

Report No 46

Ramsar Advisory Mission

Mühlenberger Loch Ramsar Site, Federal Republic of Germany

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Introduction

1. The Ramsar Convention gives special attention to assisting Contracting Parties in the management of the sites that they have included in the List of Wetlands of International Importance (Ramsar sites), so that the Parties comply with the requirement of Article 3.1 of the Convention, which establishes that “The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory”. According to Article 3.2, the Convention pays particular attention to the conservation of listed sites whose ecological character has changed, is changing or is likely to change as a result of technological development, pollution or other human interference. Assistance to Parties is provided, *inter alia*, through Ramsar Advisory Missions, a technical assistance mechanism formerly known as the Monitoring Procedure and the Management Guidance Procedure, originally adopted by Recommendation 4.7 of the 1990 Conference of the Parties. The main objective of this mechanism is to provide assistance to countries in solving the problems at particular Ramsar sites related to the maintenance of their ecological character.

Background

2. By means of a letter and attachments dated 23 January 2001, the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety informed the Ramsar Bureau about its wish to restrict the boundary of the Mühlenberger Loch Ramsar Site, invoking Article 2.5 of the Convention, and proposed compensatory measures, having regard to Article 4.2.
3. Article 2.5 of the Convention on Wetlands states:

“Any Contracting Party shall have the right to add to the List further wetlands situated within its territory, to extend the boundaries of those wetlands already included by it in the List, or, because of its urgent national interests, to delete or

restrict the boundaries of wetlands already included by it in the List and shall, at the earliest possible time, inform the organization or government responsible for the continuing bureau duties specified in Article 8 [*i.e. the Ramsar Bureau*] of any such changes.”

4. In the attachments transmitted to the Ramsar Bureau by the Federal Ministry, the federal state of Hamburg, in whose territory Mühlenberger Loch is situated, referred to an opinion of the European Commission (of 19 April 2000) stating that “In view of the facts and evaluation stated above, the Commission holds that the negative impact of the project for the expansion of the existing DASA plant in Hamburg on the Elbe for the final assembly of the Airbus A3XX on an area intended for Natura 2000 – the Mühlenberger Loch – is justified for compelling grounds in the overriding public interest.” The Federal Ministry implied that the recognition by the European Commission of the “compelling grounds in the overriding public interest” at the level of “Hamburg, the northern German region and the European aviation industry” constitutes a case of “urgent national interest” under the Ramsar Convention, and that Article 4.2 of the Convention should be applied:

“Where a Contracting Party in its urgent national interest, deletes or restricts the boundaries of a wetland included in the List, it should as far as possible compensate for any loss of wetland resources, and in particular it should create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat.”

5. In 1999, the 7th meeting of the Conference of the Parties to the Ramsar Convention (COP7) adopted Resolution VII.23 on “Issues concerning the boundary definitions of Ramsar sites and compensation of wetland habitats”. Paragraph 11 “Requests the Standing Committee, with support from the Bureau, and in consultation with the Scientific and Technical Review Panel, experts familiar with the Habitats Directive of the European Union, appropriate legal and other experts, and interested Contracting Parties, to develop for consideration and possible adoption at COP8 guidance for the Contracting Parties in interpreting Articles 2.5 and 4.2, if resources allow.”
6. In the context of this request, the Ramsar Bureau transmitted to all Contracting Parties, under diplomatic notification 2000/8 dated 19 December 2000, a first analysis of the role of “urgent national interest” and “compensation” in wetland protection, prepared by the Environmental Law Centre of IUCN – the World Conservation Union. The Ramsar Bureau considered it important to bring these very rare cases, where the boundary of a Ramsar site is restricted because of urgent national interest, to the attention of the Conference of the Parties at its next meeting in November 2002.
7. Paragraph 12 of Resolution VII.23 “Calls upon any Contracting Parties that consider the deletion or restriction of the boundaries of a Ramsar site in the urgent national interest prior to COP8, to exercise the highest levels of environmental, economic and social impact assessment which take into consideration the full range of functions, services and benefits offered by the wetland.”
8. To this end, it was considered useful by the Federal Ministry and the Ramsar Bureau to clarify some of the concerns about the proposed compensatory measures for the boundary restrictions of Mühlenberger Loch Ramsar site. Notably, to verify that the compensatory measures, proposed at the sites Hahnöfer Sand, Twielenflether Sand, Haseldorfer Marsch

and Hörner Au, correspond to the need (according to Article 4.2) to compensate for the loss of tidal freshwater mudflat ecosystems, of tidal habitat for four rare endemic plants, and of feeding habitat for the listed waterbird populations. Also, to verify whether additional nature reserves for waterfowl and for the protection of an adequate proportion of the original habitat can be created. Hence, in relation to compensation, questions arise in relation to: (a) adequacy and (b) feasibility.

The Mühlenberger Loch

9. This site was designated by the German Government on 6 November 1992 for inclusion in the List of Wetlands of International Importance. The Ramsar site, covering 675 ha, corresponds to the easternmost part of the nature reserve Nesssand (declared in 1952), a fluvial island, and to the Mühlenberger Loch landscape protected area (Landschaftsschutzgebiet) declared in 1982, an embayment of the tidal section of the river Elbe. In 1997, Mühlenberger Loch (750 ha) was designated by Germany as a Special Protection Area (SPA) according to the requirements of the European Union 'Wild Birds Directive' (79/409/EEC). Furthermore, in the same year, 795 ha were proposed as a Site of Community Importance (SCI) according to the 'Habitats Directive' (92/43/EEC). As the site hosts priority natural habitats and/or priority species, imperative grounds in the overriding public interest, including those of a social or economic nature, were required to justify possible boundary restrictions, according to Article 6.4 of the Habitats Directive, and a formal "Opinion of the Commission" had to be obtained.
10. The Information Sheet on Ramsar Wetlands (RIS) and the Annotated List of Wetlands of International Importance (accessible at www.Ramsar.org/profiles_germany.htm) note that extensive mudflats are exposed at low tide. The ecological value of the Mühlenberger Loch derives from its rich primary and secondary bio-production. This makes a vital contribution to the natural cleaning processes of the eutrophicated waters of the river Elbe.
11. The site supports four listed plant species, considered endemic to freshwater tidal areas (*Deschampsia wibeliana*, *Oenanthe conioides*, *Xanthium albinum*, *Rumex trianguli-valvis*). Of these four, only *Deschampsia wibeliana* and *Oenanthe conioides* occur solely in the tidal area of the Elbe and should therefore be considered endemic. *Deschampsia wibeliana* grows mainly between placed stones of rockfills at the foot of the riverward side of the Mühlenberger Loch dykes. The partial infilling of the embayment for the development project under analysis will destroy the stands on the present dyke along the shoreline of the DASA plant. However, the Contracting Party hoped that the species will spread rapidly to new, significantly longer dyke sections, after the completion of the construction works. Current stands in the Mühlenberger Loch of *Oenanthe conioides* are not directly affected by the construction works. The species is, however, considerably impaired by the covering of its seed bank in the mudflats of the Mühlenberger Loch, during the construction works. The Environmental Impact Assessment, according to Article 6 of the Habitats Directive, describes this negative impact in detail.
12. The Contracting Party reported that the other two plant species, *Xanthium albinum* and *Rumex triangulivalvis*, are neophytes, spreading in Germany since the 19th century along the Elbe valley upwards to the Elbe sandstone mountains. The main distribution of these two species along the Elbe, and other main rivers in Germany, such as Oder, Havel and Spree,

occurs upstream of tidal estuary areas. The Contracting Party concluded that it is difficult to consider them as endemic to freshwater tidal areas. They occur primarily on higher, sandy shores, no longer flooded during summer when water levels drop. In the Mühlenberger Loch area, such conditions are largely restricted to the island of Nesssand/Schweinssand, not directly affected by the partial infilling. Furthermore, both species occur also in several German cities, such as Berlin and Munich.

13. The abundance of fish is a striking feature, and Mühlenberger Loch is an important breeding area for many native fish species. It is also an internationally important area for wintering and staging of several species of waterbirds and the most important staging area in Northern Europe for shoveler (*Anas clypeata*), a freshwater, surface-feeding duck. Human activities are restricted to controlled water-sports and a ferry link.

Infilling of part of the Mühlenberger Loch for the extension of industrial facilities – and compensation measures

14. In parallel with the designation of the Mühlenberger Loch as a SPA, and its proposal as a SCI (in line with the obligations of the above-mentioned EU Directives) in 1997, the Hamburg Senate (i.e. the government of the federal state) also proposed the metropolitan area of Hamburg as the location for aspects of the production of a new large airplane (A3XX, now called A380) by Airbus Industries (or DASA, now EADS). After having evaluated alternative locations around the existing Airbus production facilities at Finkenwerder, and in the entire urban region of Hamburg, the government concluded in June 1998 that the existing industrial facilities bordering the edge of Mühlenberger Loch to the east should be used, and that the needed additional surface of 140 ha of land, for works associated with the production of the new airplane, could then only be found inside the Mühlenberger Loch protected area, where 170 ha of habitat would have to be lost through infilling.
15. The Contracting Party reported that outline ideas for compensatory measures were developed in parallel with the Senate decision to put forward the Mühlenberger Loch area as the construction site for the new airplane. In November 1998, one month after the submission of the development project to the planning approval authority (Planfeststellungsbehörde), an application for compensatory measures at nearby Hahnöfer Sand was filed. The Contracting Party concluded that the planning approval authority was therefore able to assess both at the same time. Further compensatory measures to be implemented at Haseldorfer Marsch were submitted in October 1999.
16. In December 1999, the supervisory board of Airbus Industries underscored that the production of the A3XX would be considered only at an existing production site of the company (with production sites in Germany, France, Spain and the U.K.) to assure the availability of know-how and expertise. In summer 2000, Airbus Industries decided that the final assembly locations for the new airplane would be Toulouse and Hamburg-Finkenwerder.
17. In order to ensure compliance with legal requirements (at the level of Hamburg federal state, the EU Directives and the Convention on Wetlands), the federal state of Hamburg started the necessary legal approval procedures in parallel with applications for necessary planning

permissions. Direct and indirect effects of infilling part of the Mühlenberger Loch were analysed in an Environmental Impact Assessment in which particular attention was paid to the function of Mühlenberger Loch as a resting place for migratory birds (for which it had been designated as SPA and Ramsar site). An analysis was made of the compensatory measures needed in respect of the populations, communities and ecological functions of the Wetland of International Importance, mainly with regard to freshwater mudflats and tidal estuary habitats, waterbird populations, endemic plant species, and nursery functions for different fish species.

18. A number of compensatory measures were proposed in early 2000. They included measures at different locations in the freshwater-influenced part of the wider Elbe estuary and its floodplain area (within a range of about 40 km of Mühlenberger Loch).
19. An application for the creation of freshwater mudflats and shallow waters at nearby **Hahnöfer Sand** was filed with the planning approval authority already in November 1998, and on-site work started in 2001.
20. The Contracting Party reported that an extensive search for suitable areas to create additional freshwater tidal habitats in nearby areas of the two neighbouring federal states Lower Saxony and Schleswig-Holstein preceded the application for the transformation of existing tidal and non-tidal protected wetland habitats at **Twielenflether Sand** and **Haseldorfer Marsch** that was filed with the planning approval authority in October 1999. However, the approval of the planning authority for this measure was challenged in court, and on-site work had therefore not started yet at the time of the Mission in September 2001.
21. Finally, a medium-term compensation plan was developed to transform an agricultural area at **Hörner Au** into marshes and wet grasslands, eventually to be declared as a protected area.

Issues considered by the Mission

22. The following are the ten items in the Terms of Reference agreed for the Mission between the Government of Germany and the Ramsar Bureau. The aim of the Mission included both an evaluation of the specific possible solutions for the Mühlenberger Loch case and reflections on how the principles embodied in relevant requirements of the Convention should operate in such cases in general. Cross-references to “ToR” in the text of this report refer to these Terms of Reference:
 - (i) To examine whether the claim of “**urgent national interest**” of the development proposal is well-founded by drawing together as full a picture as possible of the reasons adduced by Germany for the “urgent national interest” applying in this case; and to assess whether the requirement in Article 2.5 of the Convention, that restriction of Ramsar site boundaries should occur only in the urgent national interest, has been satisfied.
 - (ii) To assess whether the spirit of paragraph 3 of Resolution VII.23, which states “CONSCIOUS that the Conference of the Contracting Parties does not wish to encourage the deletion or restriction of the boundaries of Listed sites, preferring to see all **feasible alternatives examined** through rigorous and transparent assessments, in consultation with

all stakeholders, before Contracting Parties exercise their right to take such action” (emphasis added), was applied when evaluating any other candidate areas for the proposed development.

(iii) To assess whether an appropriate **impact assessment** (cf. paragraph 12 of Resolution VII.23 cited above, and in the context also of Recommendation 6.2) as to the predicted direct and indirect impacts of the infilling of part of the Mühlenberger Loch (e.g. in terms of changes in hydrology and sedimentation/erosion) was undertaken, and to assess the full extent of the likely loss of values from the Ramsar site for which compensation needs to be provided.

(iv) To assess whether **any candidate areas other than those put forward** have been evaluated for compensatory provision as the basis for selecting those currently proposed as being the most suitable and appropriate for such compensation (i.e. Hahnöfer Sand, Twielenflether Sand and Haseldorfer Marsch).

(v) To evaluate the **relevance of the compensation measures proposed for Hörner Au**, and whether they address the requirements under Article 4.2 for the creation of additional nature reserves for waterfowl. Hörner Au is already an existing nature reserve with planned management objectives for its habitat, different from that to be lost at Mühlenberger Loch, as part of an ongoing procedure.

(vi) To assess **whether the total area** proposed for compensation, approximately the same as that which is lost in Mühlenberger Loch, **is sufficient for compensatory requirements**. Since creation of intertidal habitats is difficult and imprecise, any appropriate compensation package should address the issue of uncertainty that the compensatory provision will provide what is necessary. To help in ensuring that the ecological functions will be fully compensated, a substantial margin of caution should be included.

(vii) To assess the **likelihood of success of the compensation measures** for the loss of freshwater mudflat ecosystems, for the loss of tidal habitat for the four endemic rare plant species, and for the loss of feeding and foraging habitat for the listed waterbird populations and other species using the area on migration. This includes assessing how delivery is going to be assured, e.g. through the nature of guarantees of long-term funding, sanctions for under-performance, or contingency plans.

(viii) To assess whether the compensation measures provide for **monitoring and evaluation measures** during and after the period of wetland restoration, in order to be able to conclude whether or not the compensation measures succeed, notably in respect of the affected populations of rare endemic plants and waterbirds.

(ix) To assess whether the principle that adequate **compensatory provision should be made prior to any loss**, as otherwise the carrying capacity of the system will be reduced in the interval, is being applied.

(x) To evaluate whether the necessary steps are being undertaken to afford **legal protection** to the compensation areas in line with the terms of Article 4.2.

Explanatory note

23. Ramsar Advisory Missions typically offer advice on physical management issues in wetland ecosystems, and sometimes on decision-making processes. In this case, there is the additional dimension of assisting the German authorities in their wish to honour certain legal requirements of the Convention.
24. During the course of the Mission and the preparation of this report, the Convention had not yet formally pronounced upon the role of “urgent national interest” and “compensation” (as illustrated in paragraphs 5-7 above). A role of the Mission was therefore to offer guidance on these issues, based on the study of the specific Mühlenberger Loch case, as outlined in its Terms of Reference (in paragraph 22 above). Such guidance was considered useful in view of the preparation and possible adoption of a more specific Resolution during COP8 in 2002 (although in practice the Mission’s report submitted in October 2001 was not made available in time for these discussions).
25. Since the Mission submitted its draft report in October 2001, **Resolution VIII.20 “General guidance for interpreting ‘urgent national interests’ under Article 2.5 of the Convention and considering compensation under Article 4.2”** has been adopted at COP8 in November 2002. However, the Resolution (apart from some stronger points on precaution and on impact assessment) simply lists various factors that a Party “may take into account”. Therefore, Contracting Parties are left, as they were, with having to interpret the Convention individually in each case, in terms of both criteria and procedure. In this context, independent examination of case-histories should be of value to Contracting Parties in meeting their responsibilities. It is intended that publication of the report of this RAM contribute to this process. There is no Court or other process for “ruling” on compliance or non-compliance with the terms of the Ramsar Convention. RAMs are advisory in nature, and while the Mission offered conclusions, these do not have a function of being legally determinative, and they were aimed in part at assisting the German authorities in their wish to honour the obligations they have assumed under the Convention.
26. The detailed observations and recommendations of the Mission (i.e. the authors of this report in consultation with the German Federal Ministry), based on the specific case of Mühlenberger Loch, were elaborated (in October 2001), prior to the adoption of Resolution VIII.20 (in November 2002). Nevertheless, it is deemed useful to share the observations of the Mission with a wide readership, by analysing a case that could provide helpful insights for others. Where appropriate, references to Resolution VIII.20 have been added to this version of the report.
27. At the time of the Mission, the development damaging to the Mühlenberger Loch Ramsar site, and the compensatory measures, were already in progress. For example, the new dyke enclosing the mudflats for the extension to the Airbus factory was almost complete and was indeed due to be closed during the period of the visit. The Mission therefore gave emphasis to lessons which could be learned for applying the Convention generally; but clearly also gave attention to the needs of the later stages of the present case itself.

**Observations on the reasons of urgent national interest
for restricting the boundaries of the Mühlenberger Loch Ramsar site**
(referring to issues (i) and (ii) of the ToR)

28. To an extent, the applicable laws at European Union and national level, with their stringent and detailed requirements for land-use planning, impact assessment, and compensatory measures, could contribute to evaluation criteria for the Ramsar Mission in this particular German case. However, the agreed Terms of Reference make clear that the Mission also had the function to set out a perception of how the collective interest of Ramsar Parties may be safeguarded according to the legal framework they have adopted. This was founded on the Articles of the treaty, but took account also of relevant international norms, Resolutions and Recommendations of the Conference of the Parties, and the Environmental Law Centre analysis referred to in paragraph 6 above.
29. **EU vs Ramsar regulations:** In correspondence with the Ramsar Bureau, the German Government referred to the 19 April 2000 opinion from the European Commission to the effect that the EU Habitats Directive requirement to demonstrate “imperative reasons of overriding public interest” in this case had been satisfied. Prior to inviting the Mission to Mühlenberger Loch, Germany formally notified the Bureau of its intention to restrict the site boundary and of its belief that this was justified under Article 2.5 of the Convention on the basis that satisfying the Habitats Directive requirement automatically satisfied Ramsar’s “urgent national interest” requirement.
30. The European Commission has published an interpretative guide which, to a limited extent, elaborates the concept of “imperative reasons of overriding public interest” in the EU Directive. The Ramsar Convention then had not yet adopted any formal interpretation of its “urgent national interest” provision. However the Mission’s starting-point was not to assume that the two provisions under the EU Directive and the Ramsar Convention are simply identical.
31. A first possible difference is that while under the EU Directive, “public interest” might in some cases relate to an area smaller than the whole nation (in this case, the federal state of Hamburg), under the Convention the interest at stake should presumably always be such as to affect or be shared by the nation as a whole. It is presumably logical for the Convention (as a global instrument) to set a more exacting standard in this way compared to the regional scope of the Directive. The Federal Ministry of Environment is of the view that “The description of the project provided pursuant to the provisions of the Habitats Directive is a description provided by the Federal Government. Correspondingly, validation and comments of the EU Commission are not addressed to the federal state of Hamburg but to the Federal Government.”
32. Secondly, the Convention expresses the additional element of “urgency”, which might be read as introducing a concept of time-pressure which is not necessarily contained in the Directive’s use of the word “imperative”. Before turning to the merits of the arguments adduced in support of the “urgent national interest”, as a matter of procedure the Mission believes that it is necessary for a Contracting Party to set out an evaluation of how it believes this requirement to be met, separately from any evaluation (by the Contracting Party or the Commission) of how the “imperative reasons of overriding public interest” requirement is considered to be met under the Directive..

33. The Mission accordingly RECOMMENDS that Contracting Parties in the European Union invoking the “urgent national interest” justification for restricting the boundaries of a Ramsar site which is also a Natura 2000 site where a justification of “imperative reasons of overriding public interest” is also required under EU law, should substantiate each of these separately. The Mission pointed out that it would be helpful if there was an interpretation, coordinated among Contracting Parties, of “urgent national interest” and the possible distinctions from other provisions which should be noted.
34. **National vs sub-national interests:** During the Mission, the grounds for Germany’s (as opposed to simply Hamburg’s) assertion of “urgent national interest” for the restriction of the Mühlenberger Loch site were explored in discussion between the three partners: the authorities at Federal and Hamburg State level and the Ramsar Bureau.
35. The starting-point for forming a view on whether such an interest exists is to recognise that Article 2.5 operates as an exception or derogation from the primary conservation and wise use obligations of the Convention. It should therefore be interpreted restrictively, all of its conditions should be met, and the onus should be on the Contracting Party wishing to invoke it to demonstrate that all of its conditions are met.
36. It is common ground that, if the proposed Airbus development goes ahead, it will generate new employment in the area, both short-term and long-term, both direct and indirect. It is also common ground that it will maintain an important position for German interests in the aviation industry. It is reasonable to accept that it is viable, i.e. that given relevant consent, it will go ahead as proposed. It is also reasonable to accept that generation of employment and maintenance of an important position in the aviation industry are both consistent with German public policy aims.
37. It might be straightforward to accept that these interests are of a type capable in principle of affecting or being shared by the nation as a whole. The question for the Mission was whether in this specific case they are also of a magnitude to do so in practice.
38. The Mission heard views on both the absolute scale of importance of the development in economic and employment terms, and the relative importance of the Hamburg-Finkenwerder site for it compared with other scenarios which have been examined. The benefits to the Hamburg region were stressed in greater depth than the benefits to the German economy as a whole, though it is these latter which are more relevant to the question posed by the Convention.
39. The absence of an accepted scale for making the kind of judgements involved here and the limitations of a small Mission such as this make it unrealistic to offer any kind of “yes or no” conclusion about the magnitude of the national interest in this report; but the Mission believes a statement of such aspects, ideally with independent commentary upon them, should be a part of the formal notification of “urgent national interests”. In the present case, the Federal Ministry has since commented that it cannot perceive which office could provide such independent commentary, nor the criteria by which this office would be selected.
40. **Alternative development sites:** Representatives of NGOs told the Mission that some of the suggested alternatives, such as location of part or all of the development at a new plant to be built in Rostock-Laage, had either not been examined thoroughly or had been rejected. The

proponents and the Federal Government, having regard to Airbus Industries' corporate priorities, responded that expanding an existing site, notably the one at Hamburg-Finkenwerder, was the only commercially possible option for manufacturing the A380.

41. Demonstrating an absence of alternative solutions is, in the Mission's view, clearly a part of the onus which falls on those wishing to invoke the Article 2.5 exception to demonstrate that all of its conditions are met. Where there is doubt or dispute, such matters would normally take an open formal planning process to test adequately. (Germany has since commented that it considers the absence of alternative solutions was proven in this case under the provisions of the Habitats Directive and accepted by the European Commission in its opinion of 19 April 2000.)
42. **Urgent vs non-urgent:** It would be possible to conclude that the development is of both a type and a magnitude to be in the national interest, but that it is not "urgent", and therefore fails the Article 2.5 test. Interpreting "urgent" has not been straightforward. Developments might be considered urgent if they abate an imminent threat to human life or health, as, for example, emergency flood protection works. As a corollary, if the *status quo* can be maintained without threatening a national interest, this could indicate that the development is not urgent. Similarly, if the situation is not deteriorating without the development, then it is perhaps not urgent. These are clearly crude benchmarks. However, they could be taken into account by Contracting Parties when considering the points since listed in paragraph 3 of Resolution VIII.20.
43. The Mission points out that, even if it were found that urgency was demonstrated in relation to securing a decision in principle for the development to go ahead, it would be a separate question whether it is urgent to the same degree to begin the works themselves immediately. This does not bear so much on the question of satisfying Article 2.5, but on the timing of destruction prior to compensation, which is discussed further in the section on compensation below.
44. **Other points:** During its visit, the Mission was somewhat handicapped by the apparently fragmented nature of the decision-making involved, such that decisions on the merits of the development were divorced from the planning of the compensatory provisions – as a consequence it proved difficult to weigh up the complete package against possible alternative packages. The Mission considered that this may also have handicapped Germany's own ability to form a judgement about the presence or absence of an urgent national interest. The Federal Ministry noted that the implementation details of the measures are regulated in legally independent planning approval decisions (Planfeststellungsbeschlüsse) in the different federal states involved. However, the Federal Ministry affirmed that conservation experts and administration specialists were intensively involved in evaluating all relevant issues for planning compensatory measures and making them legally binding, and that a compensation package of coordinated measures, covering all relevant aspects and functions, was developed during an expensive voting procedure in the planning approval process (Planfeststellung) leading to the final planning approval decision (Planfeststellungsbeschluss) of 8 May 2000.
45. It was stated that extensive cost-benefit analyses, provided for in the relevant legal framework, were undertaken to demonstrate the national interest and urgency of the development, and to underline the predictions about its potential to create new jobs. Such predictions may not be borne out in the socio-economic reality. The Mission was, however,

assured that current world events (11 September 2001) cast no question-mark over the viability of the development proposals, and it had neither reason nor capacity to probe this further.

46. **The Contracting Parties' collective interest:** Decisions of the Conference of Parties to the Ramsar Convention (e.g. Resolution VII.23 referred to above) indicate that the Parties share a collective international interest in the way any individual instance of applying the "urgent national interest" provision is resolved. There are as yet almost no precedents, and so any principles worked out in the course of early cases will be of significance to all concerned in the way the Convention is implemented more generally.
47. Article 8.2 provides that the duties of the Convention Bureau shall include:
 - "(d) to forward notification of any alterations to the List, or changes in character of wetlands included therein, to all Contracting Parties and to arrange for these matters to be discussed at the next Conference;
 - (e) to make known to the Contracting Party concerned, the recommendations of the Conferences in respect of such alterations to the List or of changes in the character of wetlands included therein."
48. These provisions are designed to give an opportunity for the collective interest in these matters to play its part in the rare event that Article 2.5 is invoked by any Party. Germany has proceeded with its decision-making and the development works at the Ramsar site before the provisions of Article 8.2 (d) and (e) could be given effect, stating that waiting for guidance to be ready (through decisions of COP 8) would have created considerable and irremediable disadvantages for Hamburg as a business location.
49. For future cases, and for the benefit of the Parties' collective interests, the Mission RECOMMENDS that any Contracting Party intending to invoke Article 2.5 to permit the deletion or restriction of boundaries of a Ramsar site should afford an opportunity for the Conference of Parties to consider the matter pursuant to Article 8 of the Convention, and for a Ramsar Advisory Mission to be invited if appropriate, prior to taking a decision on whether or not to proceed.
50. Finally, based on the experience of an open and positive examination of the issues, courtesy of the hosts of this Mission, it is recommended that the component parts of questions used in this report to test the existence or otherwise of an "urgent national interest" under Article 2.5 be taken into account if and when further refining guidance on this issue for the Convention as a whole.

Observations on impact assessment and compensation needs

(referring to issues (iii) and (iv) of the ToR)

51. **Issue (iii)** of the Terms of Reference asks whether an appropriate impact assessment as to the predicted direct and indirect impacts of the infilling of part of the Mühlenberger Loch was undertaken, and to assess the full extent of the likely loss of values from the Ramsar site for which compensation needs to be provided.

52. The Mission did not examine in detail the EIA. This is because it was evident that a great deal of ecological expertise was available to the Hamburg authorities from their own advisers and via NGOs. Further, the depth to which these studies had been undertaken was evident from discussion. It was evident that, whilst there may be different opinions on the extent and details of the likely impact, there was general agreement by all parties on the main types of interest that would be damaged and the fact that the damage would be substantial. This included recognition of lasting degradation of the natural values, the loss of areas of habitat (land and water), degradation of the avifauna including internationally important numbers of shovelers, lasting degradation of aquatic communities, degradation of the seed bank of the water plant *Oenanthe*, and degradation of the landscape as a whole.
53. The Mission noted that, given the specific legal situation of Hamburg's administration structure of a united local authority (Einheitsgemeinde), grouping federal state and local authority responsibilities, the land-owner, the developer, the planning authority, the government, the conservation authority and the manager of the compensation package happen to be the same entity (or are owned by the same entity). This may make some of the usual checks and balances difficult to apply. Furthermore, the Higher Administrative Court in Hamburg has ruled that the conservation NGOs do not have a legal locus for challenging some nature conservation aspects of the decisions. This may limit the efficacy of normal processes. However, the Federal Ministry affirms that specialist knowledge was incorporated, and that conservation NGOs contributed to the debate.
54. One element of accepted good practice in Environmental Impact Assessment is the concept of peer-review, whereby the assessment can be tested with the benefit of as wide a range of experience and knowledge as possible (often drawing in much advice without cost). How this is implemented depends in part on the legal and administrative system of the country concerned. The Federal Ministry stated that comprehensive participation in the Environmental Impact Assessment and its review was possible, as the EIA report was publicly available as part of the planning approval documents (Planfeststellungsunterlagen). The Ministry reported that all those concerned, including the expert conservation organisations, had sufficient opportunities to comment in writing on the EIA report and to discuss this in person with those responsible for the project and within the planning authority. Where, according to the planning authority (Planfeststellungsbehörde), such discussions led to the need to amend the development proposal, the planning approval decision (Planfeststellungsbeschluss) took this into account.
55. The Mission RECOMMENDS that Contracting Parties, including their governmental authorities at all levels, strive to use all the formal and voluntary mechanisms available within their respective legal and administrative systems, to ensure wide input to, and review of, Environmental Impact Assessments.
56. The main biological elements needing compensation, were reported to be:
- habitats of the Elbe estuary:
 - loss of 151 ha of freshwater tidal mudflats,
 - loss of 18 ha of shallow waters,
 - loss of 0.8 ha of alluvial forests,
 - loss of parts of the seedbank of the priority species hemlock water-dropwort *Oenanthe conioides* in the mud (no actual stands are threatened),
 - loss of breeding area for fish in shallow waters and on tidal flats (maximum 169 ha),

- loss of resting and feeding areas for migratory birds, especially *Anas clypeata* and *A. crecca*.
57. **Issue (iv)** of the Terms of Reference required an assessment of whether any candidate areas other than those put forward had been evaluated as the basis for selecting those currently proposed for compensation.
58. The Mission was advised that a search was made of the whole of the section of the Elbe which is both tidal and freshwater, that no industrial areas could be made available for habitat restoration, and only two other areas (Seestermüher Marsch and Hetlinger Schanze) along the Elbe had been identified as farmland which could potentially be restored to tidal flat. In neither case was the owner prepared to sell the land for this purpose. It is not the role of the Mission to consider whether or not an authority should consider compulsory purchase in a particular case.
59. It appeared to the Mission that the different stages of the proposed development had been separated into different exercises. A decision to proceed with the destruction of mudflats at Mühlenberger Loch seemed to have been taken separately from a decision as to whether adequate alternative habitat could be created. In other words, the process for attempting to secure appropriate additional land did not appear to carry the same imperative as the habitat destruction decision. The Federal Ministry, however, assured the Mission that it was its legal role to ensure that the procedural links between the development and its compensatory measures were maintained.
60. The Mission **RECOMMENDS** that the provision of appropriate compensatory habitat in necessary quantity and quality be treated as an integral part of the decision to proceed with a development which damages a Ramsar site, and of the project which implements this decision.
61. The Federal Ministry stated further that the Airbus plant extension and the determination of compensatory measures had to happen under serious time pressure. Compensatory measures were therefore planned and implemented in areas which were already public property or for which the owner had given consent. Compulsory land purchase would only have been possible through a time-consuming procedure with uncertain legal outcome. According to the Ministry this would have delayed the implementation of compensatory measures in a way unacceptable from the conservation point of view.
62. The Mission was advised that the search for potential compensatory sites was not extended beyond the Elbe estuary. There are good arguments for this in that compensation would be best achieved in the vicinity, not least because some endemic species are involved, with specialised habitat requirements, and because other areas lie potentially outside of the waterbird migration route of which Mühlenberger Loch forms part. However, Article 4.2 of the Convention on Wetlands does refer to the creation of “additional nature reserves for waterfowl and for the protection, either in the same area **or elsewhere**, of an adequate portion of the original habitat” (emphasis added). Given the difficulty in the present case of providing adequate areas of the original habitat close by, the Mission **SUGGESTS** that it would be appropriate also to consider more distant alternatives.

Observations on compensatory measures and their relevance

(referring to issues (v), (vi), (vii), (ix) and (x) of the ToR)

63. The area being destroyed and adjacent areas being damaged at the Mühlenberger Loch Ramsar Site consist of tidal freshwater mudflats, supporting particularly tidal estuary habitats, waterbird populations, endemic plant species, and nursery functions for different fish species. The main loss of habitat is resulting from dyke construction between March and October 2001, and disturbance and sedimentation impacts may continue on adjacent areas for some years while the bund is filled.
64. The proposed compensatory measures include four elements:
- (a) **Hahnöfer Sand:** the creation of freshwater mudflats and shallow waters by excavation of farmland and removal (and replacement elsewhere) of dykes. On-site work started in 2001, and will take several years. This area is intended to create habitat similar to that lost at Mühlenberger Loch, but of a smaller area (99 ha) and in two separate parts.
 - (b) **Haseldorfer Marsch:** the insertion of a sluice into a dyke to convert an existing freshwater wetland protected area into a part-tidal freshwater area. (Tidal patterns would be routinely constrained to protect adjacent farmlands and houses, and prevented during the entire high-water phase of storm tides.) There would be some change in types of habitat, but no overall change in area for nature conservation. On-site work had not yet started at the time of the Mission, and was subject to legal challenge by nature conservation NGOs and others.
 - (c) **Twielenflether Sand:** the restoration of more tidal flooding to grassland areas. This does not constitute a change of habitat, rather the improvement of existing conditions. The plan does not claim this as a significant area of compensatory habitat (including it as a nominal 1 ha of new freshwater tidal flat). Rather, it is using the major compensation exercise as an aid to overcome local authority resistance to restoring the tidal regime required for conservation management of this area. On-site work had not yet started at the time of the Mission, and is linked to operations on the nearby Haseldorfer Marsch.
 - (d) **Hörner Au:** medium-term plan to convert an agricultural area into marshes and wet grasslands, eventually to be declared as a protected area.
65. **Issue (v)** of the Terms of Reference is to evaluate the relevance of the compensation measures proposed for Hörner Au, and whether they address the requirements under Article 4.2 for the creation of additional nature reserves for waterfowl. Article 4.2 of the Convention on Wetlands states:
- “Where a Contracting Party in its urgent national interest, deletes or restricts the boundaries of a wetland included in the List, it should as far as possible compensate for any loss of wetland resources, and in particular it should create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat.”
66. Hörner Au is an area of farmland which was formerly valley wetland between raised bogs on either side. The peatbogs are still being mined for peat. However, there is a plan to create

lakes, and restore some bog land and wet marshes in this area. Some other development schemes causing habitat loss in other areas have already provided the occasion for contributions to be made to this development, even though the habitats they damage or destroy are different from those being created at Hörner Au. In this sense, the Hörner Au programme seems to be acting as a sort of nature investment bank for developments which are damaging natural habitats but which are unable to replace the type of habitat they are destroying. In this context, compensation funds from the Mühlenberger Loch Airbus development have been used to purchase two farms in the Hörner Au area. The farm buildings have been removed. The 100 ha of farmland will be returned to a seasonally flooded regime once other key areas in the system have also been acquired, as part of the wider scheme. The timing of this will depend on opportunities for purchase.

67. There is no suggestion that the habitat to be created at Hörner Au is similar to the habitat being lost at Mühlenberger Loch. Therefore, it does not constitute creation of “additional nature reserves ... of the original habitat” in the terms of Article 4.2 of the Convention on Wetlands.
68. The Federal Ministry points out that it is however planned to develop the site at Hörner Au into a wetland of particular importance for waterbirds, as many of the birds resting in Mühlenberger Loch are not strictly dependent on tidal flats and could cope with other types of shallow flooding regimes. The Federal Ministry states that it is often not possible to re-create the identical habitat that was lost, and that in such cases it should be possible to re-create the functions of the habitat lost through the creation of slightly different habitats. EU and German law foresee such solutions. It is planned that the Hörner Au will be designated as a new EU Special Protection Area, once the compensation measures have been implemented.
69. In a general sense, the re-creation of some type of wetland constitutes an element of mitigation of damage. While it is hoped that the new wetland at Hörner Au will fulfil the functions lost at Mühlenberger Loch for waterbirds, it is difficult to see how the re-creation of seasonally flooded grazing marshes at Haseldorfer Marsch and Twielenflether Sand (however valuable in a local context) can be regarded as compensation for the internationally important freshwater tidal flats. The rarity of this latter habitat is well illustrated by the difficulty in identifying any replacement in the current case.
70. In line with Article 4.2, the Mission RECOMMENDS that guidance on compensation adopted by the Conference of the Parties should not admit as compensation the provision of types of wetland habitat different from those being lost when it is not possible to provide habitats of the same type. If the lost habitat is so rare or difficult to re-create that direct replacement is not possible, its destruction should be clearly seen as the irreplaceable loss that it is.
71. Resolution VIII.20 suggests that Parties “take into account, *inter alia* ...4.1 the maintenance of the overall value of the Contracting Party’s wetland area included in the Ramsar List at the national and global level”. This implies a search for locations for compensatory measures at a greater distance, as suggested in paragraph 62 above.
72. **Issue (vi)** of the Terms of Reference asks whether the total area proposed for compensation is sufficient for compensatory requirements, noting that, since creation of intertidal habitats

is difficult and imprecise, any appropriate compensation package should include a substantial margin of caution.

73. **Issue (vii)** of the Terms of Reference deals with assessing the likelihood of success of the compensation measures for the loss of freshwater mudflat ecosystems, for the loss of tidal habitat for the four endemic rare plant species, and for the loss of feeding and foraging habitat for the listed waterbird populations and other species using the area on migration. This includes assessing how delivery is going to be assured, e.g. through the nature of guarantees of long-term funding, sanctions for under-performance, or contingency plans. It is convenient to consider these two closely linked issues (vi and vii) together.
74. It is impossible not to be impressed by the scale of work and expenditure of funds being put into the re-creation of intertidal flats at Hahnöfer Sand. However, even these decisive efforts will result in a smaller area of freshwater tidal flats than that being destroyed at Mühlenberger Loch, divided into two separate blocks. There will also be a long time-lag between loss of habitat and the partial replacement (cf. below).
75. The second area at which compensation for lost intertidal flats is being proposed is Haseldorfer Marsch. This element raises a series of issues on which the Mission could not detect consensus amongst local scientists and conservationists. As habitat destruction on the development site at Mühlenberger Loch was underway, there was no certainty by the time of the Mission, that the Haseldorfer Marsch compensation would proceed, not least because of court action by conservation NGOs and others.
76. The Mission heard several reasoned objections to the proposed compensation at Haseldorfer Marsch. One was that the restoration of some tidal flow to the area would destroy or damage some of the wildlife features dependent on non-tidal freshwater habitats for which the area was designated a Special Protection Area (i.e. part of the Natura 2000 network) under the EU Wild Birds Directive. It was not disputed that some such features would be damaged, but the proponents argued that the benefits would outweigh these losses. A second objection was that the restored tidal regime would be so artificial that many natural processes would be prevented. The artificial nature would result from the narrow opening for water-flow, the regular closing to limit the level of high-water (to protect adjoining farmland), and the closures of the sluice for periods of a day or more at times of particularly high tides.
77. The Mission is not in a position to compare the details of the relative benefits. However, a wider issue arises: if a change as fundamental as restoration of tidal flow from a time before its designation as a non-tidal freshwater Special Protection Area was a conservation objective for the site, there should have been some indication of this objective in the site management plan. In the absence of such an objective, the reason for the change from non-tidal to tidal marsh must be solely to compensate for the loss of tidal habitat at Mühlenberger Loch. Is it appropriate to change a habitat already identified as internationally important for nature conservation, in the interests of catering for some other aspect of conservation? The Mission thinks that such a change should not be considered as compensation. (Resolution VIII.20 does not cover this point clearly, but states that Contracting Parties “may take into account, *inter alia*,... 4.6 the adverse effect the compensatory measure itself may cause.”)

78. Accordingly, the Mission RECOMMENDS that a Contracting Party should consider that it is inappropriate to undertake in an area protecting one or more habitats works to change these habitats in order to compensate habitat loss caused by a development elsewhere.
79. In response to the Mission's conclusions, the Federal Ministry pointed out that Germany's nature conservation law and the criteria for achieving the coherence of the EU Natura 2000 network of protected areas stipulate that compensatory measures must be related as closely as possible in functional and spatial terms to the habitat lost, and that values and functions lost shall be re-created completely in the same manner and habitat, covering all ecological assets lost. However, if this is not comprehensively possible, the EU provisions allow for compensatory measures that only approximate the lost values or functions. In this context, compensatory measures can be re-created separately at different compensation sites. The Federal Ministry considers that the compensation concept for Mühlenberger Loch meets these legal requirements.
80. In late 2002, following the submission of the Mission report and a court decision, the Federal Ministry advised the Ramsar Bureau that the management provisions for the Haseldorfer Marsch were now amended and adapted in view of the objective of creating freshwater tidal habitats.
81. The Federal Ministry has added the view that it is in agreement with the European Commission that restrictions of a protected area can be compensated for in another existing Natura 2000 site through improving the habitat and its functions. The Federal Ministry considers that, as far as it is compatible with the management objectives of a given site, changing existing natural habitats with a view to creating more valuable habitats should be acceptable.
82. The Federal Ministry has added "Hamburg is particularly committed to preserve and develop new tidal freshwater habitats. They can only be re-created along the Elbe between Glückstadt and Geesthacht. To this end, it must be accepted that existing habitats which came into being after the embankment of the area, and which are widespread, also along other watercourses, can be turned into more valuable habitats that are much rarer. The Hamburg Environment Authority argues that creating tidal freshwater areas (through the controlled opening of existing dykes) is an endeavour of such an extent, in administrative and financial terms, that it can only be envisaged in combination with the implementation of obligatory compensatory measures".
83. The Mission was advised that the restoration of more tidal flooding to grassland areas at Twielenflether Sand was not really part of the compensatory process. Rather, it would be using the compensation opportunity to overcome local authority resistance to restoring the tidal regime required for conservation management of this area. The Mission was advised also that one reason for the promotion of the proposed compensatory site at Haseldorfer Marsch was that the local authorities responsible for dykes were not normally prepared to consider the opening of these for conservation reasons, but would do so in the case of the need for easing the development of the Airbus site. Whilst the Mission notes the energy and commitment of those using the compensatory process to aid other conservation benefits, a disturbing precedent would be set if conservation management on one protected nature site were conditional on damaging developments on another.

84. The Mission RECOMMENDS that Contracting Parties ensure that competent authorities within their jurisdiction are aware of international commitments to nature conservation and that the management requirements of relevant sites should be discussed with conservation bodies so that the rules of one administrative sector do not unreasonably block the needs of others.
85. The tidal freshwater habitat currently being destroyed at Mühlenberger Loch constitutes about 170 ha. In addition, it is agreed that a further substantial area will be subject to long-term damage and disturbance of various types that will prevent or limit its use by the wildlife for which the Ramsar site is important. The direct habitat loss constitutes over 20% of the area of the Ramsar site. Unfortunately, it also includes the area of greatest use by the main bird species for which the Ramsar site is designated, the shoveler duck *Anas clypeata*. Of the compensatory areas proposed, it is common ground that the proposed works at Hörner Au will not provide the original habitat types being destroyed at Mühlenberger Loch. It is common ground that Twielenflether Sand is not proposed as compensatory habitat, other than a nominal 1 ha. As discussed above, the proposed works at Haseldorfer Marsch are controversial. The objective of the change would be to compensate the loss of certain wetland functions, rather than to replace lost areas. Even if these works are implemented, any area of habitat created will be accompanied by a loss of other internationally important habitats. All of these lie within a currently designated area of international importance for nature conservation. Therefore, whatever the outcome, the net area contribution of Haseldorfer Marsch to compensation for the damage at Mühlenberger Loch will be nil. Thus, the only area of compensation which is directed to replacing the lost habitat type is Hahnöfer Sand.
86. Once the works at Hahnöfer Sand reach completion (which will not be for several years after the loss of the area at Mühlenberger Loch – see below), the maximum area of replacement habitat of the lost type will be about 100 ha, compared with 170 ha destroyed. As noted in the agreed Terms of Reference of the Mission, since creation of intertidal habitats is difficult and imprecise, any appropriate compensation package should address the issue of uncertainty that the compensatory provision will provide what is necessary. To help in ensuring that the ecological functions will be adequately compensated, a substantial margin of caution should be included. The Mission concludes therefore that the compensation measures under way and proposed will not create additional nature reserves of an adequate portion of the original habitat, and hence that the requirements of Article 4.2 in this respect will not be met.
87. **Issue (ix)** of the Terms of Reference required the Mission to assess whether the principle that any adequate compensatory provision should be made prior to any loss, as otherwise the carrying capacity of the system will be reduced in the interval, is being applied.
88. The works at Hahnöfer Sand are, as noted above, the main element of habitat compensation on offer. Indeed, the timing of activities at the other proposed compensatory sites remains uncertain, for reasons already discussed.
89. At Hahnöfer Sand, the works have started at approximately the same time (early 2001) as the destruction of the habitat at Mühlenberger Loch. The effective habitat loss at the latter site occurred rapidly as a consequence of the construction of a new dyke. The creation of compensatory habitat will take much longer. This is for several reasons. The strict local regulations concerning dykes means that an elaborate approval procedure is required for the

new (more inland) dyke before the existing dyke can be removed. This constraint is so severe that the floating sand extraction machine, which normally travels as a sea-going barge, had to be dismantled, transported in pieces by land, and re-assembled on-site. As the Hahnöfer Sand compensation area comprises two separate segments, the machine (if the same one is used) will need similar dismantling, transportation and reassembly before work can start on the second segment.

90. The huge volume of sand to be removed from Hahnöfer Sand needs to go somewhere. The most economical place is at the Airbus site at Mühlenberger Loch, thereby providing another reason for the compensatory work to start only after work at Mühlenberger Loch has started.
91. The engineering works at Hahnöfer Sand are substantial. The Mission was advised that the first part of these is due to be completed in the first half of 2004, after which work will start on the second part (although another piece of information indicated that the whole engineering process would be complete in 2004). Following the completion of the engineering works, natural processes of sedimentation, chemical changes such as oxidation of exposed sediment, and colonisation and growth of organisms will be required to establish mud-flat ecosystems. The Mission was not provided with information on modelling of these processes, but was advised of two local informed opinions that these processes would take about 2 years or about 10 years following the engineering works. Such processes are very variable in different situations and, without more information, the Mission is unable to comment on the likelihood of these estimates being correct. However, on the basis of experience elsewhere, the lower estimate appears very optimistic. Taking this most optimistic estimate, the compensatory area would become suitable in about 2006, i.e. 5 years after the loss of the area for which it is meant to compensate. On the longer estimates, the first part of the area would become suitable in 2014 (i.e. 13 years after loss), with the other part of the compensation area following about 3 years later, i.e. 16 years after the loss. It is likely that the true figure will be somewhere between these two. In any case, it is clear that there will be a period of several years between loss of the tidal-flats and partial compensation. The same is true of *Oenanthe conioides*, for which it is accepted that establishment of stands depends on the further development of an adequate shoreline and will take several years. The Mission has to conclude therefore that the principle that any adequate compensatory provision should be made prior to any loss is not being applied.
92. The Mission RECOMMENDS that, if a Ramsar site is to be restricted, compensatory works should start sufficiently far in advance of the damaging development, so that a time-lag in habitat provision (and in the ability of the habitat to support relevant species) is avoided. This could include starting compensatory work as soon as the possibility of the need to do so is recognised, delaying or phasing the habitat loss to relate to the actual times that land is needed, etc. (Resolution VIII.20 states that Contracting Parties “may take into account, *inter alia*,... 4.5 the timing of the compensatory measure relative to the proposed action”.)
93. **Issue (x)** of the Terms of Reference asks for an evaluation as to whether the necessary steps are being undertaken to afford legal protection to the compensation areas in line with the terms of Article 4.2.
94. The Mission was advised that it was the intention to designate the Hahnöfer Sand compensation area under the Convention on Wetlands and under domestic legislation when the site reached appropriate qualifying standards. The Mission hopes that these standards

will be reached soon and ENCOURAGES the Federal Ministry to designate the site in line with Article 4.2.

95. On the basis of the above points and the information made available to the Mission, it seems unlikely that any species will be made extinct by the project. However, there can be no doubt that there will be a major loss in area of the rare tidal freshwater ecosystem. Furthermore, it will be many years before partial replacement of this ecosystem is achieved. In the intervening period, the loss of area will not be compensated. This loss of area is likely to impact most on those species whose population sizes or ecology or behaviour are related to the extent of habitat which is available. In the present context, this is likely to relate mainly to the waterfowl populations and probably some of the fish nurseries, and possibly less to the plant species using edge habitats – although there is likely to be some impact on all of these. It is also unclear as to how suitable the smaller blocks of compensatory mudflat will be for waterfowl, even if habitat re-creation is successful in other respects. The distance at which waterfowl flee from disturbance may be such that rather little, if any, of the flats in these new small blocks will provide suitable undisturbed habitat.
96. Recent studies on migratory waterfowl populations make it clear that loss of preferred habitats is likely to have some negative impact on total populations of the species, as well as the serious local impact it has. Fortunately, the most important waterfowl species at this site in Ramsar terms have a wide range of distribution, limiting the impact of the damage.
97. Overall, therefore, the Mission considers that the development at Mühlenberger Loch will cause a serious loss of rare tidal, freshwater ecosystem. Despite the major expense and effort put into compensatory work by the German authorities, this will most likely not compensate completely for this loss, although it may eventually result in some mitigation, in the form of provision of other habitats.
98. That such huge effort and expense can achieve only a proportion of compensation well illustrates the point that compensatory measures are not a cheap option, and that the cost of provision of habitat tends generally to be vastly underestimated. However, most economic systems do not attribute value to natural ecosystems, partly because such sites often do not have individual owners. This gives rise to false assumptions in decision-making processes about the real costs of development. Whilst the Mission does not consider that it is easy to put a value on such natural habitats, a minimum value could be attributed by estimating the replacement cost.
99. Accordingly, the Mission RECOMMENDS that, in making development decisions, a minimum value of a natural site could be estimated by calculating the real cost of re-constructing such a site, while noting that such an estimate does not constitute the full value because it does not account for the re-establishment of natural populations and processes, nor for the loss of continuity.

Observations on monitoring and evaluation measures

(referring to issue (viii) of the ToR)

100. **Issue (viii)** of the Terms of Reference considers whether the compensation measures provide for monitoring and evaluation measures during and after the period of wetland

restoration, in order to be able to conclude whether or not the compensation measures succeed, notably in respect of the affected populations of rare endemic plants and waterbirds.

101. A range of monitoring work was outlined to the Mission. On the basis of the information received, it seems likely that a good record will be achieved of the outcome of this exercise. However, the Mission was not aware of much information on the biological targets against which this monitoring work was to be assessed, the models by which these were generated, nor the procedure by which deviations from the targets would be corrected by further works. Most of the information given in response to queries on these points related to engineering targets. These are, however, secondary or “process” targets – relating to the means by which the primary targets (biological wetland populations and processes) are achieved.
102. The Mission was not aware of any procedure by which further works would be instigated if the planned works did not result in the desired result. Indeed, they were advised that, under domestic law, once the planning authority had agreed the plan, the developer was indemnified against the need for further works even if the desired compensatory outcome did not result. It was not clear whether or not the planning authority then assumes responsibility for making good the shortfall. However, the situation is particularly complex when the developer and the planning authority are effectively the same entity.
103. The Mission considered that knowledge of biological processes in the essentially untested field of tidal flats re-creation is not at such a level that outcomes can be predicted in the same way as is normally possible for engineering processes.
104. Accordingly, the Mission RECOMMENDS that compensation measures undertaken under Article 4.2 of the Convention on Wetlands should include justified predictions of the outcome in terms of the biological interest of the Ramsar site being compensated and clear biological targets and timescales for these to be achieved. Compensation should also include built-in over-compensation to allow for uncertainties, a monitoring scheme which allows assessment of the success or otherwise of the compensatory measures against these targets and stages towards them, and procedures to institute additional or replacement measures if targets or stages are not achieved.

Conclusions

From the information presented, the Mission team drew conclusions and provided other points of advice for the authorities in Germany concerning implementation of the Convention in this case, and these were included in the Report submitted in October 2001, and are thereby available to the German authorities. Since the purpose of the present version of the report is however to make available to Contracting Parties and others the general experience that can be gained from a case-study, the Mission Conclusions have been omitted, whilst those Recommendations having more general relevance remain after editing.

Acknowledgements

The Ramsar Bureau and its experts want to thank the Federal Authorities responsible for the implementation of the Convention in Germany for their open and constructive approach in preparing this Ramsar Advisory Mission. During the three days in Hamburg, Lower Saxony and Schleswig-Holstein, the Mission participants experienced great hospitality and open, frank, and helpful exchanges during discussions with all different stakeholders. The Mission would like to thank the Hamburg authorities and experts, local staff in Lower Saxony and Schleswig-Holstein, and the NGO representatives for the friendly atmosphere, for long, but helpful, discussions and the good humour during these days. Ms Wille, the interpreter, did a great job in translating the essence of rapid discussions that were often technically rather complex.

Appendices

Annex I: Composition of the Mission

The Ramsar Advisory Mission involved the following participants:

- **Ramsar Bureau:** Dr Tobias Salathe (Regional Coordinator for Europe), David Pritchard (Mission expert, legal issues), Dr Mike Pienkowski (Mission expert, ecological issues)
- **Federal Ministry of the Environment, Germany:** Dr Anita Breyer
- **Environment Authority, Federal State Hamburg:** Dr Regina Dube (Director, Nature and Landscape Conservation), Mr Wolfgang Prott (Director, Nature Conservation Agency), Ms Birgit Berthy, Mr Christian Michalczyk (EU law expert), Mr Andreas Giesenberg (project coordinator), Ms Bianca Krebs (Hamburg Bird Protection Station)
- **Realisierungsgesellschaft Finkenwerder Ltd. (developer):** Mr Bodo Fischer (project coordinator), Mr P. Wiedemeyer, Dr Mierwald (ecology consultant), Ms H. Hohlfeld (environmental consultancy Fischer & Köchling Ltd.), Mr Gunther Bonz (legal advisor)
- **Environmental Agency Itzehohe:** Mr Michael Kruse
- **Lower Nature Conservation Authority:** Mr J. Kastrup (Pinneberg), Mr Rottmann (Itzehohe)
- **Conservation NGOs:** Dr Uwe Westphal (NABU), Mr Manfred Braasch (BUND), Mr Rüdiger Nebelsieck (legal advisor)
- **Interpreter:** Ms Manuela Wille

Annex II: Timetable

Monday, 24 September

13h00	Arrival of the Ramsar Bureau MISSION members in Hamburg Meeting at Hamburg Umweltbehörde: extensive briefing on the project and compensatory measures achieved, ongoing and planned
15h00	Departure for on-site visit Mühlenberger Loch (40 min drive)
16h45	Departure for on-site visit Hahnhöfer Sand (15 min drive)
18h00	Departure for return to Hamburg (arrival at 19h)

Tuesday, 25 September

09h00	Departure for on-site visit Haseldorfer Marsch and Twielenflether Sand (60 min drive)
11h30	Departure for lunch at Steinburg
14h30	On-site visit Hörner Au
17h00	Departure for return to Hamburg (90 min drive)
18h30	Arrival at Hamburg

Wednesday, 26 September

09h00	Final discussion, presentation of further procedures, draft conclusions and recommendations
12h00	End of the mission Return of international experts