

EXTERNAL REVIEW OF THE PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED POPA FALLS HYDROPOWER PROJECT

Conducted independently by:

**Dr Peter J. Ashton
CSIR-Environmentek
P.O. Box 395
Pretoria
001
South Africa**



On behalf of
the Southern African Institute for Environmental Assessment

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This review is divided into the following sections:

1. Methodology utilized in compiling the PEIA report
2. Description of the project
3. Assessment of alternatives to the project
4. Description of the environment
5. Description of impacts
6. Consideration of measures to mitigate impacts
7. Non-technical summary
8. General approach

Review methodology:

1. For each question, the reviewer considers whether the information is relevant to the project. If not, the question is ignored and the reviewer proceeds to the following question.
2. If the information is relevant, that section of the PEIA report is read to establish whether the information provided is:
 - **Complete (C)** : all information required for decision-making is available. No additional information is required even though more information might exist.
 - **Acceptable (A)** : the information presented is incomplete, but the omissions do not prevent the decision-making process from proceeding
 - **Inadequate (I)** : the information presented contains major omissions. Additional information is necessary before the decision-making process can proceed.

Name of the project	Popa Falls Hydropower Project (Preliminary EIA)
Country where the project is to be located	Namibia
Name of company which compiled the PEIA report	EcoPlan
Name of reviewer	P.J. Ashton
Date of review	25-28 January 2004

Narrative report (reviewers general opinion of the PEIA report):

Overall, the PEIA Report for the Popa Falls Hydropower Project is of a good standard and, in the opinion of this reviewer, the Consultant has met the Terms of Reference issued by the Client for this work. Having said this, it is also the opinion of this reviewer that the Terms of Reference have been somewhat restrictive in nature and have only allowed the Consultant briefly and incompletely to consider the impacts that could be expected to occur downstream into Botswana. Against this background, the Consultant and the Project Proponent have at all times expressed their willingness to provide information to any party that requested this, and the study appears not to have experienced any undue political interference.

The general methodology and approach adopted and followed by the Consultant have been very thorough and professional, to the extent that this PEIA Report is of a higher standard than many full EIAs that have been produced elsewhere in southern Africa. The study team was well qualified and experienced in the specific fields of specialization deployed in this exercise, carrying out a considerable amount of fieldwork. However, much more emphasis and detail is needed for the social and socio-economic dimensions of the study. The Consultant is appropriately cautious in the interpretation of issues where insufficient information or data are available. The level of emphasis on ecological issues provided by this preliminary impact assessment is appropriate for this level of study.

Should the Project Proponent decide to proceed further with this project, a fully detailed EIA will be required. This must provide greater coverage of the legal and international dimensions related to the Okavango River and its international and "internationalized" nature. Due care will need to be taken to include appropriate 'international' stakeholders.



Peter John Ashton PhD
Principal Scientist & Divisional Fellow
CSIR-Environmentek
P.O. Box 395, Pretoria 0001
South Africa

Summary appraisal of the PEIA report (completed only after the detailed review has been done)

	Judgement (C/A/I)	Comments
1. Methodology utilized in compiling the PEIA report	C	<ul style="list-style-type: none"> The report provides a very good description of the approaches and methodologies used in undertaking the investigation. The report includes considerable additional detail on important issues that some stakeholders consider to be “controversial”, such as sediment sampling and sediment transport. The Consultant has clearly explained technical details and has highlighted specific areas where uncertainties exist, for example where there are inadequate or insufficient data to provide a definite opinion. The report includes information sourced from several published sources and project reports, though this review does not include all of the technical information that is available in reports and published papers. Information for the PEIA Report was also derived from field visits and discussions with stakeholders and technical specialists who have knowledge of the study area. The fieldwork and investigations conducted for the study exceed the requirements of the ToR and, in several (but not all) respects, exceeds the depth of study conducted for many full EIAs in southern Africa.
2. Description of the project	C	<ul style="list-style-type: none"> The technical report provides a very clear and detailed description of the proposed project that is sufficient for a reader to understand each component process and activity.
3. Assessment of possible alternatives to the project	C	<ul style="list-style-type: none"> The PEIA Report exceeded the requirements of the ToR by provided a very useful (and concise) strategic overview of potential alternatives and their implications. This has allowed the reader to develop a much better understanding of the range of potential issues at stake. Importantly, the Consultant has not made any value judgements as to the suitability or preference for specific alternative technical options that are available to the Project Proponent.
4. Description of the environment	C	<ul style="list-style-type: none"> Extensive (sufficient) information was provided on the characteristics of the local natural environment, as well as special features such as the central role of sediment transport processes in the ecological functioning of the Okavango River and Okavango Delta. The extensive fieldwork programme and specific technical studies conducted during this assignment has provided critical information for the technical team. The fieldwork enabled the technical specialists to identify specific shortcomings in information and data and allowed them to determine whether or not these data should be derived from alternative sources. The report has correctly identified the limitations of existing datasets and highlighted those specific areas where insufficient information is available; the report also contains appropriate (and clearly articulated) motivations as to how and why this information should be obtained in subsequent studies as part of the full EIA. A clear indication is given of the information gaps that exist and the implications of these information gaps for sound decision-making.
5. Description of impacts	C/A	<ul style="list-style-type: none"> The impacts identified by the technical specialists have been described in sufficient detail to allow the reader to understand the rationale behind the significance level assigned to each impact. This statement includes both social and ecological issues. Wherever appropriate, the Consultant has raised concerns regarding the need to additional information to support more thorough (technically sound) assessments of specific impacts and their role in decision-making. This is particularly evident in the issues related to sediment transport within the Okavango River

		<p>and the potential impact of each project option on natural sediment transportation processes, and their potential consequences for downstream (Okavango Delta) ecosystems.</p> <ul style="list-style-type: none"> • The international dimension has largely been glossed over, possibly as a result of the ToR being too narrowly confined. Since the Okavango River is both an international river and an “internationalized” river, there is clear and unequivocal need to consider the international and legal domains in detail. This is an essential component in light of the grave concerns expressed by downstream stakeholders in Botswana and whose interests were only partly gauged during public meetings held in Botswana. • It is clear from the detailed arguments presented by the Consultant that key areas of the investigation require considerably more work (in the form of additional technical studies) before certain potentially important and significant impacts can be regarded as unequivocally proven, and the appropriate mitigatory actions proposed.
6. Consideration of measures to mitigate impacts	C	<ul style="list-style-type: none"> • In view of the fact that this PEIA Report is a preliminary report that is designed to highlight important issues, knowledge and data gaps, potential “fatal flaws” and contentious issues that might require special consideration or re-configuration of the proposed development project, there is no specific requirement to provide specific details of mitigation measures. However, the report does provide some detail on various mitigation options that should be considered by the technical, economic and engineering teams and provides a series of recommendations based on professional experience and judgement. This is the correct professional approach in view of the fact that a full EIA will be required if the Project Proponent decides to proceed with this project. • As this is a Preliminary (PEIA) Report, it is not possible to assess and evaluate the full impacts or costs of potential mitigation options and actions.
7. Non-technical summary	C	<ul style="list-style-type: none"> • The report is well written in an easy to read and understandable style. The format and layout are professionally executed and the report contains appropriate diagrams and illustrations to clarify and illustrate specific points.
8. General approach	C	<ul style="list-style-type: none"> • In the opinion of this reviewer, this Preliminary Environmental Evaluation report is of very high standard and both its content and quality exceed the normal requirements of Namibian policy. As stated earlier, the standard of the report is better than many full EIAs produced in southern Africa and the Consultant should be commended for this. • It is the professional opinion of this reviewer that additional attention must be paid to the international and legal dimensions related to the transboundary nature of the Okavango River. Outside of the domain of this PEIA, it would appear that the overall process to include representatives of the other basin states has been minimal. It is important to remember that the final decision whether or not to proceed with the implementation of the Popa Falls Hydropower Project will be subject to international scrutiny and approval processes, both by the SADC Water Sector and by the other basin states (Angola and Botswana). • It is noticeable, similar to other studies carried out in Namibia, that the environmental consultant has been retained (sub-contracted) by the Engineering Consultants. This may be desirable from an administrative point of view but it is not desirable in terms of demonstrating unequivocally to the wider public that the Environmental Consultants are truly “independent”. Ideally, the Environmental Consultants should be contracted directly by the Client, and an appropriate plan of work prepared to ensure that they work as closely as possible with the Engineering Consultants. This would enhance external perceptions of the independence of the teams; this is particularly important in view of the international and legal dimensions.

The overall report is graded as follows: (tick or shade one box)

Excellent: The PEIA report contains everything required for decision-making on the project. There are no gaps.

Good: The PEIA report contains most of the information required as far as it is relevant in the particular circumstances of the project; any gaps are relatively minor or, where more extensive, will be / must be addressed in subsequent studies should the project go forward.

Satisfactory: The information presented is not complete; there are significant omissions but in the context of the proposed project, these are not so great as to prevent a decision being made on whether the project should be allowed to proceed.

Inadequate: Some of the information has been provided, but there are major omissions; in the context of the proposed project these must be addressed before a decision on whether the project should be allowed to proceed can be taken.

Poor: The information required has not been provided or is far from complete and, in the context of the proposed project, the omissions must be addressed before a decision on whether the project should be allowed to proceed can be taken.

In your opinion :

	Yes	Don't know	No
• Did the PEIA process include genuine public participation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Did the Proponent or the Authorities unduly influence the consultants?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Did the PEIA report focus on the 5 most important issues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Is the PEIA report of acceptable quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Will the PEIA report help to make a more informed decision about the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. METHODOLOGY		Relevant? Yes/No	Judgement (C/A/I)	Comments
1.1	Does the report clearly explain the methodology used and how these helped to reach the conclusions of the study?	Y	C	<ul style="list-style-type: none"> In general, the methodology used has been comprehensively and clearly described.
1.2	Does the report indicate what data are inadequate or absent?	Y	A	<ul style="list-style-type: none"> Information gaps are noted though little mention is made of the information gaps in the international and legal dimensions.
1.3	Did the PEIA process include genuine stakeholder consultation?	Y / N	A	<ul style="list-style-type: none"> There was very little attention paid to the international dimensions during the stakeholder consultation phase. In terms of local (Namibian) stakeholders, the consultation process was sound for a PEIA, even though very little participation took place.
1.4	If so, were the general public and/or affected communities included in the consultation?	Y	A	<ul style="list-style-type: none"> All Namibian stakeholder groupings were included, though formal in-depth consultations will be required in Namibia in the full EIA process. In addition, more attention must be paid to the views, issues and concerns of international stakeholders.
1.5	Have the views of stakeholders been meaningfully incorporated into the findings of the PEIA?	Y / N	A	<ul style="list-style-type: none"> The views of Namibian stakeholders have been meaningfully incorporated. Very little has been included of the views of international (e.g. SADC) and other basin states (Angola and Botswana).

2. DESCRIPTION OF THE PROJECT				
Land requirements		Relevant? Yes/No	Judgement (C/A/I)	Comments
2.1	Has the land required for the project and any associated services, been described and clearly shown on a scaled map?	Y	I	<ul style="list-style-type: none"> Five alternative sites have been evaluated in this preliminary study, and each evaluation included an estimation of the extent of land that will be inundated along the riverbanks and islands. However, the areas of inundation have not been displayed on a map and compared with existing land use patterns.
2.2	For a linear project, has the land corridor and need for earthworks been described and shown on a scaled map?	N	N/A	<ul style="list-style-type: none"> The proposed project is not linear, though it does comprise linear elements (e.g. the Rundu-Bagani powerline component). This will become an issue when the moiré detailed studies are conducted.
2.3	Has the re-instatement after use of temporary land takeovers been taken into account and properly described?	N	N/A	<ul style="list-style-type: none"> The project does not appear to include any elements of temporary take-over of land. However, it is likely that this would occur during construction phases and this issue would have to be dealt with in the detailed EIA studies.
Waste and emissions				
2.4	Have the types and quantities of waste generated during construction and operation been estimated?	N	N/A	<ul style="list-style-type: none"> It would have been impossible for the consultant to address this issue properly as a number of strategic decisions would have had to be made. This was not possible in a PEIA and can only

			be addressed properly in the full EIA.	
2.5	Have the ways in which these wastes will be handled or treated prior to disposal been explained?	N	N/A	<ul style="list-style-type: none"> • Same explanation as indicated above.
2.6	Has the receiving environment where such waste will be disposed, been identified and described?	N	N/A	<ul style="list-style-type: none"> • Same explanation as indicated above.
Project inputs				
2.7	Are the nature and quantities of materials needed during construction and operation, clearly indicated?	N	N/A	<ul style="list-style-type: none"> • Some indications were given as to the specific types of materials needed, but no quantities could be provided.
2.8	Are the sites where these materials will be sourced from, identified and assessed in terms of impacts, in the PEIA report?	N	N/A	<ul style="list-style-type: none"> • Same explanation as indicated above.
2.9	Have the impacts of workers and visitors entering the project site during construction and operation been assessed?	Y	A / I	<ul style="list-style-type: none"> • Some explanations were provided as to the risks posed by the possible spread of HIV and Aids during construction. Most attention was focused on the biophysical aspects and little attention was focused on social issues such as impacts on the social and economic fabric of nearby communities, incidence of crime, etc. These issues would have to be studied and evaluated during the full EIA study. • Importantly, this weakness is not considered to be serious since this is a preliminary study.
2.10	Have the means of transporting materials, products, workers and visitors to and from the site during construction and operation, been explained?	N/Y	A / I	<ul style="list-style-type: none"> • A few brief details were provided, but much more detail will be required from the full EIA study before these logistical issues can be assessed adequately.

3. ALTERNATIVES		Relevant? Yes/No	Judgement (C/A/I)	Comments
Alternatives				
3.1	Were alternatives to the project (including the “no-project” alternative) considered in the PEIA?	Y	C	<ul style="list-style-type: none"> • The study exceeded the requirements of the ToR by providing additional details of alternative project options. However, it is clear that additional alternative energy sources (e.g. solar) were not included in the study. • The report provides a good summary overview of the main energy source alternatives that could (and should) be considered. However, Namibia’s policy of seeking to become self sufficient in internal energy sources has not been reviewed or evaluated. This underpins any decision to proceed with the Popa Falls Hydropower Project and needs to be evaluated against regional trends of co-operation and security.
3.2	If alternatives were considered, are the reasons for selecting the proposed project adequately described?	N	N/A	<ul style="list-style-type: none"> • It appears that NamPower are responsible for conducting a thorough review of alternatives, some of which are at an early stage of evaluation. As a result, inadequate information was

			<p>available to the PEIA study team and all possible alternatives could not be considered at an appropriate level of detail.</p> <ul style="list-style-type: none"> It is important (particularly from the international strategic dimension) that all alternatives are properly evaluated in the full EIA study. 	
3.3	Does the PEIA assess various “within-project” alternatives (e.g. design, location)	Y	C	<ul style="list-style-type: none"> Yes, and very thoroughly so. This aspect is a welcome “strength” of this PEIA Report and adds considerable value to the information provided. However, the conclusions are of necessity relatively vague because additional information is still required to complete this analysis.

4. DESCRIPTION OF THE ENVIRONMENT		Relevant? Yes/No	Judgement (C/A/I)	Comments
4.1	Have the areas expected to be significantly affected by the various aspects of the project been indicated with the aid of suitable maps?	Y	A	<ul style="list-style-type: none"> The maps in the report show only broad details of the landscape and river channel. Maps were provided to show the extent of inundation anticipated at each site. Given that this study is a preliminary one, much more detail will be required in the full EIA. Additional information is also required to show clearly the extent of human habitation and current landuse patterns.
4.2	Have the land uses on the project site(s) and in the surrounding areas been described and their use and non-use values adequately assessed?	Y	A	<ul style="list-style-type: none"> This has been described in broad terms only, with very little detail of any specifics. Again, much more detail will be required in the full EIA study, including specific details of landuse patterns along the Okavango Panhandle and Okavango Delta sections in Botswana, as well as the Mahango Reserve and other nearby conservation and tourism areas in Namibia.
4.3	Have the ecological components of the environment likely to be affected by the project been identified and described sufficiently for the prediction of impacts?	Y	C/A	<ul style="list-style-type: none"> This section of the report represents a particular strength of the study team and provides an excellent description of the immediate project area. The study team was well suited and qualified for their tasks and this is reflected in the quality of the information provided. Once again, the report clearly indicates that much more work will be required during the full EIA stage of the project. In particular, at a local level, more attention needs to be paid to understanding the implications of loss, damage or alteration to the island ecosystems, as well as to ecological processes and their functions in the main river. Importantly, this will entail more insightful study than lists of species present or absent.
4.4	Have the social components (including archaeological and historical) of the environment likely to be affected by the project been identified and described sufficiently for the prediction of impacts?	Y	A/I	<ul style="list-style-type: none"> The social component of the PEIA Report is weaker than the ecological sections. It is important to remember that social and socio-economic issues, as well as resource economic issues, have been highlighted as being of considerable importance and

			<p>significance in all instances where dams or impoundments are constructed on river systems. This issue is particularly important in relation to the international and legal dimensions.</p> <ul style="list-style-type: none"> • These issues will need to be covered in much greater depth during the full EIA study; the level of their coverage in this report is considered to be adequate for a PEIA.
4.5 Has the PEIA adequately consulted the latest literature and/or unpublished reports and/or data relevant to the study?	Y / N	A	<ul style="list-style-type: none"> • The report provides a good synthesis of much of the available literature and both published and unpublished information. • However, it is clear that some important study reports have been omitted. Some of these would have provided very useful information on social issues as well as the prevailing international and legal dimensions.
4.6 Have local, regional and national plans and policies been reviewed in order to place the project into context?	Y / N	A / I	<ul style="list-style-type: none"> • In general, the amount of environmental information presented in the PEIA is adequate, but it is clear that the focus has been confined largely to the immediate project area within Namibia. • More attention needs to be paid to regional (SADC) information, including bilateral and multilateral policies and treaties, in the energy, environment, tourism, water and co-operative governance arenas. It will be important to ensure that these issues are properly covered in the full EIA report. • Additional information is also needed to substantiate the apparent decision to postpone powerline linkages / extensions / enlargements from Rundu-Bagani to Katima Mulilo, even though the escalating demand for power in the Katima Mulilo region was mentioned early in the technical report as a contributing reason to the decision to consider the Popa Falls Hydropower Project. • A purely sectoral approach, with a focus on Namibian issues alone, will not suffice for the full EIA and will invite considerable criticism from neighbouring countries as well as other SADC countries. This is particularly important given Namibia's strategic involvement in OKACOM and other SADC instruments that promote a basin-wide approach.

5. DESCRIPTION OF IMPACTS	Relevant? Yes/No	Judgement (C/A/I)	Comments
<i>Impact Identification</i>			
5.1 Have direct and indirect/ secondary impacts of constructing, operating and, where relevant, after use or decommissioning of the project been clearly explained (including both positive and negative effects)?	Y	C	<ul style="list-style-type: none"> • The level of detail provided on direct impacts is entirely adequate for a PEIA Report; some additional information would have been useful in relation to anticipated indirect and secondary ("knock-on") impacts. However, this information could only have been provided against the background a more

			detailed social study and additional information on the legal and international dimensions. It is important to understand that, in the case of the Okavango River, it is not sufficient to focus only on elements of Namibian policies and laws.	
5.2	Is the investigation of each type of impact appropriate to its importance for the decision, avoiding unnecessary information and concentrating mainly on the 5 key issues?	Y	C	<ul style="list-style-type: none"> The report provides a very good example of a focused approach on the key issues, especially ecological issues such as sediment transport Additional information on downstream effects and social impacts will be required from the full EIA study.
5.3	Are cumulative impacts considered?	Y/N	A/I	<ul style="list-style-type: none"> Cumulative impacts that can be directly attributed to the construction and operation of the Popa Falls Hydropower project are not explicitly considered in any detail in the PEIA Report, though they are mentioned as part of the sediment transport studies and impacts on ecosystem components. Other types of cumulative impacts that could arise as a result of possible expansions to the local agricultural sector are mentioned in passing. These will need to be carefully detailed in the full EIA study. Inevitably, consideration would also have to be given to the likely cumulative impacts of other upstream developments that are planned for Namibia, as well as potential developments under consideration in Angola, and also the potential implications of climate change for the catchment hydrology and seasonal river flow patterns. It would be irresponsible if these were simply ignored and the Popa Falls Hydropower Project treated in isolation. Insufficient attention is paid to legal issues, including those linked to bilateral and multilateral agreements between Namibia and her neighbours.
5.4	Are transboundary impacts considered?	Y/N	A/I	<ul style="list-style-type: none"> In essence, virtually all of the significant impacts likely to arise as a result of the Popa Falls Hydropower Project will be transboundary in nature. This applies especially to interrupted flows of water and sediment and their subsequent impacts on ecological, social and economic activities downstream in Botswana. It will be crucially important that these impacts are very carefully evaluated in the full EIA study, because they have important international and legal dimensions.
5.5	Has consideration been given to impacts that might arise from non-standard operating conditions, (i.e. equipment failure or unusual environmental conditions such as flooding), accidents and emergencies? (i.e. risk	N	N/A	<ul style="list-style-type: none"> The general dimensions of the project suggest that risk of structural failure will be low, provided that the risks of seismic activity are properly understood. Since the project is to be located in an area that is close to a very active seismic area

assessment)			(the entire Okavango Delta system is very active), this issue needs to be confirmed properly. <ul style="list-style-type: none"> The risks of operational failure (e.g. of the turbines or the sluice gates) will be dealt with in detail in the full EIA report.
Magnitude and significance of Impacts			
5.6 Has the timescale over which the effects will occur been predicted such that it is clear whether impacts are short, medium or long term, temporary or permanent, reversible or irreversible?	Y	A	<ul style="list-style-type: none"> The report provides a very useful idea of the timescales over which many of the ecological impacts will be likely to occur. The Consultant has, however, acknowledged the need to conduct more detailed studies to properly identify and evaluate the social and economic impacts. This will occur during the full EIA study.
5.7 Does the PEIA give a clear indication of which impacts may be significant and which may not?	Y	A	<ul style="list-style-type: none"> The report provides a clear analysis of the relative significance of the different impacts that are anticipated to occur. Whilst only broad qualitative details are provided as to the scale(s) used to determine or set these significance ratings, they are appropriate for a PEIA Report. The summary table provides a very useful overview of the main impacts, their relative significance rating and the potential for mitigation. Additional information will be required to more precisely evaluate the significance and the acceptability of impacts, as well as the implications of impact mitigation actions. Many of the negative impacts will be local, whilst the positive impacts (benefits) are likely to be experienced at a wider (national) level. This will require careful evaluation of appropriate cost-benefit analyses.
5.8 Have the magnitude, location and duration of the impact been discussed in the context of the value, sensitivity and rarity of the resource or environment?	Y	A	<ul style="list-style-type: none"> This has been achieved for the ecological components, but has not been adequate for the social and economic components. This will need to be addressed very thoroughly in the EIA study. In particular, more attention will need to be paid to the role that natural resources play in the everyday lives of local residents.

6. MITIGATION	Relevant? Yes/No	Judgement (C/A/I)	Comments
Description of mitigation measures			
6.1 Has the mitigation of negative impacts been considered and, where feasible, have specific measures been proposed to address each impact?	Y	A	<ul style="list-style-type: none"> The mitigation measures proposed in this PEIA Report are largely provisional because more work is required to properly quantify the impacts and evaluate the extent to which mitigatory options would likely be successful. In essence, this can only be finalized once the final project location has been selected. Nevertheless, clear indications are given as to the most appropriate mitigatory measures that

			would be required to ensure uninterrupted flows of sediment; this is one of the most important environmental issues linked to this project.	
6.2	Is it clear to what extent the mitigation methods are likely to be effective?	Y	A	<ul style="list-style-type: none"> Because this is a PEIA Report, this issue would not strictly be required. Nevertheless, clear recommendations are made in the report as to specific issues (e.g. choice of most appropriate site, height of wall, operating rules for the turbines).
6.3	Has the PEIA report clearly explained what the costs of mitigation are likely to be, and compared these to the benefits (including the costs of non-mitigation)?	N	N/A	<ul style="list-style-type: none"> This level of detail can only be provided as part of the full EIA study.
6.4	Have details of how the mitigation will be implemented and function over the time span for which they are necessary, been presented?	N	N/A	<ul style="list-style-type: none"> Same comment as above.
Monitoring Proposals				
6.5	Has the EIA proposed practical monitoring arrangements to check the environmental impacts resulting from the implementation of the project and their conformity with the predictions made?	N	N/A	<ul style="list-style-type: none"> Same comment as above.
6.6	Has the EIA proposed Limits of Acceptable Change that the developer can use to track impacts and trigger management intervention?	N	N/A	<ul style="list-style-type: none"> Same comment as above.
Environmental Effects of Mitigation				
6.7	Have any adverse environmental effects of mitigation measures been investigated and described?	Y	A	<ul style="list-style-type: none"> In the case of sediment sluicing, the Consultant has highlighted the potential adverse impacts that could arise for downstream ecosystems components and the power delivery profile from the project. This was then supported with an additional / alternative proposal for sediment pumping, as an attempt to reduce downstream impacts and improve power generation performance. These issues will need to be examined in detail in the full EIA study.

7. NON-TECHNICAL SUMMARY		Relevant? Yes/No	Judgement (C/A/I)	Comments
7.1	Does the PEIA contain a brief but concise non-technical summary that clearly explains the project and the environment, the main issues and mitigation measures to be undertaken, and any remaining or residual impacts?	Y	C / A	<ul style="list-style-type: none"> The executive summary is concise, well written and easy to read by both specialist and non-technical persons alike. The main issues of concern are highlighted, described briefly in the text and in tabular form. The project rationale (purpose and need for the project) is clearly explained, though the issue of supplying apparently much-needed power to the demand center in Katima Mulilo is largely omitted. Some elements of the legal and international dimensions are

			<p>dealt with in passing and not in detail. Much more attention is required on these aspects.</p> <ul style="list-style-type: none"> • Photographs of specific points provide very useful information. 	
7.2	Does the summary include a brief explanation of the overall approach to the assessment?	Y	C	<ul style="list-style-type: none"> • The methodologies (and reasons for their use) in the PEIA are adequately described.
7.3	Does the summary provide an indication of the confidence that can be placed in the results?	Y	A	<ul style="list-style-type: none"> • Since this study was a PEIA, it could not be expected to provide results or findings with a high level of confidence in all cases. Nevertheless, the report presents well-articulated arguments for and against specific options, without judging the merits of each. • The report clearly indicates where insufficient data or information are available and recommends appropriate, specific actions to remedy these deficits. • Appropriate levels of confidence will only be available after the completion of a full EIA study.
7.4	Does the summary indicate whether the project is or is not environmentally acceptable	Y	A	<ul style="list-style-type: none"> • Since this was a PEIA, it cannot be expected to provide firm guidance as to whether or not the project is “environmentally acceptable”. Ultimately, this decision can only be made by decision-makers, in concert with all stakeholder groups, once clear evidence is available as to the full suite of social, ecological and economic costs and benefits is available. • To achieve this, the Consultant has recommended specific areas where additional detailed studies are required. • Despite these drawbacks, the report is very clear on some specific issues such as the inevitable loss of riparian land and island habitats due to inundation, though few details could be supplied as to the specific extent of these impacts and, more importantly, their environmental significance could not be evaluated from the information presented.

8. GENERAL APPROACH		Relevant? Yes/No	Judgement (C/A/I)	Comments
<i>Organization of the information</i>				
8.1	Is the information logically arranged in sections?	Y	C	<ul style="list-style-type: none"> • The report is well structured and the information is clearly laid out.
8.2	Is the location of the information identified in an index or table of contents?	Y	C	<ul style="list-style-type: none"> • The table of contents is appropriate, as are the lists of figures and illustrations
8.3	When information from external sources has been introduced, has a full reference to the source been included?	Y	A	<ul style="list-style-type: none"> • The references used are presented in a standard format. • Some additional references could have been obtained from the main Consultants (WTC and Lund Engineering), as well as from the Namibian Department of Water Affairs and the SADC Water Sector offices in Gaborone. In addition, several additional references are available on the structure and

			functioning of the Okavango Delta, as well as the local and regional political and legal dimensions. The full EIA study should take care to include these materials.	
Presentation of the information				
8.4	Has information and analysis been offered to support all conclusions drawn?	Y	A	<ul style="list-style-type: none"> Many of the conclusions can only be considered to be preliminary, since this is a PEIA study.
8.5	Has information and analysis been presented so as to be comprehensible to the non-specialist, using maps, tables and graphical material as appropriate?	Y	A	<ul style="list-style-type: none"> The report is well structured; the information is clearly presented and supported by appropriate illustrations.
8.6	Has superfluous information (i.e. information not needed for the decision) been avoided?	Y	A	<ul style="list-style-type: none"> The report is concisely written and makes appropriate use of appendices for data.
8.7	Have prominence and emphasis been given to severe adverse impacts, to substantial environmental benefits, and to controversial issues?	Y	A	<ul style="list-style-type: none"> The report has focused on most of the key issues. The full EIA will need to include the international and legal dimensions as well, since these are critically important.
8.8	Is the information objective?	Y	A	<ul style="list-style-type: none"> The information presented is presented objectively.