Economics of Migratory Birds

Market Creation for the Protection of Migratory Birds in the Inner Niger Delta (Mali)

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Abstract

Decisions on the protection of migratory birds are rarely driven by economic efficiency. As a result, most conservation measures are implemented in developed rather than developing countries where migratory birds reside during the wintertime. Economic rationality however, calls for interventions at locations along the migration route with the highest cost efficiency. This study develops a conceptual framework to determine the economic feasibility of an international market for migratory bird protection. Next, we show that migratory birds can be protected at a much lower cost in West Africa than in Western Europe. Moreover, a contingent valuation survey among Dutch citizens proves that taxpayers who indirectly pay for the conservation measures support the protection of migratory birds in their wintering areas in African countries. The results of the study justify the creation of an international market for migratory bird protection in which biodiversity services are supplied by West African communities to beneficiaries in Western Europe.

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1. Introduction

Biodiversity loss is one of the major environmental problems currently recognised by the global community. The main cause of this problem is attributed to habitat deterioration in different parts of the world. For example, populations of numerous bird species which migrate between their breeding areas in Europe and their wintering stages in West Africa are currently declining at alarming rates (BirdLife International 2004). It is evident that the problem of decline in populations of these species cannot be solved by measures at the national or even European level only. The effective protection of long distance migratory birds requires worldwide efforts.

Until now, the prime focus of research on biodiversity and its protection is mainly on biological issues. However, the literature increasingly recognises the need for the inclusion of economic and social issues into hotspots and biodiversity research. Possingham and Wilson (2005), for example, argue in favour of economic trade-offs because of large variations in the cost of conservation action from place to place. This argument is especially true for the protection of migratory species such as long-distance migratory birds. Another economic element that has been introduced in the biodiversity conservation debate is the creation of markets. This new notion has recently been introduced into the discussion about effective measures for biodiversity protection (OECD 2004), reflecting a clear shift in public policy over the last decade. The aim of this new policy is not solely to prohibit further biodiversity loss, but to ensure a sustainable use and conservation that would benefit everyone.

In this article we explore the potential of implementing market mechanisms with the purpose of improving the protection of migratory birds. This hypothetical market is based on cross-border financing arrangements and financial flows from Europe to West-African countries. More specifically, the following research questions will be addressed:

1. Are European citizens and other stakeholders open for the idea of a market creation for the protection of migratory birds in West Africa?
2. Is it cost-efficient to shift conservation funds aimed at the protection of migratory birds from Europe to West Africa?
3. Which factors are important for a successful market creation for the protection of migratory birds in West Africa?

For the demonstration of how such a market could function we use the examples of the Netherlands and Mali. These countries have been selected for several reasons. Firstly, both the Netherlands and Mali are extremely important for migratory birds. An estimated 320 to 480 million birds migrate every year over the Netherlands (LWVT/SOVON 2002). Likewise, the Inner Niger Delta in Mali is a hotspot for biodiversity in West Africa as it shelters millions of water birds from Europe, Asia and Africa (Van der Kamp et al. 2002). Secondly, both countries are signatories to the African-Eurasian Water bird Agreement (AEWA). Thirdly, the bond that was strengthened over the past decades between government and non-governmental organisations in the Netherlands and Mali, can potentially facilitate the process of a market creation for the protection of long-distance migratory birds in Mali.
The remainder of this paper is organized as follows. First, we describe the conceptual design of the study. Next, the results of a household study on the demand side for migratory birds protection in the Netherlands is presented, followed by a description of the supply side for migratory birds’ protection in the Netherlands. Section three presents the supply and demand side of the international market for migratory birds in Mali. Finally, the different components of the hypothetical market are combined in order to describe the economic feasibility of the creation of an international market for bird protection. The last section presents the main conclusions and limitations of the study.

2. Conceptual design

The key mechanism of a market is the exchange of goods and services based on prices. These market prices are determined by the collective supply and demand of individuals willing to exchange goods and services. However, it is impossible to apply market mechanisms to biodiversity protection in a direct way because of the specific public good characteristics of this resource, such as open access. Therefore the application of the economic mechanisms for biodiversity protection requires, first of all, an elimination of the open access to the wildlife through assignment of property rights on the resource in stake to some individuals, social groups or communities (Kahn 2005).

Another problem is the difficulty of expressing the non-use value of biodiversity in monetary terms. The absence of a market price for many environmental goods and services makes them vulnerable for market failures according to environmental economics theory, (Kahn 2005). The non-use values of environmental resources are often neglected or sacrificed in favour of financial benefits. For this reason, environmental economists have developed different tools that enable the valuation of non-market goods such as air, landscapes, or particular species in monetary terms. Economic valuation helps to demonstrate that biodiversity generates values sufficient to motivate its own preservation. At the same time, it shows how local peoples, whose actions determine the fate of indigenous biodiversity, can capture or appropriate enough of the value of biodiversity to compensate them for the opportunity cost of preserving it (Simpson 2007).

Any market consists of a demand and a supply side, regardless of whether it involves conventional products such as shoes, or environmental services such as biodiversity. To explain the characteristics of these two components in the context of migratory birds between the Netherlands and Mali, a hypothetical model is presented in Figure 1. The left side of Figure 1 represents the well-established market mechanisms for bird protection in the Netherlands. It consists of demand and supply sides at the national level. The exchange between those who supply and those who buy the nature-related goods and services is based on donations and governmental subsidies, reflecting the non-use value of birds in the Netherlands (Arrow 1). The demand for bird protection relies on public awareness, requirements of environmental NGOs for nature protection, national environmental policy and international agreements. Nature management organisations, farmers and volunteers are supplying biodiversity services in the form of nature management and bird protection (Arrow 2).
The expansion of the market requires the creation of new international links between European and African countries. In our example, the Dutch beneficiaries representing the demand side for biodiversity conservation have the option to buy into the protection of migratory birds in the Inner Niger Delta in Mali (Arrow 3). In return, local communities in the Inner Niger Delta can supply or sell conservation “services”, which should guarantee the protection of migratory bird in Mali (Arrow 6). This nature management will be performed by local communities as a result of the assignment of property rights and the establishment of economic incentives for bird protection.

At present, many migratory birds are hunted in the Inner Niger Delta for the purpose of food provision. In order to facilitate the switch from hunting to conservation, the right economic incentives should be provided for the local communities in the Delta. At the minimum, the forgone benefits of bird hunting should be compensated for. Additionally, future revenues from possible development of eco-tourism or from other economic activities (e.g. the introduction of poultry farms) can also be seen as alternative sources of income for local people (Arrow 4). With living migratory birds becoming more important for the economy, local demand of the non-use value of these species may further stimulate stronger protection of birds in the Delta (Arrow 5).

The main question of this paper is whether the actual economic conditions are such that this hypothetical model of a market for migratory bird protection could work in the real world? To answer this question, various components of the hypothetical market need to be studied. Firstly, we investigated the size of the demand side in the Netherlands for biodiversity services provided by migratory birds. For this purpose, a survey was conducted in 2003 and 2004 through face-to-face interviews at 800 households. The respon-
dents were asked about their willingness to pay for the protection of migratory birds both in the Netherlands and in African countries. Secondly, the supply side of bird protection in the Netherlands was studied through a thorough statistical assessment of expenditures on Dutch bird protection as well as interviewing experts from governmental and non-governmental organisations who are active in nature management and bird protection in the Netherlands. During the interviews different issues relating to the protection of migratory birds such as costs, effectiveness and anticipated problems were discussed with the experts. The interviewed experts were also asked to comment on the idea of a market creation for the protection of migratory birds in the Inner Niger Delta in Mali. Thirdly, the demand and supply side were investigated in Mali by assessing the market prices of bird meat, as well as by estimating the cost involved in setting up an efficient system of migratory bird protection in the Inner Niger Delta. The main results of these three assessments are presented in the following Sections:

3. The demand side for migratory birds in the Netherlands

The household survey on the willingness to pay (WTP) for bird protection among Dutch citizens is one of the first of its kind. Only a few contingent valuation (CV) studies on the value of migratory birds have been carried out so far. One of the first CV studies on migratory birds investigated the marginal value of a bagged waterfowl by Pacific flyway hunters (Hammack and Brown, 1974). Depending on the calculation method, their mean marginal value of a bagged waterfowl ranged from US$ 2.4 to US$ 5.2 (price level 1968). Another two studies (Rubin et al. 1991; Hagen et al. 1992) investigated US households’ economic benefits that were related to the protection of the northern spotted owl and its habitats. The results of the study by Rubin et al. (1991) indicated that US households were willing to pay US$ 34.9 per year (price level 1987) for the preservation of this endangered species. The study by Hagen et al. (1992) showed that respondents’ benefit from the protection of the northern spotted owl ranged between US$ 47.9 and US$ 144.3 per year (price level 1992). Finally, Loomis and White (1996) conducted a meta-analysis of the results from different CV studies about the value of rare, threatened and endangered species, four of which were birds. The values of these bird species ranged between US$ 13 (red-cockaded woodpecker), US$ 24 (bald eagle), US$ 35 (whooping crane) and US$ 70 (northern spotted owl) (price level 1995).

The results of the contingent valuation survey are consistent with the results obtained from previous studies, in which the CV method was applied for the estimation of the economic value of wild birds. Data was collected through face-to-face interviews across the city of Amsterdam with random ‘next-to-pass’ residents. The interviewers all followed a course in CV and survey techniques before they were thoroughly instructed about the objective and set-up of the survey questionnaire and the face-to-face interviews. The questionnaire consisted of four interrelated sections, including nineteen mainly closed-ended questions. The questions focused on the following issues: a) Respondents’ general environmental attitudes (e.g. awareness of environmental issues, membership of an environmental organization(s) and donations); b) Respondents’ familiarity regarding migratory birds in the Netherlands and threats to migratory bird populations; c) Questions about respondents’ motivation and amount of WTP for the protection of the migratory birds in their breeding areas the Netherlands as well as in
their wintering stages in African countries; and d) Questions related to demographic and socio-economic characteristics of the respondents.

For the elaboration of WTP for the protection of migratory birds by Dutch citizens the respondents were first asked whether or not they are willing to pay at all and if yes, whether they would pay monthly¹, annually, or a one-off lump sum. Those respondents who answered positively to this first WTP question were then subsequently asked to indicate the maximum they are willing to pay for the protection of migratory birds in the Netherlands and in Africa. For this purpose the following payment card was proposed to the respondents: €1, €2, €5, €10, €15, €25, €50, €75, €100, €125 and €150. The money amounts on the payment card are based on current donation levels to environmental protection organizations in the Netherlands.

Table 1 summarise the results of the survey on the willingness to pay for the protection of migratory birds by Dutch citizens. The survey results show that Dutch citizens are willing to financially support the protection of migratory birds: 49 percent of the respondents in 2003 and 53 percent of the respondents in 2004 expressed their willingness to pay for the protection of birds in the Netherlands. Nearly all these people would also support the protection programmes in Africa: while 85 percent of the respondents will pay the same amount; 10 percent of the people interviewed state that they will pay less, and a further 5 percent say that they will pay even more for protection measures in African countries.

Significant differences are recorded in the amount of the contribution concerning the mode of payment. People who would pay an annual contribution are ready to spend more compared with those respondents who indicated they were ready to pay, but only once (see Table 1). The average annual payment for the protection of migratory birds in the Netherlands ranges from € 9.9 to € 11.6. For the protection of migratory birds in Africa the respondents, who expressed their readiness to contribute annually, would pay nearly the same amount. In comparison with annual payments, the average amount of one-time-off payments is lower in both years.

Table 1 Willingness to pay for the protection of migratory birds in the Netherlands and in Africa (in €).

<table>
<thead>
<tr>
<th></th>
<th>Annual payment (incl. zero bidders²)</th>
<th>One time-off payment (incl. zero bidders²)</th>
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<tbody>
<tr>
<td></td>
<td>The Netherlands</td>
<td>Africa</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average WTP¹</td>
<td>11.6 (1.5)</td>
<td>11.3 (1.5)</td>
</tr>
<tr>
<td>N</td>
<td>208</td>
<td>205</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average WTP¹</td>
<td>9.9 (1.7)</td>
<td>10.3 (1.9)</td>
</tr>
<tr>
<td>N</td>
<td>180</td>
<td>179</td>
</tr>
</tbody>
</table>

The motives behind respondents’ willingness to pay are interesting. Only 17.4 percent indicate that they want their children and grand children to be able to see the birds.

¹ For detailed explanations see Brouwer et al. (in print).
Moreover, 7.5 percent of the respondents are motivated because they watch birds regularly and would like to keep on doing this. Therefore, bequest and option values, at least in the case of migratory birds, are less relevant for the respondents. The majority of the people interviewed are willing to pay because they are convinced that humans are responsible for the solution of man-made problems (34.4 percent of the respondents), or because they think that nature has as much right to exist as humans (40.7 percent of the respondents). Hence, ethical aspects and existence values play an important role in determining people’s willingness to support projects for the protection of migratory birds.

The results of the contingent valuation survey in the Netherlands indicate that the respondents are willing to invest in a market for the protection of migratory birds. However, the amount of money they are willing to pay for the protection of migratory birds is rather modest. More than half of possible contributions are in the form of one-off payments as opposed to annual donations. This implies that donations for the protection of migratory birds cannot be considered as the only source for funding of protection programmes. Different potential alternative funding options include the following:

- **Transfer of a share of agricultural subsidies**: For reasons of cost-efficiency, a share of agricultural subsidies currently provided to Dutch farmers involved in the protection of meadow birds could be used for the protection of migratory birds in Mali instead. However, this may lead to strong political opposition from Dutch farmers;
- **Donations from citizens and businesses**: In the Netherlands, more than 1.5 million civil members of environmental NGOs donate almost €100 million per year (CBF 2007). The results of our household survey demonstrate that the general public is willing to contribute financial resources for the protection of migratory birds in their wintering areas in Africa. However, competition between the issue of “migratory birds” and other important environmental issues may interfere with continuous fund raising for the protection of migratory birds. The same is true for businesses. By investing in the protection of biodiversity in Mali, private companies can contribute to their “green” image and thus strengthen their position on the market. For both the general public and the private sector, it is impossible to guarantee that these companies would be interested in financing over the long term. This implies that these funding sources can play a supplementary role in a permanent funding scheme;
- **Utilise the Dutch international biodiversity programme (BBI)**: BBI specifically aims for measures that simultaneously achieve biodiversity protection and sustainable development outside of the Netherlands. Each year the Dutch government spends about €160 million for this purpose (MNP, 2007). The obligation of the Netherlands government to support biodiversity protection abroad, investing in an international market for migratory birds also provides a guarantee for a permanent financing of nature management in Mali.

### 4. The supply side for migratory birds in the Netherlands

The above-mentioned WTP reflects the demand side of the migratory birds market in the Netherlands. The logical question is whether the supply in form of costs for bird protection corresponds to this demand. As a proxy for the supply side in Europe, we discuss the current costs of the protection of migratory birds in the Netherlands. These expenditures can be subdivided into three categories: (1) general management cost of bird pro-
tection at the national level; (2) subsidies provided to farmers who are involved in the protection of meadow birds; and (3) expenditures for projects aiming at the protection of specific migratory birds. The latter two categories can be used for the estimation of the protection costs per bird, which in turn, will be used for the evaluation of the cost-efficiency of the proposed market mechanisms.

Many protected natural areas in the Netherlands belong to the EU Birds Directive. These areas are managed by different government and non-government organisations. In 2003, the nature management costs of these organisations amounted to € 220 million. This figure however, does not include the agricultural subsidies for the protection of meadow birds, and the nature management costs of both marine and big freshwater bodies – areas that are extremely important for birds.

The populations of several meadow bird species are still on the decline in the Netherlands. In the case of the black-tailed godwit the situation in the Netherlands is particularly serious. The estimations show that nowadays only 45,000-50,000 pairs are breeding in the Netherlands, while in the 1970’s and 1980’s the average number of breeding black-tailed godwits was about 90,000 pairs (SOVON cited after Melman et al. 2004). The population of ruff is also declining at an alarming rate. The introduction of financial incentives for farmers to protect meadow birds has been unable to reverse this trend. According to Melman et al. (2004) the subsidies for bird protection in agriculture amounted to nearly € 16 million in 2004. The number of meadow birds, which breed on the 74,000 hectares of the land with subsidised nature management, was estimated at 72,902 pairs (Melman et al. 2004). Therefore, the average protection cost is about € 216 per breeding pair.

In the Western European context the Netherlands plays a particular role for marshland birds because of the many wetlands available in this country. In 2000, a special project for the protection of marshland birds was initiated by the Dutch government. The project was carried out between 2000 and 2004 and cost around € 1 million (Argeloo and de Bruijn, personal communication). One of the targeted species was the purple heron. This bird is particularly interesting for the present study because purple herons, which breed in the Netherlands, fly to their wintering sites in the Inner Niger Delta in Mali. According to the experts from the Dutch Foundation for Bird Protection (VBN) over the last four years, about € 107,600 were spent on research, development of a conservation plan and protection of this species. This equates to a cost of € 240 per breeding pair (over 4 years).

Another example comes from the re-introduction of storks in the Netherlands. In the 1970’s storks were nearly extinct in the Netherlands. Nowadays the number of breeding

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2 All meadow birds are migratory species.


4 This calculation is based on information from CBF (Centraal Bureau Fondsenwerving, Fondsenwerving in Nederland, http://www.cbfcijfers.nl/).
pairs in this country amount to four hundred. The project costs for the protection of storks were €106,000 in 2005 (de Bruijn, personal communication), which is equal to €265 per breeding pair. Almost 80 percent of this budget came from donations resulting from the member-appeal. Over the next few years, the VBN plans to spend between €66,000 and €71,000 to protect storks in the Netherlands.

The derived cost estimates demonstrate that the expenses for the protection of some particular migratory species are substantial in the Netherlands. However, the effects of these protection measures are not always satisfactory. While marshland bird species such as stork or purple heron are recovering, the populations of other birds such as the black-tailed godwit or ruff are still declining despite various protection measures. One possible reason for these failures is the ineffectiveness of current protection measures for particular bird species in the Netherlands. Alternatively, the exploitation of these species or deterioration of the habitats in their wintering areas in West African countries may also play a crucial role in the decline of breeding pairs in the Netherlands. Therefore, rather than focusing solely on protection measures in the Netherlands, investing part of the Netherlands conservation funds in Mali may be significantly more cost-effective. To determine potential efficiency differences between the Netherlands and Mali, the costs and benefits of protection of long-distance migratory birds in West Africa is addressed next.

5. Supply and demand for migratory birds in Mali

The Inner Niger Delta in Mali is part of one of the biggest wetland sites in West Africa. It is extremely important for migratory birds (Van der Kamp et al. 2005). Approximately one million people live in the Inner Niger Delta. Most of them are fully dependent on the Delta’s natural resources (Zwarts & Kone 2005). Despite ample economic activities such as fishing and livestock grazing, the Delta still attracts millions of migratory and sedentary water birds. More than one hundred bird species can be observed in this region each year (Van der Kamp et al. 2005).

In the Inner Niger Delta, birds have direct use-value for its inhabitants because they are occasionally part of the local diet. Additionally, birds are used for traditional medicine and cultural customs such as the forecast of climatic or social events (Kone et al. 2002). The accurate estimation of the value of birds in the Inner Niger Delta requires the inclusion of birds that are traded at the market as well as birds that are directly consumed by its captors. Kone et al. (2002) estimated the total number of captured birds in 1999 to be around 61,000. Only around 10 percent of these captured birds were hunted for consumption. In 2000, the number of birds captured in the Delta was much lower. Only 9,000 individuals were sold on the market and the hunters consumed around 8,000 birds themselves. The differences between the two years can be explained by different weather conditions. Because 2000 was an extraordinary wet year, the inundated area was substantially larger, making it more difficult to catch the birds (Kone et al. 2002). Moreover, because fish catch and income is also much better in wet years, the inhabitants of the Delta did not have the same urgency to supplement their income with revenues from bird sales (Zwarts et al. 2005).

The use value of birds can be calculated for each year by multiplying the average market price of birds (approximately CFA 300 or €0.5) by the total number of captured birds. The resulting figures indicate that the total use value of birds in the Inner Niger Delta
ranges between €8,000 and €30,000. However, because the number of birds captured for self-consumption is likely to be higher, it can be expected that these values represent only the lower bound of opportunity costs for local people. Therefore, the total direct use value of birds for consumption is assumed to be €50,000.

The use value for birds in the Delta represent the opportunity costs to the local communities for protecting migratory birds. In other words, local communities will have to be compensated for no longer being allowed to hunt migratory birds. On top of these opportunity or compensation costs, setting up a programme for birds protection involves various other cost components such as expenditures for the organisation and management of the protected sites, costs of communication and financial transactions. According to our estimations, which are based on interviews with nature organisations operating in the Delta (i.e. Wetlands International), the total yearly costs of the protection of migratory birds in the Delta will be around €400,000. This implies that the estimated costs of conservation in the Inner Niger Delta in Mali will be between €6.5 and €23.5 per individual. Note that this calculation should be considered only as a first approximation to the real costs related to a market creation for the protection of migratory birds in the Inner Niger Delta in Mali.

6. The creation of an international market for bird protection

In the previous sections, values have been estimated for the main components of the hypothetical model presented in Figure 1. By combining these estimates (see Table 2), it can be concluded that it is economically justifiable to create an international market for the protection of migratory birds that spend the winter in West Africa. The comparison of the figures from Mali and the Netherlands indicate that it will be much more cost-effective to protect migratory birds in Mali. From the supply side, it became clear that the estimated annual protection costs of €6.5 to €23.5 per individual migratory bird in the Delta are far less than the costs for the protection of birds on farmland in the Netherlands, which amount to €52 to €113 per individual migratory bird. From the demand side, it can also be concluded that migratory birds generate higher benefits when utilised as non-use values than when used as a source of food. Therefore, it is economically rational for Dutch citizens to pay for the protection of migratory birds in Mali, thereby safeguarding the highest benefits at the lowest costs.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Summary of demand and supply side estimates for an international market for the protection of migratory birds in the Netherlands and Mali (in € per migratory bird).</th>
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<tbody>
<tr>
<td></td>
<td>Netherlands</td>
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<tr>
<td>Demand side</td>
<td>€10 - €100 per bird (non-use value)</td>
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<tr>
<td>Supply side</td>
<td>€52 - €113 per individual bird (cost of protection)</td>
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</table>

To verify the institutional support of the idea of a market creation, interviews were conducted with nine experts from organisations that are active in nature management and bird protection in the Netherlands. The analysis of the interviews indicates that three out
of nine experts are fully convinced of the idea of a market creation for the protection of migratory birds in the Inner Niger Delta. Four experts showed support for the idea of a market creation conditional to the level of governmental support to Mali, the quality of the monitoring mechanisms, and level of guarantee for long-term financing for nature management performed by local communities. Only two of the interviewed experts had doubts about the feasibility and effectiveness of a market scheme. In their opinion, developed countries are responsible for the problem of declining populations of migratory birds. They prefer to take measures in Europe such as the promotion of less intensive production methods in the agriculture or re-introduction of old-fashioned farming.

Besides cost-efficiency, we will look at a number of side-benefits that go hand in hand with the creation of an international market for migratory bird protection. These include the following:

Nature management in the Delta can financially benefit local communities that will be involved in conservation programmes, thereby contributing to poverty alleviation in one of the poorest regions in the world.

An indirect benefit of bird protection is the possible increase in eco-tourism in the region. However, for eco-tourism to benefit local communities, several crucial conditions need to be met such as the ability of local people to establish control over their common property resources (Moreno 2005) and equitable distribution of profits among tour operators and community members (Borgerhoff Mulder et al. 2007).

Improved bird management in the Inner Niger Delta will not only lead to restoration of bird habitats but also to a better understanding of ecological relationships by local people. Such awareness is likely to lead to higher ecological stability in the Inner Niger Delta. Similar effects have been registered from a long-term monitoring project focused on birds in Loma Alta’s ecological reserve in Ecuador (Becker et al. 2005).

The establishment of permanent conservation programmes in the Inner Niger Delta will benefit the national government in Mali as it signed all important international biodiversity-related conventions and agreements such as the Ramsar Convention, Convention on Biodiversity, African-Eurasian Waterbird Agreement (AEWA). The implementation of conservation policy in this country would demonstrate Malian commitment to the international requirements for biodiversity protection.

Finally, the protection of migratory birds in the Inner Niger Delta produces global benefits by contributing to the increased ecological stability of populations of migratory birds as well as preserving a unique ecosystem from destruction.

Cost-efficiency is not the only condition for an international market to generate the desired effects. A number of additional criteria need to be met for the market to be successful, such as governmental support in Mali, cost-efficiency, well-organised control and monitoring mechanisms, and guaranteed long-term financing for nature management. Some of these are explained below:

Market creation for the protection of migratory birds should be based on a holistic approach, which would guarantee protection of these species in all sites along their flyways. Currently, millions of birds are killed each year in Southern European countries (RSPB 2007). Many of these hunted birds are migratory species, which use Mediterra-
nean sites for stopovers. Hence, the issue of hunting in European countries should be included in the discussion about market creation for the protection of migratory birds as well.

Another important issue in relation to hunting is the difference in socioeconomic conditions in European and African countries. People in Europe perform hunting for pleasure while in West Africa birds are important source of protein. Therefore, market creation for the protection of migratory birds in Mali should simultaneously develop alternatives for protein provision.

Population sizes of migratory bird species are also affected by other factors such as low water levels and decreased food availability as a result of dam construction, drainage of wetlands or the use of pesticides. These factors are beyond the control of local communities, which will be involved in sustainable nature management. Therefore, the role of provincial and national development policy, which should be in line with the protection measures, is crucial for an effective functioning of a market for the protection of biodiversity.

Guaranteed financing of conservation programmes is one of the most important aspects of market creation for the protection of migratory birds in the Inner Niger Delta. In general, according to the OECD publication, markets that are compatible with biodiversity will not appear autonomously, but will have to be nurtured by government policy (OECD 2004). Therefore, it can be expected that the Fund for the protection of migratory birds in the Inner Niger Delta will be based not only on donations from citizens, but will also include substantial contributions, for example from the Dutch government.

Finally, the effectiveness of the protection measures can vary between particular migratory species. According to the experts, some migratory birds are mostly threatened in their breeding areas in Europe, and other migratory species are more vulnerable in their wintering sites in West Africa (de Bruijn and Argeloo, personal communication). Therefore, these differences should be taken into account by developing appropriate protection measures for particular migratory bird species.

7. Conclusion

Traditionally, measures for the protection of migratory birds are implemented in the country from which the funds for conservation originate. Such decisions are not necessarily driven by economic efficiency but are generally based on the desire of policymakers to invest in the vicinity of their taxpayers. This study shows, however, that these same taxpayers have no objections against the protection of migratory birds in their wintering areas in African countries. Moreover, this study indicates that the cost of migratory bird protection in West Africa is significantly lower than in the Netherlands. This is proves that transferring at least some of the conservation funds from Europe to West Africa is cost-effective: more migratory birds can be protected at lower cost.

To effectively implement a transfer system, an international market for the protection of migratory birds seems to have a number of advantages over the traditional system of command and control. For example, because European citizens and organisations are only willing to pay if the services of protected birds are truly provided, the West African implementers of bird protection have a strong incentive to really supply the service of
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bird protection. Moreover, since the international market aims to benefit local communities, protection measures taken in West Africa are more likely to be respected than is the case in the current command and control system which has proven to function poorly.

However, for an international market for bird protection to be successful, several hurdles need to be overcome. Guaranteed permanent funding, well-defined property rights and strong support of the idea of biodiversity protection by local communities and national governments are some of these conditions. Market creation also requires better regulations of exploitation and protection of long-distance migratory birds in African, as well as in European countries. Without prohibition of hunting on migratory birds in developed countries, it is ethically problematic to ask people in poor countries to change their customs and abandon exploitation of birds.

Another challenge is the conflict between requirements for conservation and economic development. For that reason, market creation for biodiversity protection should primarily be undertaken in areas with low levels of economic development, in combination with a high biodiversity value. Sites rich in biodiversity bear a large economic potential. The high non-use value of biodiversity in developed countries indicates that the demand of biodiversity-related goods and services is substantial. Therefore, the development of eco-tourism or the supply of other biodiversity-related goods and services could be used as a development vehicle for African countries. Market creation for the protection of migratory birds can be seen as a first step in this direction.

The above empirical underpinning of the socio-economic conditions of an international market for bird protection represents a first effort in improving the understanding of a concept that is increasingly recognised as a desirable policy tool in biodiversity conservation. Despite the merit of the study, several limitations of this research have to be mentioned. For example, the study uses the Netherlands and Mali as a proxy for the demand in Europe and the supply in West Africa. This simplification of the market ignores, for example, the fact that migratory species breed not only in the Netherlands but also in other European countries. Therefore, before we can extrapolate the above estimations to a global level, better background information for these regions is required.

References


