black See and the River Prut the right to subsistence fishing. Such family fishing required a special permit issued by the local authorities and was limited to certain tools (Echim 1995, p. 112).

Fishermen had direct access to the market and the state was heavily involved in controlling the production and sale processes. Fishermen would bring their fish to the local *cherhana* (collecting point) of their choice. The *cherhanas* were mostly operated privately either by fishermen themselves, by associations of fishermen, or by other private entrepreneurs (Simionescu, 1928, p. 61-62). For example, in 1910 the state Administration of Fisheries supported a number of 98 fishermen associations with credits in order to start to operate *cherhanas*. The *cherhanas* also needed an authorization that certified that they comply with hygiene standards. The process of taking over the fish (including weighting the quantity, issuing receipts to fishermen, and registering the fish captures in the *cherhana* register) was closely monitored by state officials from the Fisheries' Office. The fish was subsequently transported to the fish public market, usually by the fishermen, using the *cherhana* boats; expenses for transportation were covered by the state. The market for fish was also organized publicly, in order to control the auction process and to maintain competition and open market processes.

The state also controlled the maintenance and improvement of the Delta water areas in order to stimulate the fish production. Under this system, improvement operations had two main components: *"to maintain in well order the channels for regular water flows and for fish migration"* and *"to establish a severe regime for sparing fish during reproduction and sparing hatchlings; to practice a rationally organized fishing process, at times when the fish is abundant in certain places, to encircle ponds, lakes and channels at due times and places, and to do this when the fish is at its growth maximum"* (Antipa 1921, p. 83-84). The prohibition periods were well enforced, and this allowed the recovery of fish population after years with low levels of water and over-fishing due to the easy

capture of fish. The decline and recovery of fish population were clearly reflected in production levels, in correlation with Danube water levels (Antipa 1910, p. 130-133).

The State, as the owner of the resource, charged a tax of 30% for the fish captured in Danube waters and 45% for the fish from the lakes, except for the leased lakes in which taxes went up to 60% of the fish market value. The remaining money went to the fishermen and *cherhana* owners. The average yearly capture of fish in Tulcea fisheries was 10,121 tons in the years 1900-1905 and 12,223 tons in the period 1905-1910.

Table 16. Evolution of the number of fishermen and revenues from fishing in Tulcea county around 1900 (Source: Antipa (1911))

Year	No of registered fishermen	Total revenues from fish trade (thou. lei)	Of which: State revenue (%)	Of which: Fishermen revenue (%)
1895	1118		The annual rent for the fisheries until 1895 was 400,000 lei	(1,283 thousand lei)
1906	3679	2,846	34.4	65.6
1907	3982	2,776	37.0	63.0
1908	4582	4,662	36.4	63.6
1909	4990	5,324	40.6	59.4
1910	5321	6,173	40.5	59.5 (3,673 thou. lei)

In 1914 the State abolished the open auction system, aiming to control the fish price through a controlled sale process, at predetermined prices. This led to a steady decrease of the fish capture. In 1929 the Parliament adopted a new Law for the general administration of state fisheries and improving the wetland of the Danube, that created the PARID Administration in charge to manage the Delta area and resources. The new law reverted the ownership arrangements to the system of 1895-1914, that focused on state controlled exploitation of the resource by individual fishermen, with a reduced role of private intermediary actors (such as *cherhana* owners).

Social organization of resource management in the Danube Delta during the communist regime

The communist regime (1945-1989) introduced a major discontinuity. Since 1954 the right to professional fishing was granted exclusively to the socialist enterprises, based on production plans. Still, individual family fishing was allowed for all people integrated in the socialist economy (*"oamenii muncii"*, Echim 1995 p. 119), based on a special permit.

In the last decade of the communist regime, the Danube Delta was administered by the state-owned consortium *Centrala Delta Dunarii*, which pursued the complex exploitation of the Delta resources. The *Centrala* included circa 20 enterprises involved in multiple activities (fishing, agriculture, reed harvesting etc), each of them in control of a Delta area. There was also a Collective State Farm at Chilia Veche. Few villages (such as Rosetti and Cardon) were collectivized and the land was used in an Agricultural Production Cooperative. The traditional fisherman villages were not collectivized, because they did not have any land.

The communist state pursued an extensive policy of land reclamation, building polders for forestry, agriculture and aquaculture, especially after 1982. In order to manage the polders the Delta was cross-cut with artificial drainage channels. The aquaculture polders were supported by electrical pumps and almost free electricity allowing water to be pumped in and out of the polders as the aqua farm management deemed fit.

Almost immediately after the fall of the communist regime in December 1989, the Danube Delta was declared a Biosphere Reserve, and the activities of land reclamation ceased. The enterprises of the *Centrala* continued their activity as autonomous economic agents. Because of low economic efficiency, they entered a gradual decline. Increasing costs of electricity made pumps too expensive to use, and aquaculture was generally replaced by fishing. All in all the economic down turn resulted in large scale unemployment, which increased pressure the on the DDBRA resources as people turned to them to make ends meet.

Since 1994 a number of other private enterprises appeared in the Delta in increasing numbers, operating fish collecting points. This provided fishermen with a highly competitive market, of which a considerable proportion was in the grey sector.

The DDBRA and national legislation regarding the DDBR

The Danube Delta Biosphere Reserve was established in 1990. Shortly afterwards the DDBR was listed on the Man and Biosphere Programme - UNESCO, and it was placed on the List of the World Cultural and Natural Heritage. In 1991 Romania signed the RAMSAR convention that lists DDBR as a wetland of international value.

The DDBRA was established in 1993, and its structure and attributions were defined in 1994 by Government Decision 248/1994. The Decision stipulates that *"The mission of the Reserve Administration consists in creating and applying a special regime of management in order to conserve and protect the biodiversity in the natural ecosystems of the reserve, to develop human settlements and to organize economic activities in correlation with the support capacity of these ecosystems"* (Article 5).

In 1996 the Government established a plan of measures to promote the development of the DDBR area, by which residents of the DDBR are granted several facilities, including the right to family fishing, tax deductions, wage increases for specialists employed in the Delta (teachers, doctors, civil servants), subventions for transportation, electricity, heating, gas and water.

In 1997 the Government and the DDBRA initiate a regulation plan for fishing activities, requiring individual permits for all professional fishermen. Fishing is further regulated by the Law of Fishing and Aquaculture in 2001. In 2002 the Government decides the concession of fishing and reed collection activities in the DDBR.

The DDBRA establishes sustainable harvest levels (quotas) for commercial species of fish, based primarily on reported capture levels from the previous year. Estimates may also include information derived from interviews with fishermen and the local population, or sample fishing. Quotas are approved by the Commission for Protecting Monument of Nature of the Romanian Academy.

According to DDBRA information, in the period 1995 – 2004 the sustainable fishing quotas have not exceeded 6000 tons/year. In 2003 the total quota was 4967 tons and in 2004 it decreased to 4000 tons (due to the difficult hydrological conditions of the previous year). During the last ten years the total quotas for the Delta waters have never been officially exceeded; reported captures have oscillated around 50% of the quota. Nevertheless, given the illegal captures delivered on the black market and the persistent underreporting, it is difficult to estimate the actual capture levels.

Capture levels for each species are monitored based on monthly capture reports. Sturgeons are the most strictly supervised species, due to the CITES convention to which the Romania is a signatory party.

Increases in capture quotas require the approval of the Commission for Natural Monuments of the Romanian Academy, with the exception of sturgeons, where quotas can only be increased with the approval of the CITES Secretary from Geneva.

Role of Tulcea County Council in the DDBR

A Protocol concluded in 1993 between the Tulcea County Council and the DDBRA defined a list of polders that are to be retained for commercial production (GEF 1994). Three years later, in 1996, all polders in the DDBRA were legally included under the jurisdiction of the County Council. The Law 69 / 1996 modified the Law 82 / 1993 concerning the establishment of the DDBR and stipulated that *"terrains within the perimeter of the Reserve which are agriculture or aquaculture polders, listed in Appendix 2 of the law, constitute public domain of county interest and are under the administration of the Tulcea County Council, entity within the local public administration"*.

The Law 69 / 1996 also stipulates that *"terrains in the public domain of county or local interest, used as agriculture or aquaculture polders that can no longer be used according to the purpose of their creation, because of degradation or for other reasons, will be integrated in the natural regime of use by necessary measures of ecological reconstruction, put in place by the Administration of the Danube Delta Biosphere Reserve"*. The Law 454 / 2001 changed this provision in order to include the Tulcea County Council in decision-making processes related to the ecological reconstruction of the polders under its administration. This decision is emphasized also by the Law of the fish resource, fishing and aquaculture L 192 / 2001, which holds that aquaculture polders must be compulsorily used for aquaculture, that changes of their economic use must be approved by central state authorities concerning agriculture, food, forestry and environment (Article 29) and that degraded aquaculture polders must be included in programs for land improvement (Article 34).

Polders have been leased by the Tulcea County Council to private investors, which continue to use these assets for fishing, agriculture, or tourism. Aquaculture is practiced only in few cases (see for example Table 18). Concession fees are incomes to the Tulcea County budget.

Despite explicit legal provisions and repeated requests of the DDBRA, few degraded polders actually received approval to be restored to the natural environment. The DDBRA has identified a total of 16 polders covering 60,260 ha that are partially or totally abandoned and thus suitable for restoration. In 1994 the GEF Technical report proposed that a total of 11,425 ha could be restored, given the Protocol between DDBRA and the Tulcea County Council. However the area mentioned in the Staff Appraisal Report for polder restoration was 37,765 ha (ICR, 2000, p 4). Finally the Project managed to restore only around 7000 ha, because of opposition from the County authorties.

Table 17. Property regimes in the DDBR, 2004 (Source: DDBRA)

Property regime	Proportion
Public domain of national interest (under DDBRA administration)	81.12 %
Public domain of county interest (under County Council administration)	13.71 %
Public or private domain of local interest (under private or Local Council administration)	5.17 %

Case studies indicate that many polders in the administration of the County Council are not used according to their initial destination. Adjustments to electricity costs (highly subsidized before 1989) led to the quasi-total collapse of aquaculture activities, since enterprises could no longer afford pumping water inside and outside the fish ponds. Currently there are only a few enterprises that repopulate fish ponds, without pumping. According to case study data from Rosetti and Maliuc, it seems that the vast majority of the former fish ponds is either connected with natural waters and thus allows fishing from the natural resource, or is used for agriculture. Some polders are also used for

tourist hunting and fishing. Under these circumstances, there is a strong legal case for the restoration of these polders and their inclusion in the natural circuit of the DDBR.

Table 18. Situation in former aquaculture lakes around C.A. Rosetti (Source: Interview with key informant, Rosetti commune)

Lake	Land situation	Activity	Connection with the natural waters (the Central Channel)
1,2,3, 5		No fishing	No connection
4,6	Water	No fishing	Connected by a pipe
7	Water	No fishing	Connected with Lake 8
8,9	Water	Small-scale fishing (no repopulation)	Lake 8 is connected by a pipe; the water enters Lake 9 and exits towards Periprava village
10	Rain and snow water	No fishing	No connection
11	Natural water	Small-scale fishing (no repopulation)	Connected by a pipe
12, 13, 14	Dry (high areas)	No fishing	No connection
15		Fishing	Connected by a pipe
16-17	Water, bordering 10 tourist residences	Fishing for tourists and their own consumption	Connected by a pipe
18	Water	Fishing, no repopulation	Connected by a pipe
19	Water	Fishing, no repopulation	Connected with 18
20	Water	Fishing with repopulation; allowed to fish during prohibition period	No connection
21-22	Polders restored in 2000	Fishing	Natural waters
23		No fishing	Connected with 24)
24	Water	Fishing, no repopulation	Connected by a pipe

On the other side, local authorities are interested in gaining control over the former polders, in order to use the land as communal pasture, or to concession it and gain additional incomes to the local budget. For example, mayors in Sarichioi, Maliuc, and Rosetti have stressed that the lack of ownership over polder land is a considerable loss for their locality, which they are actively trying to repair. In Rosetti the Local Council managed to gain ownership over 448 ha, that are used as pasture; in Maliuc the Local Council has also managed to receive 137 ha, promising to continue the concession contract; the difference is that the money currently comes to the Local Budget.

The role of the Frontier Police in the DDBR

The Frontier Police (*Politia de Frontiera*) has been established in 2001 by Emergency Governmental Ordinance 104 / 2001 (approved by Law 81/2002), through a transformation of the former institution of Border Guard (*Graniceri*). The Frontier Police has substantially more responsibilities than the former *Graniceri*, and it is in particular responsible for fighting poaching. For example, throughout Romania, in the period January-September 2003, the Frontier Police have captured 138 boats, 4000 illegal fishing tools, 20 tons of fish, 71.5 kg of back and red caviar. In the same period they have sent 1903 persons to trial for pauching activities (see Adevarul de Cluj, October 22, 2003).

The Frontier Police has been consolidated and equipped with EU assistance, considerably increasing its efficiency. Its area of intervention extends in the territory 20 km from the border, covering the entire Danube Delta.

Case studies indicate that the intervention of the Frontier Police has been a major constraint on poaching. This is especially the case in localities closer to the border, such as C.A. Rosetti, Periprava, Sfistofca, or Sf. Gheorghe. In these villages fishermen mentioned the Frontier Police as the most effective and intransigent of all controlling agencies. In Crisan its activity was also acknowledged, but in Gorgova, a locality situated furthe away from the border (see Map 2), the presence of the Frontier Police was less visible and its efficacy was disputed. A fisherman in Gorgova explained that the officers of the Frontier Police do not patrol the lakes and they cannot therefore prevent or even detect poaching; their activity was limited to two checkpoints situated on the road.

According to the general understanding of our respondents, the Frontier Police do not control the concessionaire activities. For example, our respondent from the Frontier Police in Periprava was aware that concessionaires employ fishermen in the informal sector (*la negru*), but believed that it was not within their authority to sanction this.

> *"How can we control the concessionaire? It's he who is giving us orders!"(Frontier Police agent)*

Many respondents, especially in Rosetti, have recalled the period immediate following the institutionalization of the Frontier Police, when controls of villagers and tourists were very frequent. Guards would check ID papers, passports, and fishing permits. The controls have decreased in frequency and intensity later. Our respondents attribute this decrease to various factors: awareness that controls were bothering tourists, decline due to routine, and lack of pressure from upper hierarchical levels.

Increased role for the private sector in resource management

Between 1994 and 2003 (the year when fishing activities in the Delta areas of national interest were leased) private enterprises started to come in the Delta in increasing numbers, operating fish collecting points and commercializing the fish on the national and international markets. Fishermen had therefore access to a highly competitive market for their work, since they could choose to sell the fish to the highest bidder.

The fast opening of the market in the mid 90's corresponded to a period of massive reorganization of the State institutions following the collapse of the communist regime. The state enterprises and the law enforcement agencies lacked the institutional capacity to control the fish trade any more. Massive unemployment pushed increasing segments of the local population into fishing activities. This led to a lack of ownership rules over the resource, where rights to capture were not balanced by guardianship and exclusion from use. It was in fact an open access-regime (Cernea and Bromley,1989, p. 19), despite its formal status of state ownership.

A considerable proportion of the fish trade took place on the black market: fishermen would sell their capture without any recording documents, and the fish would continue its commercial circuit outside official accountability and reporting. The fish resource was exploited intensively, but with few benefits for the state budget. Moreover, fish captures were grossly underreported and this made ecological monitoring very difficult. The Government and the DDBRA had in view to increase revenue collection and ecological control over economic activities in the DDBR.

APPENDIX E: SOCIO-POLITICAL TIMELINE

Year	Main political changes	Administration system	No of private enterprises involved in fishing in DDBR	Legislation
1989	December: Fall of communist regime	Centrala Deltei Dunarii (established in 1970): complex state enterprise		
1990		Start of transition to market economy		Government decision 983 / 1990: establishment of the Danube Delta Biosphere Reserve DDBR is listed on the Man and Biosphere Programme - UNESCO, and is placed on the List of the World Cultural and Natural Heritage
1991				Romania signs the RAMSAR convention that lists DDBR as a wetland of international value
1992				
1993				Law 82 / 1993 concerning the establishment of the Danube Delta Biosphere Reserve: - Defines functional zoning of DDBR - Defines the DDBRA
1994		Private fishing farms appear in the Delta, buying fish from local fishermen on an open market	14-16	Government decision 248 / 1994 concerning the implementation of law 82 / 1993: - Establishes the functional zones - Establishes the DDBRA
1995				Law 137 / 1995 concerning environmental protection

Year	Main political changes Administration system	No of private enterprises involved in fishing in DDBR	Legislation
1996	Center-right coalition (CRD) wins elections		Government Decision 395 / 1996: measures for supporting the development of DDBR and Tulcea county Government Ordinance 27 / 1996 (republished 1997): facilities for residents of DDBR Law 103 / 1996 concerning hunting Law 107 / 1996 concerning waters
1997		35	Law 96 / 1997, approving Ordinance 27 / 1996 Government decision 516 / 1997: regulates fishing activities in the DDBR - Individual fishing permits are required for professional fishing
1998			Law 219 / 1998 regulating concessions
1999		75	
2000	Socialist political party (PSD) wins elections	98	Government Emergency Ordinance OUG 112 / 2000 modifying Law 82 / 1993
2001	The Establishment of the Frontier Police	110	Law 192 / 2001 regarding fishing and aquaculture – Nylon nets (*setcile monofilament*) are forbidden Emergency Governmental Ordinance 104/2001 concerning the organization of the Frontier Police (approved by Law 81 / 2002) Law 454 / 2001 approving OUG 112 / 2000
2002		123	Emergency Government Ordinance OUG 34 / 2002 concerning pollution

Year	Main political changes	Administration system	No of private enterprises involved in fishing in DDBR	Legislation
				prevention and control Government Decision HG 311/ 2002 regarding concessions for fishing activities in DDBR Government Decision HG 367 / 2002 approving the statute of DDBRA Government Decision HG 918 / 2002 concerning procedures of environmental impact evaluation Law 679 / 2002 regarding private property in Danube Delta localities
2003		Summer 2003: Fishing activities are gradually leased Fishermen conclude contracts with concessionaires	23	
2004			23	

Annex F: Alternative Perspective on the Project Provided by Dr. Gonzalo Castro

The present report represents a serious attempt to describe and discuss the issue of local benefits in the Danube Delta as a result of the GEF project. Nevertheless, there are two additional issues that the reader should consider, as follows:

1. Benefits of the Project Span Beyond the Delta Itself

The benefits identified in this project cannot be simply allocated to the categories of "global" or "local." The benefits identified in the project represent a continuum spanning large geographic scales (going all the way from global to the level of the local communities), as well as temporal scales (benefits that will be fully realized over time as a result of ecological restoration).

The existence of this continuum presents a methodological challenge because it is difficult to clearly define where some of these benefits start and others end. Since the main project goal is the restoration of the ecological functions of the Danube Delta, the project's global goals are well aligned with the generation of local benefits because restoring the natural functioning of the ecosystem, which is a fundamental step to conserve biodiversity, is also the first step to restore the productivity of this wetland and its functions and attributes used by local people (fish, tourism, reed production, etc). Various studies have described the benefits generated by wetland ecosystems such as this, and have found that some wetlands can generate over 100 different types of benefits. Given the size and uniqueness of this wetland, it is likely that the benefits generated by the Danube Delta are on the high end of this scale.

Although the largest economic benefits of the project probably accrue at the national and sub-national levels, the precise calculation of these benefits present a methodological challenge and have not been estimated. These benefits can be estimated using the technique of ecological valuation, a technique that could be used in further studies to determine more precisely the magnitude and distribution of all benefits. Nevertheless, the benefits generated by the project can be visualized along a continuum that spans the following geographic scale: global, regional, national, sub-national, and local communities.

A. Global Level

These are the pure externalities to the country and to Europe, and include the existence value of the Delta's biodiversity, the conservation of its endemic and rare species, the conservation of the migratory flyways for those species that depend on the Delta during their annual migratory cycles, and the maintenance of geo- and bio-chemical cycles with impacts at the global level (carbon sequestration, nutrient cycling, etc).

Benefits at this level also include the Delta's international recognition by various international treaties and organizations, including UNESCO (Man and Biosphere Program), Ramsar Convention (Convention on Wetlands of International Importance), CITES (presence of sturgeon), Danube Convention, Bonn Convention (migratory species), and various international arrangements for the conservation of migratory flyways.

The economic value of benefits at this scale has not been estimated but is assumed to be large because of the global importance of the Danube Delta due to its size and uniqueness.

B. Regional Level

These benefits accrue to Europe and neighboring countries, and include the existence value of the largest wetland in Europe (and after Romania's accession, of the European Union), the nutrient cycling functions with impacts at the regional level, the maintenance of ecological processes at the regional level (habitats for species with regional distribution, maintenance of ecological corridors, maintenance of reservoirs for species with regional distributions, etc.), geo-chemical impacts in the Black-Sea due to nutrient cycling and sediment retention, impacts on navigation in the Danube River due to sediment retention, etc

The economic value of benefits at this scale has not been estimated but is assumed to be large because of the regional importance of the Danube Delta.

C. National Level

Most of the benefits of the project probably accrue at this level. The following important benefits can be mentioned:

- Accession to the EU. The proper conservation and management of the Delta will be considered an important test of Romania's capacity to implement EU environmental provisions and standards. These management standards are much higher than what has been done historically in Romania. It is very clear that the project made major contributions to Romania's ability to properly manage this resource through the institutional strengthening of the Danube Delta Institute and the Biosphere Reserve Authority, as well as through the experiences generated through the pilot restoration components of the project. This experience has strong impacts beyond the Delta, as was demonstrated by the use of the Delta's Institute GIS for studies related to EU accession at the national level http://www.cnn.com/2004/TECH/science/05/17/eu.enlargement.reut/index.html.

- Contribution to Romania's Commitments to International Treaties and Conventions. The conservation and sustainable (wise) use of the wetland resources are important commitments made by Romania to various international treaties and Conventions, namely the Convention on Biological Diversity, UNESCO Man and Biosphere Program, Ramsar Convention, CITES Convention, the Danube Convention, and the Bonn Convention.

- Fish Production. The project set the basis for the sustainable management of fish resources through both institutional strengthening of the agencies in charge of management, as well as through specific measures of ecological restoration. The precise impact on fish resources cannot be estimated because of various complicating factors including natural long-term variations in populations, the effects of previous management regimes, the remaining impacts of the former over-exploitation, etc. Nevertheless, what is clear is that the Delta Institute and the Biosphere Reserve Authority have now the capacity to monitor fish stocks and to adjust fishing quotas based on the best scientific information available. The data provided by the Delta Institute suggests that fish stocks have been stable over the last decade.

The total value of fish production coming from the Delta has been estimated at between US$4M and US$8M per year. The production of caviar probably adds another US$0.5M to US$1M per year to the total.

- Fishing Rights. The introduction and monitoring of market-based fishing rights is another important impact of the project at the national level. Various management regimes have been employed in the past, going all the way from forced fishing labor, meager salaries and over-exploitation during the communist dictatorship, through a period of open-access with the resulting emergence of a black market during the transition period after the fall of communism, to today's situation of geographic allocation of fishing rights through long-term (10 year) fishing concessions to a fixed number of companies on a competitive basis. This situation provides strong incentives to private investment in sustainable fish production, re-stocking and hatcheries, as demonstrated by various investments in recent years by private concessionaires valued at several US$M.

- Tourism. The economic impact of tourism is probably very high, but its estimation is difficult due to the lack of data. It is estimated that at least 50,000 tourists (mostly coming from Romania or Europe) visit the Delta each year. Assuming a very conservative average expenditure of $1,000 per tourist on lodging and food, this impact will be at least $50M per year. The allocation of tourism benefits accrue at various levels (national, sub-national and local).

- Ecological Restoration. The value of the benefits arising from ecological restoration is very high and is related to various factors including nutrient removal, siltation control, etc. The Delta Institute estimates that the 15,000 ha that have been restored by the Authority (About half as a result of direct project investment) have a positive economic impact of ca. $11M per year. Non-monetary values are harder to estimate but as an example, the number of species of zooplankton found in one of the restored polders increased from 9 to 189 after restoration.

D. Sub-National Level

Benefits at this level accrue to the two provinces influenced by the Delta, and to the towns and cities surrounding the Biosphere Reserve. Many of the benefits at this level overlap with benefits at the national level, including fish production and tourism, although it is likely that the majority of these benefits accrue at this level and not the national level.

Additional benefits at this level not included at the national level include:

- Institutional Building. The project had an enormous positive impact through the creation of the Biosphere Reserve Authority and the strengthening of the Delta Institute. The presence of both institutions makes possible the existence of a sophisticated management scheme involving ecological monitoring and modeling as the basis for regulation and resource management. This is a fundamental pillar of sustainable resource management and its effects are probably the largest impact of the project, with benefits spanning over all geographic scales, and over time. The sustainability of the project results also rest strongly upon the presence of both institutions. It is noteworthy that the capacity of the Biosphere Reserve Authority to make land-use decisions over the entire Delta area has very positive impacts over the long-term ecological sustainability of the ecosystems of concern by the original project.

- Public Awareness. This is another important benefit at the sub-national scale. The visit to Tulcea made it evident that local people are well aware about the ecological importance of the Danube Delta for conservation and tourism prospects.

- Sustainable resource extraction. Although not quantified, there are also major impacts at this level due to the commerce and intermediary functions of various companies in Tulcea dealing with fish, reeds, tourism, and other assets.

2. Fishing Rights and Regulations

The project represents an example of best practice in the management of fish stocks. The current system, based on tradable fishing quotas, is state of the art, and has been responsible for bringing the fisheries to sustainable levels thanks to the award of long-term property right to the resource. This experience should be highlighted as best practice.

Under this system, the Delta has been partitioned into smaller fishing units that have been awarded to concessionaires on a competitive basis. Fishing companies have paid for these 10-year concessions and have invested heavily in restocking and enforcement of fishing quotas. The system relies on a strong incentive based on the temporal property rights, since it is in the companies' best interest to increase the size of the stock to improve the catch and therefore profits.

This system is an enormous improvement over the system under the communist system, where quotas were mandated by the government and fishermen were paid subsidized salaries to harvest an over-fished stock.

Although the present system was not part of the GEF project design, its implementation has been possible thanks to the strengthening of the institutions responsible for monitoring the fishing stocks and its enforcement.