

**Ramsar Advisory Missions - No. 62:
Marromeu Complex Ramsar Site, Mozambique (2009)**

16-20 August, 2009

MISSION REPORT

by

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Photo: Francisco Rilla

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Summary

The Ramsar Convention Secretariat was informed in 2008 of potential threats to Mozambique's only Ramsar Site, the Marrromeu Complex in the Zambezi Delta, from oil and gas prospecting activities. In 2009 the Government of Mozambique invited the Secretariat to activate the Ramsar Advisory Mission procedure in response. A team accordingly visited the site and undertook consultations there and at national, provincial and district level from 16-20 August 2009. This report summarises the Mission's findings, and presents 24 recommendations for short- and long-term action, including suggestions for sources of further external support.

The Mission included a representative of the Secretariats of the Convention on Migratory Species and of the Agreement on African-Eurasian Migratory Waterbirds, and it represents a successful collaboration among all three intergovernmental agreements.

Exploratory drilling at the site had ceased by the time of the Mission's visit: it appears that extraction activities will not now follow at that location: but threat levels in the area generally remain high, and the focus of the recommendations here is on potential remediation measures, future safeguards, and the interests of affected local communities.

Ramsar Parties have expressed collective concern in recent times about a striking global trend of increased threats to wetlands from mineral developments, and this case has wider strategic significance in that context. Further work on this issue is underway at global level in the Convention's Scientific & Technical Review Panel.

This Mission was of very limited scale, and was not able to go into great technical depth on the specific issues that prompted it. At the same time however it was a hugely positive and fruitful occasion for broader relationship/confidence-building, profile-raising and creative thinking about Convention implementation generally in Mozambique. Some follow-up activities are already in hand.

Once again it is considered that the Ramsar Advisory Mission process has proved itself to be a highly cost-effective form of support for Contracting Parties. The RAM report is a key milestone in this process; but it is a means to achievement of tangible outcomes, and so dialogue and interactions on the matters it covers will continue after its publication. The overall aim is to be of help to the Government and others involved with implementing the Convention in Mozambique: they are commended on taking this step and are offered every encouragement in following it through.

1. Introduction and purpose of this report

- 1.1 Ramsar Advisory Missions are a means by which the Convention on Wetlands (Ramsar Convention) provides technical assistance to Contracting Parties in the management and conservation of listed wetlands of international importance (Ramsar Sites) whose ecological character has changed, is changing or is likely to change as a result of technological developments, pollution or other human interference.
- 1.2 The Mission procedure (formerly known at different times as the Monitoring Procedure and the Management Guidance Procedure) was formally adopted by Recommendation 4.7 of the 4th meeting of the Conference of Parties (COP4) in 1990. Funding for Missions is typically from extra-budgetary sources which need to be sought each year. The main objective is to undertake fact-finding activities and to provide advice (always and only at the request of the Party concerned) in solving problems relating to the maintenance of the ecological character of a particular Ramsar Site or Sites. Missions are sometimes also able to contribute advice and assistance on other Convention implementation issues at the same time. Reports are published, once they have been agreed by the recipient government; and this offers lesson-learning benefits for the Convention as a whole.
- 1.3 It is a Convention requirement (Article 3.2) that information on actual or potential changes in ecological character of Ramsar Sites should be passed without delay by the relevant Contracting Party to the Ramsar Secretariat. In some cases information arrives first from other organisations or individuals.
- 1.4 It was in the latter way that the Ramsar Secretariat received information in mid-2008 about possible threats to Mozambique's only Ramsar Site, the Marromeu Complex, from oil and gas exploration activities. The Convention's Senior Advisor for Africa accordingly wrote to the Mozambican Minister for Coordination of Environmental Affairs on 23 September 2008 to express concern, to seek clarifications and to offer assistance if appropriate by means of a Ramsar Advisory Mission (RAM).
- 1.5 On 12 January 2009 a reply was sent from the Deputy Minister for Coordination of Environmental Affairs, stating that the original phase of exploration had concluded but that another phase was due to begin. The Deputy Minister welcomed the suggestion of technical assistance from the Convention to assess any potential harm to the Ramsar Site, and to advise Mozambique on reaching appropriate outcomes in respect both of this Site and of any other similar cases elsewhere in the country in future.
- 1.6 A RAM team was put together (see Annex A), including a representative of the Secretariats of the Convention on Migratory Species (UNEP/CMS) and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (UNEP/AEWA), recognising their close collaboration with Ramsar on many issues and shared interests in the issues at stake. Terms of reference for the Mission were agreed as follows:

- (i) To assess the threats to the conservation and wise use of the Marromeu Complex Ramsar Site resulting from the first and second oil and gas exploration phases and their associated infrastructures;
 - (ii) To review measures included in the Environmental Impact Assessment (EIA) for minimising and/or eliminating negative environmental and social impacts of the proposed activities;
 - (iii) To assess the need for further EIAs for any future drill sites located in or adjacent to the Ramsar Site;
 - (iv) To assess the options for further measures to minimise and/or eliminate negative environmental and social impacts that may become necessary in the event that oil or gas should be found in, or adjacent to, the Ramsar Site;
 - (v) To meet local, national and international stakeholders to discuss environmental and social impacts of the present and future oil and gas exploration activities, including exploring the alternative options available;
 - (vi) To make recommendations to the Government of Mozambique and the Ramsar, UNEP/CMS and UNEP/AEWA Secretariats on the conservation and wise use measures that should be taken to protect the environment and maintain the biodiversity of the Marromeu Complex Ramsar Site and the livelihoods of local stakeholders;
 - (vii) To assist the Government of Mozambique with the development of proposals for a long-term management plan for the Marromeu Complex Ramsar Site.
- 1.7 The Mission visited Mozambique from 16-20 August 2009 (a somewhat compressed timetable, to keep within budgetary constraints), toured the site of drilling activities and met a range of residents, stakeholders and decision-makers in the field, at different levels of local government and at national level in the capital (see Annexes B and C).
- 1.8 This report is not intended to be (and the Mission is not equipped to provide) a comprehensive review of management and conservation issues concerning the Marromeu Complex Ramsar Site and other wetlands in Mozambique. The main focus is a series of recommendations to encourage and assist the Government and others with future courses of action (Section 9). This is an on-going action agenda, and it is expected that dialogue will continue on many if not all of these issues in various ways after publication of the report. The RAM report is therefore a key milestone but is not the end of the story.
- 1.9 Although requested by the Team, it did not prove possible for meetings to be arranged with certain of the NGOs with an interest in the case, nor was anyone willing to be available from the developers concerned (a member of the government petroleum development agency INP attended the round-table consultation but did not answer questions; and the private sector company involved declined to be involved). There was no contact with the operators of the hunting concessions within the Ramsar Site. These represent deficiencies in the Mission's ability to take a complete and even-handed view of the issues, and this report should be read in that light.
- 1.10 Similarly, the Mission had extremely little documentary material to work with, and was not able to study texts of relevant legislation, policy, protection ordinances

applying to the Ramsar Site, development plans, consent decisions etc. A single paper copy of the Environmental Impact Assessment (in Portuguese) relating to the drilling development was made available only for one evening's perusal, and its appendices were not included. One of these appendices was the report on consultations, which would have revealed the arguments deployed by objectors and stakeholders: this has been separately requested but at the time of writing has still not appeared. Again these are significant handicaps which have limited what the Mission can say about impacts on the site, about the nature and merits of concerns expressed by others, and about those elements of the Terms of Reference (see above) relating to EIA aspects.

- 1.11 That said, the host institutions in other respects were extremely helpful and open, and the process proved very fruitful within the scope of those matters which could be addressed. In addition the Mission made significant achievements, as a shared endeavour of the Secretariat and the Government of Mozambique, in terms of diplomacy, clarification of a range of issues, relationship/confidence-building, profile-raising and creative thinking about Convention implementation more generally in the country. The impact of this will be felt for some time to come, and in separate initiatives which will be reported elsewhere. Its significance is therefore considerably wider than expressed in the original Terms of Reference. All concerned are warmly thanked for the extremely constructive partnership approach which was taken to this (see acknowledgements at the end of this report).

2. The Marromeu Complex Ramsar Site

- 2.1 Mozambique acceded to the Ramsar Convention on 3 August 2004. The 688,000 ha Marromeu Complex in Sofala Province remains the country's only Ramsar Site, and it was designated (added to the List of Wetlands of International Importance) on the date of the country's accession. The Convention entered into force for Mozambique (after the required four-month interval) on 4 December 2004.
- 2.2 Some documents reviewed during the course of the RAM refer to different designation dates: confusion may have arisen from the fact that the Ramsar Information Sheet (RIS) was completed on 4 July 2003 and bears that date, while a domestic declaration appears to have occurred in October 2003 and a related Ministerial Council Resolution was passed on 5 November that same year. The Ramsar Sites Information Service (hosted on the Wetlands International's website) indicates that some information held by them dates from 2006, although it is not clear whether this represents a full update of the RIS (it appears not).
- 2.3 The Ramsar Site comprises the protected Marromeu Buffalo Reserve, four surrounding hunting concession areas, one buffer area to the south-western side and a further zone to the north-east. It includes a variety of habitats ranging from Zambebian coastal flooded savanna, coastal dunes, grassland, freshwater swamps, dambos associated with miombo forest, mangroves and seagrass beds.

Figure 1: Location of Marromeu Ramsar Site (striped area) in Mozambique



Source: Government of Mozambique, 2003

- 2.4 The Zambezi Delta supports 3-4% of the global population of wattled crane *Grus carunculatus* and may provide a critical refuge for this species during extreme regional droughts, when more than 30% of the global population may temporarily occur there. It is internationally important for white- and pink-backed pelicans *Pelecanus onocrotalus* and *P. rufescens* and for the African openbill *Anastomus lamelligerus*, as well as supporting a great variety of other waterbirds, including some globally threatened species.
- 2.5 The population of around 10,000 Cape buffalo *Syncerus caffer* represents the largest concentration of this species in Africa. The mangrove crab *Scylla serrata* and other crustaceans (portunids etc) are present and are exploited by the local people, while prawns spawning in the delta mangroves are of great economic importance as a source of foreign revenue. The Delta is home to thousands of farmers and fishermen who depend on the floodplain for their livelihoods.
- 2.6 Previously documented threats include the cessation of natural flooding processes caused by upstream dams on the Zambezi River as well as by construction of roads, railways and flood protection dykes.

3. Potential threats from oil and gas exploration

- 3.1 Mozambique clearly needs to pursue development opportunities, and mineral wealth may be a significant part of this. Nothing in the Ramsar Convention implies any stance one way or the other on the principle of this. Mineral

exploration and exploitation can be entirely compatible with Ramsar obligations if pursued in ways which follow international good practice and which avoid unwise use of wetlands as defined by the Convention, and provided that applicable procedural steps are followed (such as those relating to Article 3.2, discussed below). That said, the vulnerabilities and risks to the country's natural wetland and water resources (its "wetland wealth") from inappropriate developments are high, and it is right for the Government to take a cautious and environmentally diligent approach to this.

- 3.2 Oil and gas exploration activities have been occurring at a wide variety of locations throughout Mozambique, including both onshore and offshore sites. The greatest potential is felt to lie in the provinces of Sofala (which is where the Ramsar Site is located, and is also Mozambique's most important province for tourism revenues) and Cabo Delgado (in the north of the country). Seven prospecting proposals have been made in Sofala alone since 2004. To date only one site in the country has been put into active production for oil (near Palma, in Cabo Delgado), and one for gas (Temane, in Inhambane). In the course of consultations on the management plan for the Ramsar Site (see Section 7 below) oil and gas development was said by local consultees to be the greatest threat facing the area. (Reference is also made in the draft plan to potential titanium prospecting).
- 3.3 Information received by the Ramsar Secretariat in mid-2008 described the awarding of consent for oil and gas prospecting to British American Natural Gas (BANG) (in association with partner and operating companies Zambezi Onshore Ltd and Moz Petroleum Zambeze Ltd) in an area known as the Zambezi Onshore Block, which overlaps substantially with the area of the Marromeu Complex Ramsar Site. The consent was said to date from 29 November 2006, with an operating contract for reconnaissance and drilling having been signed on 1 February 2007, effective for two years.
- 3.4 One specific drill site was established, within the Ramsar Site in an area known as Coutada 12 (a reference to one of the hunting concession areas forming part of the Ramsar Site). Following some months of operation, work ceased and the infrastructure was removed in late 2008.
- 3.5 Possible threats from the drilling itself were a cause for concern, including introduction into groundwater of the chemicals used in drilling, disposal of spoil, and disturbance to wildlife from noise and night-time lighting. Direct impact on the Ramsar Site included forest clearance for construction of the drill site and an adjacent work camp, and opening up of an access road. Associated concerns included potential effects of pollution, over-abstraction of water, soil compaction, watercourse alteration, introduction of invasive species and opening up of access to illegal hunting and timber extraction.
- 3.6 Further details on at least some of these issues will have been contained in the EIA (see section 5 below), but as mentioned above it was not possible for the Mission to evaluate this in any meaningful way. Following cessation of drilling, the Deputy Minister's letter of 12 January 2009 (referred to above) includes the statement that "prospecting activities did not constitute any ecological threat to the ecosystems and threats of the site": hence the focus of the Mission was seen

as becoming more about approaches to good assessment/mitigation of future cases. The Mission however has no documents on this and no details of how this assessment was made, and so it cannot comment on what degree of confidence can be attached to it.

- 3.7 The road extension and areas of cleared forest were inspected by the Mission on its field visit on 19 August. Four drilling events had taken place, each to successively greater depths (reaching a maximum of approximately 2,100 m) and all using the same shaft. All infrastructure, materials and debris relating to the drill-head and the nearby work camp had been fairly thoroughly removed, and the dimensions of the road appeared to have been kept to the minimum for the purpose. The land at the drill-site had been bulldozed level.
- 3.8 Timber from the cleared area had been disposed of (either burnt or removed, and there was one small area of fire damage), though trees cut from along the road had (according to local villagers) been sawn and left *in situ*. The substrate in the bulldozed area probably included material extracted from depth and drilling mud etc, and was presumed to be somewhat compacted compared with the adjacent forest soils. Some natural vegetation re-growth was occurring, but the impression gained was that this was less than might have been expected for the 9 month period which had elapsed, and re-establishment of tree saplings for example was not yet evident. The establishing ground flora in this area appeared to include halophytic species that perhaps indicate salinisation of the soil as a consequence of the drilling activities.
- 3.9 The Mission was not equipped to undertake any proper survey of any of these factors, and so these field observations all constitute merely informed subjective impressions. Further analysis of photographs taken during the site visit may reveal more concerning the floristic aspects, in due course.
- 3.10 According to members of the local community at Penembe, the widening of the access road had damaged some of their cultivation areas. They had otherwise not detected any direct impacts on water quality or other environmental values. During the period of operations they were subject to the noise of drilling machinery (without knowing what it was - see below) both by day and by night.
- 3.11 It would appear that the generic consent for prospecting in the Zambezi Onshore block remains in effect, but it is presumed that after expiry of the specific contract in January 2009, a new contract would be required for new activity. The Mission understood that a "Phase II" exploration was due to begin sometime later in 2009, to consist not of drilling but surface-based testing from a mobile seismic unit. No details were available on where, when or how this was due to take place. There was one anecdotal reference to concerns on the part of villagers about potential effects of the vibrations on their dwellings, but no other information on impacts of this. According to the Sofala Provincial Director for Coordination of Environmental Affairs, the seismic phase would require a new separate EIA (but see comments in 5.3 below). Subsequent information suggests that in fact Phase II may now not be going ahead after all.
- 3.12 Should oil and/or gas be discovered in the area, of course, potential impacts associated with actual exploitation/extraction would raise a range of additional

concerns in relation to the ecological character of the Ramsar Site and/or wetland interests more generally. This aspect however remains theoretical at the time of writing, and has not formed any part of the scope of the Advisory Mission.

- 3.13 The Marromeu case sits in a topical context of recently escalating concern at international level about trends in potential threats from mineral developments affecting wetlands. The expansion of Asian markets, rising commodity prices, new extraction technologies and the opening up of areas that were previously politically unstable have caused significant changes in the global distribution of activity. Among other things there has also been tendency towards acceleration of the planning cycle from survey to development, putting great pressure on impact assessment and other regulatory processes.
- 3.14 Increasing cases of concern affecting Ramsar Sites in Latin America and Africa, in particular, caused the issue to be reviewed at various Ramsar meetings including the African regional meeting in Cameroon in November 2007, and at the 10th meeting of the Conference of Parties (COP10) in the Republic of Korea in November the following year. A technical paper on “Economic trends in the mining sector and implications for the protection and wise use of wetlands” was presented to COP10 (Doc. 24), and the Conference adopted Resolution X.26 on “Wetlands and extractive industries” which urged Parties to observe a range of precautionary policy attitudes and good practices.
- 3.15 The Ramsar Scientific & Technical Review Panel (STRP) in its 2009-2012 work programme has a task to review available technical guidance on assessing, avoiding, minimising and mitigating the direct and indirect impacts of extractive industries on wetlands, and to recommend new guidance if necessary. During 2009 the Panel, in collaboration with the AEWA Technical Committee, is further reviewing technological, economic and political drivers, and is investigating methods for overlaying geological resource maps with wetland vulnerability assessments at different scales as an aid to prioritisation of national efforts. There may be scope for Marromeu to feature as a “ground-truthing” case example for some of this work, and a recommendation on this is made below.

4. Implementation of Article 3.2 of the Convention, and the Montreux Record

- 4.1 Article 3.2 of the Ramsar Convention provides that “each Contracting Party shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organisation or government responsible for the continuing bureau duties specified in Article 8 [ie the Ramsar Secretariat]”.
- 4.2 By contrast to some other provisions in the Convention, this is a strict and unqualified requirement. A key part of its force is that it envisages a “real time” or “as it happens” communication system, so that responses to specific issues can be prompt and effective. The concept is one of an action tool, rather than merely

a documentation tool. The phrase “without delay” is critical to this (and yet it has unfortunately tended to be extremely poorly observed by most Parties).

- 4.3 A number of decisions have been adopted and guidance and information texts developed relating to the implementation of Article 3.2. These include the following:
- Resolution VIII.8 (2002): Assessing and reporting the status and trends of wetlands, and the implementation of Article 3.2 of the Convention;
 - Resolution IX.1 Annex A (2005): A conceptual framework for the wise use of wetlands and the maintenance of their ecological character;
 - Resolution XI.1 Annex E (2005): The Ramsar integrated framework for wetland inventory, assessment and monitoring (IF-WIAM);
 - Ramsar Handbook 15 (3rd edition, 2006): Addressing change in the ecological character of Ramsar Sites and other wetlands;
 - Resolution IX.6: (2005): Guidance for addressing Ramsar Sites or parts of Sites which no longer meet the criteria for designation;
 - Resolution X.15 (2008): Describing the ecological character of wetlands, and data needs and formats for core inventory: harmonized scientific and technical guidance;
 - Resolution X.16 (2008): A framework for processes of detecting, reporting and responding to change in wetland ecological character;
 - Document COP10 Doc 27 (2008): Background and rationale to the framework for processes of detecting, reporting and responding to change in wetland ecological character.
- 4.4 The importance of addressing change in wetland ecological character is related to the fact that under the Convention there is an objective of maintaining this character. The (revised) definition of “change in ecological character” is contained in paragraph 19 of Resolution IX.1 Annex A, and reads as follows: “For the purposes of implementation of Article 3.2, change in ecological character is the human-induced adverse alteration of any ecosystem component, process, and/or ecosystem benefit/service.”
- 4.5 No format has been prescribed for the reports to be submitted under Article 3.2. In practice they have taken a wide variety of forms. Legally the requirement is simply that information should be passed without delay. In principle this could be achieved by means of any kind of message from the relevant authority (acting on behalf of the Contracting Party) to the Convention Secretariat, provided that the communication is stated formally to be for the purposes of the Article. The emphasis is on triggering awareness and dialogue, rather than on in-depth analysis.
- 4.6 Consideration has however been given to achieving some measure of consistency in this, and providing prompts as to the kind of information which will give a minimum of necessary intelligence to allow the issues to be documented, understood and (if appropriate) acted upon. In Ramsar COP Resolution X.15 the Parties agreed a format of information fields for describing the ecological character of wetlands, and this has been designed in such a way that when completed as a baseline statement for any given Ramsar Site, the section of the table which invites information on “change/likely change” can subsequently be

- completed in the event of change or likely change being detected, and the form itself with this information included can then simply be submitted to the Secretariat as the requisite report in fulfilment of Article 3.2.
- 4.7 As well as the individual Article 3.2 reports that are provided immediately on each occasion, information on changes or likely changes in the ecological character of Ramsar Sites is an important element of the periodic National Reports provided by Parties for each COP; and this was emphasised in Resolution VIII.8.
- 4.8 Part of the purpose of this is to ensure that the COP has the opportunity to reflect collectively on relevant cases. In respect of individual Article 3.2 reports too, under Article 8.2 the Secretariat has the function of forwarding 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”. Under Article 6.2 the COP is empowered to consider Article 3.2 information and to make “general or specific” recommendations to Parties, and the Secretariat in turn has a mandate (under Article 8.2) 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.”
- 4.9 Clearly therefore, as well as Article 3.2 reports providing important tracking data on the status of Ramsar Sites, and acting as a trigger for potential problem-solving assistance arranged through Ramsar channels (including the Ramsar Advisory Mission system), a further important purpose is for the COP to be able to safeguard its collective interest in observing equitable compliance with the Convention. This reflects the fact that although Parties retain exclusive sovereign rights over the Ramsar Sites in their territory (Article 2.3), at the same time these sites are part of a global network, and the significance they represent is a shared concern of the global community of all Parties acting together.
- 4.10 These provisions have been explained in some depth here so as to support a full understanding and operation of Article 3.2 in Mozambique. In the present case, although the first relevant consent relating to oil and gas exploration activities in the Marromeu Complex Ramsar Site apparently dates from November 2006, no Article 3.2 notification was provided by the Government of Mozambique, and the present Mission was triggered instead (albeit at the invitation of the Government) by information received from a third party. Neither was there any mention of the issue in the national report from Mozambique to COP10. In future instances it is to be hoped that prompt reporting by the Government would take place; and a recommendation on this is given below.
- 4.11 The Montreux Record is a register of Ramsar Sites where changes in ecological character have occurred, are occurring or are likely to occur, and was established in 1990 by COP Recommendation 4.8. It is maintained by the Ramsar Secretariat in consultation with the Contracting Party concerned.
- 4.12 The question has been raised as to whether the Marromeu Complex should be added to the Montreux Record. The Record helps to bring attention to challenges faced by Contracting Parties in maintaining the ecological character of their Ramsar Sites, and is primarily designed as a problem-solving tool. (At times in

the past it has unfortunately been seen in a negative light; but in fact is a potentially very positive form of assistance to Parties - see Ramsar Resolution VIII.8 - and many have used it in this way).

- 4.13 One of the actions that can result from listing on the Record is the initiation of a Ramsar Advisory Mission, in order to gather facts and make recommendations with the benefit of specially commissioned experts and an international perspective. In the present case, a Mission has been activated without first listing on the Montreux Record, and so this potential benefit of listing would no longer be a reason for doing so. There are other possible benefits that a country might perceive from listing on the Record in a given case, even where a Mission has already take place. In the present case however there has not been any suggestion that this would serve an important purpose, so it is not felt necessary to go into these arguments and the Mission consequently makes no recommendation in this regard.

5. Environmental and social impact assessment issues

- 5.1 The Ramsar Secretariat and the Mission Team were informed that an Environmental Impact Assessment was undertaken by the consultancy firm Impacto Ltd and the draft Statement was submitted to the government authorities in April 2008. Public consultations took place, both by meeting and by written submissions, and the main Assessment was approved (as is required) in August 2008; while some additional matters were the subject of supplementary work.
- 5.2 The Mission was somewhat handicapped by not having sight of the EIA, except for a brief perusal one evening of a single paper copy (in Portuguese), minus its Appendices. One Appendix in particular contained the report on consultations, and would have been valuable in revealing the arguments deployed by objectors and stakeholders. A copy was requested but at the time of writing has not yet been seen by the Team. The Mission report therefore is unable to go into many of the issues of impact prediction and assessment that it might otherwise have covered.
- 5.3 The scope and specificity of the EIA are not fully clear, as conflicting information was received as to whether it was specific to the proposed consent for the one drilling site/work camp/road development, or whether it related also to the wider block licence application. This means there is also ambiguity as to whether further drilling at different sites within in the already consented block would require new EIAs or not. According to the Provincial COA Director, any "Phase II" seismic survey work at least will require a separate EIA, but the timing of this was not made clear. Other sources however advised that the "separate assessment" is not actually a new EIA, but instead consists of a set of basic checks against some simple sensitivity criteria defined in the original Assessment (and against a sensitivity map, which appears to be absent in the present case).
- 5.4 The sequence of events relating to the EIA process is also not clear, since on the one hand the Mission was told that consents are conditional on the approval of an EIA and on the mitigation measures specified within it; but on the other hand, as is clear from the chronology described in section 3 above, at least two steps in

- the consenting process for this case took place before the EIA was even submitted.
- 5.5 The EIA makes reference to a curious provision in national law that in the event of a conflict between environmental objectives and petroleum development objectives, the latter may take precedence; but although this remains in effect, a subsequent instrument provides that such cases be resolved by the Ministers of Tourism, Environment and Energy collectively reaching agreement on which course of action best serves the national interest. For the avoidance of doubt it should be clearly understood that Mozambique's adherence to the Ramsar Convention is a strong source of legal and policy imperatives for wetland conservation to constitute such a national interest. (And while beyond the scope of the present report, Article 2.5 of the Convention, concerning "urgent national interests", may be relevant to this issue in future cases).
- 5.6 Impacto's EIA covers some social issues as well as impacts on the physical environment. The Mission was not able to study these; but the field visit on 19 August allowed fruitful discussions with the communities of Nyambatica and Penembe. The latter, who are most closely associated with the relevant area, expressed a number of concerns. They had been contacted by drill site operators prior to the start of operations, but their experience of this contact, as related to the Mission Team, was of a failure of the operators to answer questions or to keep to undertakings.
- 5.7 Villagers' requests to visit the drill site, and their complaints about damage to their fields, were seemingly brushed aside. Despite indications that they would gain employment from the project, no-one in the community did so: labour instead was hired from the town of Inhaminga. (The obstacle to villager employment was said to be the operators' insistence that anyone wanting a job should first pay a fee).
- 5.8 Only late in the Mission's discussions with the communities did it emerge that even nine months after cessation of operations, according to them, they had still not received any explanation of the nature of the project. Conjecture about potential impacts of oil extraction was therefore not an issue, since oil had not been mentioned. Such conjecture as did occur however could have caused even more concern, since one of their theories about the work was that it related to military activities.
- 5.9 Consultation at this local level therefore appears to have been deficient, and the community's overriding plea was for proper engagement on any future occasion. Significantly also the community itself stressed the need for careful assessment of potential impacts on flora and fauna - naturally enough, since these are the basis of their livelihood.
- 5.10 The Mission Team asked about post-project monitoring of impacts and environmental recovery, and were told that no provision for this had been made in either the EIA-based operational plan for the works or in any conditions applied to consents and licences.

6. Mitigation and compensation issues

- 6.1 According to MICOA, mitigation measures and operating conditions applied to prospecting consents are defined simply by blanket cross-reference to the descriptions of these set out in the EIA. If the package of measures in the draft Assessment when it is submitted is deemed to be insufficient, iterative re-drafting can take place to arrive at agreement on these measures before the EIA as a whole is approved.
- 6.2 For the same reasons as explained above in relation to the EIA as a whole, it was not possible for the Mission Team to study and form a view on the adequacy or otherwise of the conditions and mitigation measures: all that can be said is that this aspect did appear to have received reasonably extensive treatment in the EIA.
- 6.3 One potential concern however is that it did not appear that there were any mitigation arrangements for remediation of the site (apart from removal of infrastructure etc), in respect for example of replanting of vegetation. This would still be worth considering *post-hoc*, and a recommendation is accordingly made on this below.
- 6.4 No information was available on whether any provisions had been agreed for compensation, either in ecological terms for damage to ecological values in the Ramsar Site, or in socioeconomic terms for the damage to agricultural land referred to by the Penembe villagers.

7. A management plan for the Ramsar Site

- 7.1 The Mission is indebted to Carlos Bento (of Eduardo Mondlane University, Maputo and the Mozambique Museum of Natural History) and his co-authors (Richard Beilfuss of ICF and Patrocínio da Silva of ZVPA) for the thoughtful presentation given on 17 August on “The management plan process for the Zambezi Delta, Mozambique”. (In practice the proposed plan relates to the Marrromeu Complex Ramsar Site area specifically; ie in effect to the southern portion of the delta, south of the main Zambezi River channel. The Mission was told however that the undesignated northern half may be of equal importance for conservation).
- 7.2 Those concerned with the Plan are to be commended on this important work. The process of drafting the Plan has included consultations at community and district level. The provincial level was being addressed at the time of the Mission visit, and the draft was then due to be taken to central government level at the end of August 2009. The schedule of stages after this is not yet clear at the time of writing. No cross-relationship has yet been established with the content of District land use plans.
- 7.3 Ramsar Convention Parties have adopted guidelines on site management planning, most recently updated in Resolution VIII.14 and presented more fully in Ramsar Wise Use Handbook 16 (3rd edition, 2007); and it may be helpful for the

authors of the Marromeu plan to indicate clearly how these have been taken into account in the drafting process.

- 7.4 The draft Plan includes poverty alleviation objectives as well as ecosystem conservation objectives. It addresses the economic importance of wetland resource-based activities: the most significant are prawn cultivation, fishing and agriculture; while safari hunting and sugar production are also important.
- 7.5 It was noted that two areas within the Ramsar Site (but outside the buffalo reserve and the hunting concessions) have no mechanism in place as yet for applying any official management or protection measures; and it is for consideration whether or not the authorities are currently able to apply the full listed site provisions of the Convention in these areas.
- 7.6 The Plan includes a summary of 17 different types of threats recorded as relevant for the site. Their relative seriousness and imminence was not indicated in the summary presentation seen by the Mission, and information on this has been requested. It is known however that local stakeholders view potential effects of oil and gas developments as the most serious category. Further engineering alterations to the Zambezi river channel (for which there is already some history) are also a high priority issue, and this was also discussed briefly during the Mission's round-table meeting with stakeholders.
- 7.7 In response to the listed pressures, the Plan proposes a number of "strategies" (ie actions and recommendations) to deal with the main threat categories. It would appear to be crucial for these to be finalised and adopted and for their policy/legal status to be made clear to all concerned. A recommendation on this is given below.

8. Other issues

- 8.1 At the time of writing, Mozambique has only the single Ramsar Site (Marromeu Complex), which was designated at the time the country joined the Convention in 2004. The country however clearly has huge wetland wealth elsewhere too, and other areas are likely to qualify as Wetlands of International Importance under the Ramsar criteria. Three have already been confirmed as doing so in the publication "Important Bird Areas and potential Ramsar Sites in Africa" (BirdLife International, 2002).
- 8.2 This issue was discussed during the Mission. In fact it was already known that preparations for designation of an area of Mozambique's portion of Lake Niassa were well advanced, and advice and encouragement was provided during the Mission on the remaining steps for this, taking account of consultation procedures and the timing considerations relating to, among other things, elections in the autumn of 2009 and the occasion of World Wetlands Day in February 2010. Other candidate areas were also briefly discussed, as well as requirements for inventory work to support further designations; and recommendations on all these matters are included below.

- 8.3 At various points the Mission also discussed issues relating to what is referred to under the Convention as CEPA (Communication, Education, Participation and Awareness). Particular opportunities were identified in relation to the Marromeu Management Plan, the Lake Niassa designation, World Wetlands Day and the tourism industry. In relation to the last of these it was noted that while national parks, natural reserves and hunting reserves are all given prominence in promotional literature, no mention of the existence of a Ramsar Site could be found. Recommendations on these issues are included below.
- 8.4 Finally, the Mission's discussions inevitably covered a range of challenges concerning capacity in Mozambique (human, financial, linguistic and practical) to implement various aspects of wetland conservation and wise use agendas in the country. The Government and other stakeholders were very positive about exploring creative ideas for optimising the opportunities in this regard. Some fruitful lines of action were identified, and recommendations again are given below to support pursuit of these.
- 8.5 It can be noted that international cooperation on these matters represents a fundamental benefit of participation in Multilateral Environmental Agreements such as the Ramsar Convention and the Convention on Migratory Species. As one immediate example, a plan has been drawn up by the Ramsar Secretariat for some further advice and facilitation support to be provided in Mozambique as follow-up to the present Mission. This is proposed to include:
- the holding of a capacity building workshop for Provincial and other Ramsar Focal Points in Mozambique, to support practical implementation of the Convention;
 - assisting the Government of Mozambique to develop a framework for conducting a Rapid Wetland Inventory, as a basis for possible designation of further Ramsar sites;
 - assisting the Government of Mozambique with a review of national policies and legislation, including recommendations on amending national laws as appropriate, with regard to models existing elsewhere (eg Rwanda);
 - reviewing the draft Management Plan for the Zambezi Delta (Marromeu component) by reference to adopted Ramsar guidelines on wetland management planning.

9. Recommendations

A. Oil & gas exploration at the Marromeu Complex Ramsar Site

1. Full post-project monitoring, with funding from the developer, should be undertaken of the long-term fulfilment of the EIA-based conditions attached to the “Phase I” drilling operation and (as applicable) to any “Phase II” seismic survey, and the results should be made available to all stakeholders.
2. Monitoring should pay particular attention to impacts on groundwater, vegetation and the socioeconomic interests of the relevant village communities. Revegetation should be monitored by reference to adequate baseline comparison surveys of the adjacent forest areas.
3. Explanations should be provided to the affected local communities, in particular the community of Penembe, concerning the nature of the oil and gas exploration operations that took place in their area in 2008; and of any “Phase II” seismic survey; and opportunities should be provided for their concerns and questions to be aired and addressed.
4. Any future evaluation and consultation processes concerning oil and as exploration or exploitation in the Marromeu Complex Ramsar Site should provide for adequate involvement of affected local communities, having regard to the Ramsar “Guidelines for establishing and strengthening local communities’ and indigenous people’s participation in the management of wetlands” (Resolution VII.8, 2009). It may also be possible to create opportunities, associated with developments which meet relevant environmental sustainability requirements and are duly authorised, to secure developer contributions to the establishment of necessary community infrastructure in some cases.
5. Conditions applied to future oil and gas exploration or exploitation in the Marromeu Complex Ramsar Site should include provisions as appropriate for compensation (at the developers’ expense), both in ecological terms for any damage to ecological values in the Ramsar Site, and in socioeconomic terms for any damage to the interests of affected local communities.
6. The Government of Mozambique is urged to observe closely the requirements of article 3.2 of the Ramsar Convention, as elaborated by guidance adopted by the Conference of Parties (eg Resolutions VIII.8 and X.16), and to submit information without delay to the Ramsar Secretariat in the event of any future change or likely change in the ecological character of the Marromeu Complex Ramsar Site (or of any other sites designated in future).

B. Minerals development and wetlands in Mozambique in general

7. Conditions (EIA-based or otherwise) applied to future minerals exploration or exploitation activities in or potentially affecting wetlands should where appropriate include provision for post-project rehabilitation (including planting) of any affected vegetation, and rehabilitation of any affected watercourses or other hydrological features, at the developer’s expense.

- 8.* The Government of Mozambique is urged to set a pioneering example of implementation of Ramsar COP Resolution X.26 on “Wetlands and extractive industries” (COP10, 2008), in particular paragraph 19 which “URGES Contracting Parties to, where necessary, review and revise regulatory and permitting procedures related to extractive industrial activities, in order to ensure that impacts on wetland ecosystems and their ecosystem services are avoided, remedied or mitigated as far as possible, and that any unavoidable impacts are sufficiently compensated for in accordance with any applicable national legislation”, taking into account the WWF study on “Strengthening the legal and institutional frameworks for oil and gas development in Mozambique” (C Serra, June 2008 draft, obtainable from WWF Mozambique), and applying as appropriate the guidance adopted in Ramsar Resolution VII.7 on “Guidelines for reviewing laws and institutions to promote the conservation and wise use of wetlands” (COP7, 1999).
9. Opportunities should be investigated by the Government of Mozambique, the World Wide Fund for Nature (WWF) and the Ramsar Scientific & Technical Review Panel (STRP) to use the Marromeu Complex oil & gas exploration example as a case study in the 2008-2012 STRP work programme task 2.3 on GIS-based assessment of vulnerability of wetlands to extractive industries impacts and review of relevant technical guidance needs; drawing as appropriate on current work by WWF in the Zambezi Delta and by MICOA on strategic environmental assessment of the coastal zone.

C. Other issues concerning the management of the Marromeu Complex Ramsar Site

- 10.* The Government of Mozambique and the authors and proponents of the draft Management Plan for the Marromeu Complex Ramsar Site are encouraged to bring the Plan to finalisation and formal adoption, taking account as appropriate of the Ramsar Convention’s site management planning guidelines, most recently updated in Resolution VIII.14 and presented more fully in Ramsar Wise Use Handbook 16 (3rd edition, 2007); and to seek all available opportunities to promote wide awareness of the Plan and its contents to stakeholders, potential implementation funders and the public at large.
11. Options should be explored for applying practical protection measures to the two zones of the Ramsar Site (the so-called “Buffer Zone” and the zone abutting the main Zambezi River) which are not covered by the measures applied by Reserve or Hunting Concession status in the remainder of the site.
12. Concerning the potential threat of dredging and canalisation of the main Zambezi River between Caia and Chinde, the Strategy on this issue contained in the draft (as at August 2009) of the Ramsar Site Management Plan should be adopted as policy at national, Provincial and District levels, namely to prohibit such operations if they are likely to have any of the effects listed in the Strategy.
13. All District Plans covering parts of the Ramsar Site should be harmonised with the Site Management Plan.

14. Opportunities should be sought, perhaps with a relevant University department, to undertake studies of the economic value of existing sustainable wetland- or resource-based activities in the Ramsar Site (tourism, hunting, prawn fisheries, other fisheries and subsistence agriculture).
15. The establishment of a “Marromeu Committee” of stakeholders relevant to the Ramsar Site should be finalised and put into operation as soon as possible.
16. Tourism and marketing literature and other materials relating to the Zambezi Delta, to protected areas in Mozambique and to biodiversity and ecosystem interests in the country in general should make specific and prominent reference to the existence, location and values of the Marromeu Complex and to any other (future) Ramsar Sites in the country. Recognition of the global importance of sites having Ramsar Site or World Heritage Site status is known to be a significant stimulus for a country’s international visibility and for generating positive tourism, if properly promoted.
- 17.* As urged in Ramsar Resolution VI.13 on “Submission of information on sites designated for the Ramsar List of Wetlands of International Importance” (COP6, 1996) in relation to Ramsar Information Sheets (RIS) which have been in existence for 6 years, the Government of Mozambique should submit a revised RIS for the Marromeu Complex Ramsar Site (original compiled July 2003; although Wetlands International website suggests that some data dates from 2006), updated to the extent necessary, enlisting the assistance of A Gaspar (the original compiler) and other qualified individuals and authorities as appropriate.

D. Wetland inventory, and designation of further Ramsar Sites

18. The Government of Mozambique is encouraged in its efforts to finalise the designation of the Lake Niassa Ramsar Site as soon as practicable, drawing as appropriate in the consultation process on lessons learned from the Marromeu designation experience (including those documented in the WWF project report “The Economic Value of the Zambezi Delta”, by E Guveya and C Sukume, November 2008), and making good use as appropriate of the opportunity for raising the profile of announcements which is presented by World Wetlands Day, 2 February 2010.
- 19.* The Government of Mozambique, WWF and others are encouraged to collaborate in the drawing up of a plan, including as necessary proposals for funding support from relevant sources, for undertaking an inventory of important wetlands in the country as a basis for identifying further Ramsar Site designations, having regard to Ramsar guidance on national wetland inventories and to the sites identified in the Mozambique chapter of the publication “Important Bird Areas and potential Ramsar Sites in Africa” (BirdLife International, 2002). In addition to the identified IBAs, attention should be given in particular to evaluating (among others, and listed in no particular order) the northern part of the Zambezi delta, the Rovuma Basin, Lake Urema and examples of the barrier lakes on the coast (Bilene was mentioned, but this site has seen substantial degradation in recent times and other examples may be better).

E. Capacity and awareness issues

20. Relevant sources (including perhaps the governments of Portugal and Brazil, and with support from WWF Mozambique) should be urged to provide support for translation of key Ramsar documents into Portuguese for use in Mozambique.
21. The Government of Mozambique should take steps to establish a multi-stakeholder National Wetlands Committee, drawing as necessary on advice from the Ramsar Secretariat and having regard to Ramsar COP Recommendation 5.7.
22. Proposals should be drawn up (to put to potential donors) for an experience-sharing and mutual support meeting on wetland conservation and wise use issues among Portuguese-speaking countries worldwide, involving potentially the Convention on Migratory Species and AEWA as well as Ramsar, and potentially to be hosted in Mozambique.
23. The Ministry for Coordination of Environmental Affairs in Mozambique (MICOA), in collaboration with WWF and others as appropriate, is encouraged to construct project proposals for submission to relevant potential funding sources both within the ambit of the Ramsar Convention (ie the Small Grants Fund and the Swiss Grant for Africa) and beyond (eg selected national governments) to support the implementation of the recommendations made in the present report and to support other priority areas of Ramsar Convention implementation in the country.

F. UNEP/CMS and UNEP/AEWA

24. The Government of Mozambique is urged to advance as soon as practicable towards accession to the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), with assistance as required from the UNEP/AEWA Secretariat (aewa@unep.de ; fax +49 228 815 2450 ; www.unep-aewa.org) This will help *inter alia* in strengthening application of international conservation standards, including for the conservation of the 132 AEWA-listed waterbird species occurring in Mozambique; and in gaining access to funding possibilities, training, technical support and information.

[Recommendations 20, 22 and 23 above should be read as applicable *mutatis mutandis* in relation to CMS/AEWA].

[Recommendations marked with an asterisk (*) are those for which an early opportunity for progress is being provided by the package of follow-up support from the Ramsar Secretariat mentioned in paragraph 8.5 above].

10. Conclusion

- 10.1 This Mission was of very limited scale, and since (as explained above) it did not have access to certain stakeholder groups, nor to much of the key documentation, its findings have not been able to go into technical detail on the issue that originally prompted it. On the other hand it was a hugely positive and fruitful occasion for collaborative diplomacy, clarification of a range of issues, relationship/confidence-building, profile-raising and creative thinking about Convention implementation generally in Mozambique.
- 10.2 A key focus is the series of recommendations in Section 9 above, which are designed to encourage and assist the Government of Mozambique and others with future courses of action. While Ramsar Advisory Mission reports are normally produced in one or more of the Convention's working languages (English, French or Spanish), possibilities will be explored (ie offers of support will be invited) to translate at least the recommendations, and ideally the full report, into Portuguese on this occasion.
- 10.3 Once again it is considered that the Ramsar Advisory Mission process has proved itself to be a highly cost-effective form of support for Contracting Parties. The RAM report is a key milestone in this process; but it is a means to achievement of tangible outcomes, and so dialogue and interactions on the matters it covers will continue after its publication. It is earnestly hoped that this will be of help to the Government and others involved with implementing the Convention in Mozambique. The Mission would not have been possible without the constructive efforts of a range of people and organisations; and they are all warmly thanked for their help and inputs (see Acknowledgements).

Acknowledgements

The Mission Team is extremely grateful to the Government of Mozambique for hosting this Mission, and to the Ministry for Coordination of Environmental Affairs (MICOA) for in-country coordination of arrangements.

Appreciation is extended to the Minister and Vice-Minister for COA, and all officials, NGO representatives, technical experts and community members who gave a warm welcome, valuable time and the benefit of their knowledge and expertise to the Mission's deliberations (see list in Annex C).

Special thanks are due to Rosa Cesaltina Benedito (Ramsar National Focal Point, MICOA) and Jose Chiburre (WWF Mozambique) for their logistical heroics and practical assistance on a multitude of fronts during the Team's brief whirlwind itinerary in Mozambique. Transport support from WWF Mozambique is gratefully acknowledged, and the various MICOA drivers are also warmly thanked.

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Annex A: Mission Team

The Mission Team in the field consisted of:

Mr Abou Bamba, Senior Advisor for Africa, Ramsar Secretariat;

Mr Dave Pritchard, Ramsar STRP and consultant to the Ramsar Secretariat (report editor); and

Mr Francisco Rilla, Information and Capacity Building Officer, Secretariat of the Convention on Migratory Species; and representative of the Secretariat of the African-Eurasian Waterbird Agreement (UNEP/AEWA).

In addition the Team was supported by Mr Paul Mafabi, Ramsar Administrative Authority for Uganda and former Chair of the Convention's Standing Committee.

Annex B: Mission programme

The main programme of the Mission was as follows:

- 16 August
 - Arrival of Team in Maputo
 - Meeting with Deputy Minister for Coordination of Environmental Affairs and Director of Environment, MICOA
- 17 August
 - Presentation and discussions on Marromeu Complex draft management plan, and round-table meeting with representatives of Ministries and other stakeholders
 - Travel to Beira
 - Dinner with WWF Mozambique and Provincial Director for COA
- 18 August
 - Meeting with Provincial Director for Coordination of Environmental Affairs, Sofala
 - Travel to Inhaminga
 - Meeting with District Administrator, Cheringoma
- 19 August
 - Travel to Marromeu Complex
 - Visit to drilling site
 - Meeting with community representatives, Nyambatica
 - Meeting with community representatives, Penembe
 - Return to Beira
 - Return to Maputo
- 20 August
 - Meeting with Minister for Coordination of Environmental Affairs
 - Lunch with acting Director, WWF Mozambique
 - Departure of Team from Mozambique

Annex C: Consultations undertaken

Individual meetings:

- Alcinda de Abreu, Minister for Coordination of Environmental Affairs
- Ana Paulo Samo Gudo Chichava, Deputy Minister for Coordination of Environmental Affairs
- Mauricio Xerinda, Provincial Director for Coordination of Environmental Affairs, Sofala Province
- Ricardo Guilande, District Administrator, Cheringoma District
- Brit Reichelt Zolho, Program Officer and Acting Director, WWF Mozambique

Advice and various inputs throughout:

- Rosa Cesaltina Benedito (Ramsar National Focal Point, MICOA)
- Jose Chiburre, WWF Project Coordinator, Beira office, WWF Mozambique

Attendees at the presentation and round-table meeting in Maputo, 17 August:

- Rogerio Wamusse, Director of Environment, MICOA-DNGA
- Carlos Bento, Mozambique Museum of Natural History/Eduardo Mondlane University, Maputo
- Paula Afonso, MPESCAS (Ministry of Fisheries)
- Oraca Cuambe, MITUR DNAC (Ministry of Tourism, Department for Conservation Areas)
- Pedro Pereira, MITUR DNAC (Ministry of Tourism, Department for Conservation Areas)
- Baltazar Nhanzito, MIREM-INP (National Institute of Petroleum, Ministry of Mineral Resources)
- Joao Maholola, DNJF
- Rui Mirira, IUCN Mozambique
- Sergio Bie, CDS-ZC (Centre for Sustainable Coastal Development)
(plus Zolho and Benedito, already listed above)

Community Chief and representatives, Nyambatica

Community Chief and representatives, Penembe

Melinda Chariere, local Ramsar focal point, Sofala Province

Annex D: List of acronyms

| | |
|---------|--|
| AEWA | Agreement on the Conservation of African-Eurasian Migratory Waterbirds |
| BANG | British American Natural Gas |
| CDS-ZC | Centre for Sustainable Coastal Development |
| CEPA | Communication, Education, Participation and Awareness |
| CMS | Convention on Migratory Species |
| COA | Coordination of Environmental Affairs |
| COP | Conference of the Contracting Parties |
| DNAC | National Department for Conservation Areas |
| DNGA | National Department for Environmental Management |
| DPCA | Provincial Department for Coordination of Environmental Affairs |
| EIA | Environmental Impact Assessment |
| ICF | International Crane Foundation |
| IUCN | International Union for Conservation of Nature |
| MICOA | Ministry for Coordination of Environmental Affairs |
| MINAG | Ministry of Agriculture |
| MIREM | Ministry of Mineral Resources |
| INP | National Institute of Petroleum |
| MITUR | Ministry of Tourism |
| MPESCAS | Ministry of Fisheries |
| RAM | Ramsar Advisory Mission |
| RIS | Ramsar Information Sheet |
| SEA | Strategic Environmental Assessment |
| STRP | Ramsar Scientific & Technical Review Panel |
| UEM | Universidade Eduardo Mondlane, Maputo |
| UNEP | United Nations Environment Programme |
| WWD | World Wetlands Day |
| WWF | World Wide Fund For Nature |
| ZVPA | Zambezi Valley Planning Authority |



Photo: Francisco Rilla