EXTERNAL PEER REVIEW

KRUISVALLEI HYDROPOWER FACILITY
SOCIALLY IMPACT ASSESSMENT REPORT

FREE STATE PROVINCE

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By

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## TABLE OF CONTENTS

1.1 INTRODUCTION .................................................................................................................. 1
1.2 EXPERIENCE WITH SOCIAL IMPACT ASSESSMENTS ....................................................... 1
1.3 TERMS OF REFERENCE AND APPROACH ........................................................................... 1
1.4 SECTION 1: INTRODUCTION (P1) .......................................................................................... 2
1.5 SECTION 2: METHODOLOGY AND APPROACH (P5) .............................................................. 3
1.6 SECTION 3: LEGISLATION AND POLICY REVIEW (P13) ...................................................... 4
1.7 SECTION 4: SOCIO-ECONOMIC PROFILE (P28) ................................................................. 4
1.8 SECTION 5: POTENTIAL SOCIAL CHARACTERISTICS OF HYDROELECTRIC POWER GENERATION PROJECTS (P42) ........................................................................ 5
1.9 SECTION 6: SOCIAL IMPACTS (P44) .................................................................................... 5
1.9.1 Section 6.1: Detailed Design and Construction Phase (p44) .............................................. 5
1.9.2 Section 6.2: Operation Phase (p57) .................................................................................. 7
1.9.3 Section 6.3: Cumulative Impacts (p62) ............................................................................. 8
1.9.4 Section 6.4, Decommissioning Phase (p66) ....................................................................... 9
1.9.5 Section 6.5, Assessment of Alternatives (p66) .................................................................. 9
1.9.6 Section 6.6, Assessment of Impacts for the No-go Option (p66) ........................................ 9
1.10 SECTION 7: CONCLUSIONS AND RECOMMENDATIONS (P68) ........................................ 10
1.11 FINDINGS AND RECOMMENDATIONS OF PEER REVIEW ................................................ 12
ANNEXURE A: CV ....................................................................................................................... 14
1.1 INTRODUCTION

Tony Barbour was appointed by Savannah Environmental to undertake an independent Peer Review of the Social Impact Assessment (SIA) Report prepared for the proposed Kruisvallei Hydroelectric Power Generation Scheme and associated infrastructure on the Ash River, between Clarens and Bethlehem, Free State Province.

This report contains the findings of the Peer Review of the SIA Report prepared by Savannah Environmental.

1.2 EXPERIENCE WITH SOCIAL IMPACT ASSESSMENTS

Tony Barbour has undertaken in the region of 220 SIA’s, including approximately 100 SIA’s for a renewable energy projects, including small hydropower schemes and wind and solar energy facilities. Tony is therefore familiar with the local socio-economic and social issues associated with small scale hydropower projects.

Tony has also undertaken a number of reviews of SIAs, including review of SIA for the N2 toll road through the Transkei, review of SIA for the Nuclear One programme, review of SIA for the N3 toll road Harrismith bypass, and review of SIA for proposed N1/N2 Winelands Tolling project. In addition he is the author of the Guidelines for undertaking SIA’s as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa. A copy of Tony Barbour’s CV is attached in Annexure A.

1.3 TERMS OF REFERENCE AND APPROACH

The terms of reference for the peer review were to review the SIA report prepared by Savannah Environmental. The approach to the review involved:

- A review of the approach adopted in preparing the assessment report;
- A review of the type and quality of information contained in the assessment report;
- A review of the key findings contained in the assessment report; and
- Assessment of conformance of the assessment report with the requirements of Appendix 6 of the 2014 EIA Regulations (GNR 326).
1.4 SECTION 1: INTRODUCTION (P1)

Introduction (p1)
The introduction provides the reader with the required information on the nature and location of the proposed. The section does not however include a location map indicating the regional location of the proposed project.

Recommendation:
A location map be included that provides the reader with an indication of the regional location, including location of nearest towns etc. In this regard Clarens is located approximately 13km south of the MK Generation Scheme and Bethlehem, located approximately 17km north of the LK Generation Scheme.

Section 1.1: Project background (p1)
Section is clear and concise and makes reference to the environmental assessment process that has been undertaken.

Section 1.2: Project description (p1)
Section is clear and concise and provides the reader with a good description of the proposed project. In this regard the section notes that the proposed project comprises the Middle Kruisvallei (MK) Hydroelectric Scheme, with a generation capacity of up to 2.5MW, and a development footprint approximately 20.4ha in extent; and the Lower Kruisvallei (MK) Hydroelectric Scheme. A clear description of the infrastructure associated with the MK and LK Hydroelectric Schemes is provided. The section also notes that a 16 km power line will be established linking up to an existing Eskom substation.

The section also indicates that the Kruisvallei Hydroelectric Power Generation Scheme will utilise water from the Ash River to generate electricity. The Ash River is fed by water from the Trans Caledon Tunnel which carries water from Lesotho, under the Maluti Mountains and Clarens, to the Ash River and forms part of the greater Lesotho Highlands Water Project (LHWP).

Recommendation:
A figure/map showing the reader the location of the various components (canals, inlet sill, power house, access roads etc.) should be included. The location of the power line route and Eskom substation should also be included on the figure/map.

A second, more detailed location map would also be of benefit, showing the location of the proposed project on the Ash River, and the location of the project relative to the Trans Caledon Tunnel.

Section 1.3: Specialist details (p2)
Section is clear and concise and provides the required information.

Section 1.4: Structure of the report (p3)
The section notes that the SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations (GNR 326). Table 1.1 (p3) lists the requirements as prescribed by Appendix 6 of the 2014 EIA Regulations (GNR 326).
1.5 SECTION 2: METHODOLOGY AND APPROACH (P5)

Section 2.1: Purpose of the Study (p5)
Section makes clear reference to the international principles that underpin SIAs and the purpose of SIAs.

Section 2.2: Approach to Study (p9)
The section provides a clear overview of the approach to the SIA. The approach also conforms to accepted best practice and includes:

- Collection and review of baseline socio-economic data and planning and policy documents;
- Meetings with key affected stakeholders;
- Identification and assessment of potential social impacts;
- Identification of potential mitigation measures;
- Preparation of a SIA Report and inputs into the Environmental Management Programme (EMPr).

The section does not make specific reference to the assessment methodology used. This is however provided in Section 2.3, Impact Assessment Evaluation Method. It would be worth noting that the assessment methodology is covered in Section 2.3.

Section 2.2.1: Stakeholder Identification and Analysis (p6)
The section lists the key stakeholders that are likely to be impacted by the proposed development. The stakeholders identified include, farming community, farming industry, local communities, service providers (local municipalities) and the tourism sector, specifically white river rafting operators. Based on the authors experience the list of stakeholders appears to be comprehensive.

Section 2.2.2: Collection and Review of Existing Information (p8)
The section provides a list of the data sources accessed and reviewed as part of the SIA. Based on the authors experience the list meets the requirements for SIAs.

Section 2.2.3: Collection of Primary data (p9)
The section notes that a site visit was undertaken from 20 – 21 November 2017. Interviews with key stakeholders were held during the site visit, including landowners and representatives from the white water rafting industry. Table 2.1 (p9) lists the stakeholders interviewed. Based on the authors experience it would appear that the majority of key stakeholders were interviewed as part of the SIA. However, it would appear that no meetings were held with representatives from the relevant services provider (local / district municipality). The SIA would benefit from input from the relevant service provider.

Section 2.3: Impact Assessment Evaluation Method (p10)
The section provides a clear and concise description of the assessment methodology adopted to assess the significance of social impacts associated with the proposed project.

Section 2.4: Limitations and Assumptions (p11)
The section provides a clear statement on the assumptions and limitations.
1.6 SECTION 3: LEGISLATION AND POLICY REVIEW (P13)

Section provides a sufficiently detailed summary of the relevant national, provincial and municipal (district and local) policy and planning documents that are relevant to the proposed project. The section meets the requirements for a BA Report.

However, as noted in the Dihlabeng Local Municipality Spatial Development Framework (SDF), tourism is a key sector in the area. In this regard reference is made to the Golden Gate Highlands National Park and Clarens/ Kgubetswana being referred to as the “Switzerland of South Africa”. The section notes that area has experienced rapid growth in the tourism industry in the past few years. The review of the Thabo Mofutsanyane District Municipality Spatial Development Framework (SDF) does not make any reference to tourism. Given the potential impact on wild water rafting, it would be important to ensure that any reference to and the role of tourism, specifically white water rafting, is included in the section.

1.7 SECTION 4: SOCIO-ECONOMIC PROFILE (P28)

**Section 4.1, 4.2 and 4.3: Provincial and municipal overview (p28, 29 and 30)**
Overview of the provincial, district and local context provides the required information at this level (Section 4.1, 4.2, and 4.3). Of relevance the section on the local municipality (4.3) notes that “he LM is also home to some of the best tourism centres and facilities in the Free State. These include cultural, heritage, water-related activities, hiking, fishing, abseiling, 4x4 trails, site seeing, bird and game watching, and shopping, to unspoilt landscapes”.

**Section 4.4: Baseline Description of the Social Environment**
Section 4.4 provides a detailed overview of the relevant socio-economic baseline conditions, including, Population Size (4.4.1), Population Group (4.4.2), Sex Profile (4.4.3), Age Profile (4.4.4), Dependency Ratio (4.4.5), Education Levels (4.4.6), Employment (4.4.7), Annual Household Income levels (4.4.8), Economic Activities (4.4.9), Health (4.4.11), Households (4.4.11) and Access to services (4.4.12). Section 4.4.13 (p38), Baseline summary, provides a good summary of the key socio-economic baseline conditions.

Of relevance Section 4.4.8, notes that 76.1% of household within the Thabo Mofutsanyane DM and 65.8% of households within the Dihlabeng LM fall within the low income bracket (poverty level).

The section on Economic Activities (4.4.9) does not make reference to tourism despite this being identified as a key sector. If possible, information on the tourism sector should be sourced and added to Section 4.4.9.

**Section 4.4.14: Socio-Economic Spin-Offs (p39)**
This section would be better suited to the discussion within the assessment section. Also, there is no comment on potential negative impacts, such as potential negative impact on tourism linked to white water rafting.

**Section 4.5: Land use character of proposed site and surrounding area (p39)**
The main focus of this section is on the agricultural land uses in the study area. There is no information on the tourism activities, specifically the white water rafting activities that take place on the Ash River and that would be affected by the proposed project. There are also no photographs illustrating the character of the area and the areas of the river that will be affected by the proposed development.
Recommendation
Photographs of the study area should be included in this section. This would provide the reader with a better understanding of the study area and its characteristics.

A section on the current white water rafting and other tourist activities in the area should also be included. This would include information on the number of tour operators that offer white water rafting, estimate of the number of people that use the river, time of the year when tours take place, number of staff employed by the tour operators etc. This is the information that will be required to assess the potential impact of the project on the white water rafting sector (see comments below).

1.8 SECTION 5: POTENTIAL SOCIAL CHARACTERISTICS OF HYDROELECTRIC POWER GENERATION PROJECTS (P42)

Section 5 provides useful summary of the environmental and social characteristics of smaller hydroelectric power projects (pertaining especially to run-of-river projects, such as the proposed Kruisvallei Hydroelectric Power Generation Scheme) based on a review of IFC’s Hydroelectric Power Guide for Developers and Investors document.

1.9 SECTION 6: SOCIAL IMPACTS (P44)

1.9.1 Section 6.1: Detailed Design and Construction Phase (p44)

The section correctly notes that the impacts associated with the detailed design and construction phase of a project are usually of a short duration, temporary in nature, but could have long-term effects on the surrounding social environment if not planned or managed appropriately. The section also notes that the duration of the construction phase is estimated at 18 months.

General Comment
With the exception of the impact on tourism activities all of the impacts under section 6.1.1 are typically associated with the construction phase. The impacts on tourism, specifically white water rafting would be associated with the operational phase.

Recommendation
Section 6.1.1.1, Impact on Tourism, should be moved to the assessment of impacts associated with the operational phase (Section 6.1.2). Also recommended that the heading of section 6.1.1 be changed to “Construction Impacts Associated with the Kruisvallei Hydroelectric Power Generation Scheme”.

Impacts on Tourism Activities (6.1.1.1, p44)¹
The section provides a clear description of the impacts, noting that white water rafting on the Ash River typically covers a distance of approximately 19km and includes 9 rapids which range from a Grade I to Grade IV rating. While some rapids have already been lost as a result of the previous development of other hydroelectric power projects along the Ash River, the development of the Kruisvallei Hydroelectric Power Generation Scheme will result in an additional loss of 3 of some of the larger rapids (including the “Long drop” and “Big Surprise” rapids). The section also notes that white water rafting is marketed as an “extreme” activity, and therefore relies largely on the ability of tour operators to offer

¹ As indicated, recommended that this section be moved to section 6.2.
clients an opportunity to go down large rapids of significant grading all year round, in contrast to some of the more mainstream white water rafting opportunities found elsewhere in South Africa.

The section also notes that the Ash River is also utilised as a training ground for local, and international slalom canoeists, and has hosted international slalom events; all of which have also been demonstrated to contribute towards the local tourism of the area (McKay, 2013; and Mr. Zwahlen, 08 January 2018). The development of the Kruisvallei Hydroelectric Power Generation Scheme would therefore negatively impact on the slalom canoeists which utilise the river, and could prevent future events from being hosted there, which would in turn result in the tourism and training benefits associated therewith being lost.

It is not clear from the section which rapids are important in terms of training for local and international slalom canoeists and that are used for events, including international slalom events.

Table 6.2, Impact on tourism activities (p45) assess the impact as Medium Negative, with no ability to be mitigated. This assessment rating is supported based on the information provided. However, as indicated below, additional information should be provided which may influence the significance. In this regard the probability may change to definite if ability for slalom training and hosting of events is impacted by the loss of key rapids.

**Recommendation**
The section should clearly indicate if the rapids that will be lost due to the scheme are important in terms of training for slalom canoeists and hosting of events. The section should also comment on the ability to host events if three large rapids are lost. The grading of these rapids should be provided and the section should also indicate if there are similar grades on the river that would not be lost i.e., does the loss represent the loss of a unique rapid in terms of grade category in the Ash River.

The section should also include information on the number of tour operators that offer white water rafting, estimate of the number of people that use the river, time of the year when tours take place, number of staff employed by the tour operators etc. This is the information required to assess the potential impact of the project on the white water rafting sector.

The above information is critical to the SIA. In this regard the SIA should provide information on the current contribution of the white water rafting industry to the local economy (jobs, number of visitors, where they stay etc.). In this regard the study by Tracey McKay in 2013 (“Report on Adventure Tourism and Adventure Sport on the Ash River, Clarens in response to the proposed Boston HEP station submission”) indicated that white water rafting operations exceed small-scale hydroelectric power generation schemes in terms of local job creation, income generation, and value add. The SIA should comment on this issue in more detail in order to effectively inform the decision making process.

**Direct and Indirect employment opportunities (6.1.1.2, p46)**
The section provides a clear description of the impacts. Table 6.3, (p47), assesses the impact as Medium Positive (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Economic multiplier effects (6.1.1.3, p47)**
The section provides a clear description of the impacts. Table 6.4 (p48), assesses the impact as Medium Positive (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.
**Influx of jobseekers and change in population (6.1.1.4, p49)**
The section provides a clear description of the impacts. Table 6.5, (p49), assesses the impact as Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Safety and security impacts (6.1.1.5, p50)**
The section provides a clear description of the impacts. Table 6.6, (p51), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Impacts on daily living and movement patterns (6.1.1.6, p51)**
The section provides a clear description of the impacts. Table 6.7, (p52), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Nuisance Impacts (noise & dust)(6.1.1.7, p52)**
The section provides a clear description of the impacts. Table 6.8, (p53), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Visual Impacts and Sense of Place Impacts (6.1.1.8, p53)**
The section provides a clear description of the impacts. Table 6.9, (p54), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Section 6.1.2, Impacts Associated with the Proposed Powerline (p54)**

**Powerline routing (6.1.2.1, p54)**
The section provides a clear description of the impacts. In this regard the section comments on the impact on crop spraying aircraft and the fragmentation of high potential agricultural land. The section also highlights the need for the proponents to liaise with the affected farmers. Table 6.10 (labelled as 6.1)(p55), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

**Visual Impacts and Sense of Place Impacts (6.1.2.2, p56)**
The section provides a clear description of the impacts. Table 6.11 (labelled as 6.9)(p56), assesses the impact as Medium Negative (with and without enhancement). This finding is largely supported. However, the Magnitude without mitigation is given as High (8). This should be reconsidered. The mitigation measures are also sufficiently detailed.

**1.9.2 Section 6.2: Operation Phase (p57)**

**Direct and Indirect employment opportunities (6.2.1.1, p57)**
The section provides a clear description of the impacts. Table 6.12 (labelled 6.10), (p57), assesses the impact as Medium Positive (with and without enhancement). Given the low number of jobs it is recommended that the Magnitude be changed to small (0), i.e. no impact/change. The significance ratings would therefore change to Low and Low. The mitigation measures are also sufficiently detailed.
Development of clean, renewable energy infrastructure (6.2.1.2, p58)
The section provides a clear description of the impacts. Table 6.12 (labelled 6.10), (p58), assesses the impact as Medium Positive (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

Contribution to Local Economic Development and Social Upliftment (6.2.1.3, p59)
The section provides a clear description of the impacts. Table 6.13 (labelled 6.12), (p59), assesses the impact as High Positive (with and without enhancement). It is recommended that the magnitude rating for without mitigation change to Moderate (6) and the significance rating would therefore be Medium. The reason for this is that the projects identified without proper consultation (mitigation) may not necessarily maximise the benefits to local communities. The mitigation measures are also sufficiently detailed.

Visual impact and sense of place impacts (6.2.1.4, p59)
The section provides a clear description of the impacts. Table 6.14 (labelled 6.13), (p60), assesses the impact as Medium and Low Negative (with and without enhancement). The section notes that “an impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light. The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of the Kruisvallei Hydroelectric Power Generation Scheme”.

The proposed project will therefore alter the local landscape. In addition, it will alter the characteristics of the Ash River in that 3 important rapids will be lost. It is therefore unlikely that the impact can be affectively mitigated by “good housekeeping”. It is therefore recommended that significance with mitigation also be regarded as Medium Negative as the probability will remain highly probable.

Section 6.2.2, Impacts associated with the Proposed Powerline (p60)

Damage to property as a result of maintenance activities (6.2.2.1, p60)
The section provides a clear description of the impacts. Table 6.15, (p61), assesses the impact as Medium and Low Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

Visual impact and sense of place impacts (6.2.2.2, p61)
The section provides a clear description of the impacts. Table 6.16 (labelled 6.14), (p62), assesses the impact as Medium Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

1.9.3 Section 6.3: Cumulative Impacts (p62)

Cumulative impact from employment, skills and business opportunities (6.3.1.1, p63)
The section notes that the Kruisvallei Hydroelectric Power Generation Scheme and the establishment of other hydro power plants within the area has the potential to result in significant positive cumulative impacts; specifically with regards to the creation of a number of socio-economic opportunities for the region, which in turn, can result in positive social benefits. In order to support this statement the section should identify and list the other hydropower projects in the area. Table 6.17 (labelled 6.16, (p63), assesses the impact as Medium Positive (with and without enhancement). This finding is supported given that the other hydropower projects referred to are identified. The mitigation measures are also sufficiently detailed.
**Cumulative impact with large scale in-migration of people (6.3.1.2, p63)**

The section provides a clear description of the impacts. Table 6.18 (labelled 6.17), (p64), assesses the impact as Medium Negative (with and without enhancement). This finding is not supported. Given the location of the projects and the limited number of employment opportunities associated with the operational phase the significance is likely to be Low Negative.

**Cumulative Impacts on Tourism Activities (6.3.1.3, p64)**

The section provides a clear description of the impacts. Table 6.19, (p64), assesses the impact as Medium Negative (with and without enhancement). This finding is supported. As indicated above, the report should clearly indicate if the rapids that will be lost due to the scheme are important in terms of training for slalom canoeists and hosting of events. The section should also comment on the ability to host events if three large rapids are lost. The grading of these rapids should be provided and the section should also indicate if there are similar grades on the river that would not be lost i.e, does the loss represent the loss of a unique rapid in terms of grade category in the Ash River, and how would this impact on attracting visitors to the area.

**Impacts associated with the Proposed Powerline (6.3.2, p65)**

**Cumulative impacts associated with powerline infrastructure (6.3.2.1, p65)**

The section provides a clear description of the impacts. Table 6.20 (labelled 6.18), (p65), assesses the impact as Medium Negative (with and without enhancement). This finding is supported. The mitigation measures are also sufficiently detailed.

1.9.4 Section 6.4, Decommissioning Phase (p66)

The section provides a clear description of the potential social impacts. The section also notes that the proposed facility the plant will be refurbished and upgraded to prolong its life. No decommissioning of the facility is proposed.

1.9.5 Section 6.5, Assessment of Alternatives (p66)

The section notes that no alternative sites or powerline routes have been identified for assessment. The final location of the proposed project on the proposed site and associated powerline route will be informed by technical considerations and inputs from the relevant specialist studies (including the SIA) being undertaken as part of the BA process.

1.9.6 Section 6.6, Assessment of Impacts for the No-go Option (p66)

The section lists the potential negative and positive impacts associated with the project and notes that the impacts of pursuing the no-go” alternative can be summarised as follows:

- The benefits would be that there is no disruption from, nuisance impacts (noise and dust during construction), visual impacts and safety and security impacts. The impact is therefore neutral.
- There would also be an opportunity loss in terms of job creation, skills development and associated economic business opportunities for the local economy.

The section concludes that the option of not developing the Kruisvallei Hydroelectric Power Generation Scheme would not compromise the development of renewable energy facilities in South Africa, however the socio-economic benefits for local communities would be forfeited.
Comment
The summary should also note that the “no-development” would result in no negative impact on white river rafting and the benefit to local tourism sector associated with white water rafting. Therefore while the no development option may result in certain benefits to the local community being forgone, this could be offset by the existing and future benefits associated with tourism and white water rafting. This should be added to the section.

In this regard the SIA does refer to a paper prepared by Tracey McKay in 2013 (“Report on Adventure Tourism and Adventure Sport on the Ash River, Clarens in response to the proposed Boston HEP station submission”), which indicated that white water rafting operations exceed small-scale hydroelectric power generation schemes in terms of local job creation, income generation, and value add.

1.10 SECTION 7: CONCLUSIONS AND RECOMMENDATIONS (P68)

A summary of the potential positive and negative impacts identified for the detailed design and construction, and operation phase are presented in Table 7.1 (p68) and Table 7.2 (p68). Table 7.3 (p69) provides a summary of the potential positive and negative cumulative social impacts. The Key findings are discussed under Section 7.1 (p69), followed by Recommendations 7.2 (p70), which includes an overall conclusion.

Comments: Table 7.1: Construction Phase
The significance ratings listed in Table 7.1 are supported by the findings of the review. However, as indicated above, it is recommended that the section on impacts on tourism should be moved to the operational phase and covered in Table 7.2. In addition, as noted above the SIA should indicate to what extent the loss of 3 large rapids will impact on the white water experience and the ability for slalom related activities and events.

Comments: Table 7.2: Operational Phase
The majority of the significance ratings listed in Table 7.2 are supported by the findings of the review. The following changes are recommended:

- Direct and indirect employment opportunities: Low Positive (without and with mitigation);
- Contribution to LED and Social Upliftment: Medium (without mitigation);

In addition, as indicated above, the section on impacts on tourism should be moved to the operational phase and covered in Table 7.2. The above comments apply.

Comments: Table 7.3: Cumulative Impacts
The majority of the significance ratings listed in Table 7.3 are supported by the findings of the review. The following changes are recommended:

- Cumulative impact with large scale in-migration: Low Negative (without and with mitigation). In this regard it should also be noted that the assessment of the impact of construction workers was rated as Low Negative. Given the limited employment opportunities during the construction phase, the impact is likely to be Low.
Comments: Section 7.1: Key Findings (p69)
The section on key findings makes no reference to the potential impact on white water rafting operations and the tourism associated with these activities. This information must be included in the discussion of key findings. As SIA notes:

- The Ash River is currently utilised by a number of tour operators for white water rafting;
- The Ash River is one of the only rivers in South Africa which provides year round rafting opportunities.
- Some rapids have already been lost as a result of the previous development of other hydroelectric power projects along the Ash River;
- The development of the Kruisvallei Hydroelectric Power Generation Scheme will result in an additional loss of 3 of some of the larger rapids;
- White water rafting on the Ash River tour operators to offer clients an opportunity to go down large rapids of significant grading all year round, in contrast to some of the more mainstream white water rafting opportunities found elsewhere in South Africa;
- The areas serene, natural, and rural nature of the area is also marketed to clients.
- The development of infrastructure such as powerhouses and concrete canals as part of the project will therefore negatively impact on the pristine scenic value of the area.
- The paper prepared by Tracey McKay in 2013 ("Report on Adventure Tourism and Adventure Sport on the Ash River, Clarens in response to the proposed Boston HEP station submission") indicated that white water rafting operations exceed small-scale hydroelectric power generation schemes in terms of local job creation, income generation, and value add.
- The Ash River is also utilised as a training ground for local, and international slalom canoeists, and has hosted international slalom events; all of which have also been demonstrated to contribute towards the local tourism of the area. The development of the Kruisvallei Hydroelectric Power Generation Scheme would therefore negatively impact on the slalom canoeists which utilise the river, and could prevent future events from being hosted there, which would in turn result in the tourism and training benefits associated therewith being lost.

The above information is critical to the SIA and must be included in the discussion of key findings. In this regard the SIA should provide information on the current contribution of the white water rafting industry to the local economy as recommended above. This information is required in order to compare the opportunity costs associated with developing the proposed hydropower projects. In this regard the study by Tracey McKay in 2013 indicated that white water rafting operations exceed small-scale hydroelectric power generation schemes in terms of local job creation, income generation, and value add. The SIA should comment on this issue in more detail in order to effectively inform the decision making process.

The inclusion of these comments should also inform the over conclusion.

Comment: Overall Conclusion
The overall conclusion notes that the proposed project and associated infrastructure is unlikely to result in permanent damaging social impacts. Therefore from a social perspective it is concluded that the project could be developed subject to the implementation of recommended mitigation measures and management actions identified for the project.

However, as indicated above, the potential impact on the white water operations has not been included in the summary of key findings. Based on the information contained in the SIA is would appear that the proposed project does have the potential to impact significantly on the white water rafting activities that take place on the Ash River. It would also appear that the Ash River is regarded as one of the better places for white water rafting
in South Africa. This is due to technical nature of the rapids and the fact that it can be used throughout the year (not affected by seasonal rains). In addition, it is located in relative proximity to Johannesburg and is therefore accessible over weekends. All of these factors would need to be borne in mind when preparing an overall conclusion.

1.11 FINDINGS AND RECOMMENDATIONS OF PEER REVIEW

Findings
The overall finding of the Peer Review is that the SIA Report provides a detailed and concise description of the baseline socio-economic data and identifies the majority of the key social impacts typically associated with small hydropower projects. The findings of the review also indicate that the SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations (GNR 326). However, a number of recommendations (General and Key) are made. The key recommendation should be addressed to enable the SIA to provide decision makers with the required information to make an informed decision.

Recommendations
As indicated above, it is recommended that the following information be included in the final report:

**General Recommendations**

- **Introduction (p1):** Include a location map that provides the reader with an indication of the regional location, including location of nearest towns etc. In this regard Clarens is located approximately 13km south of the MK Generation Scheme and Bethlehem, located approximately 17km north of the LK Generation Scheme.

- **Section 1.2: Project description (p1):** Include a figure/map showing the reader the location of the various components (canals, inlet sill, power house, access roads etc.) should be included. The location of the power line route and Eskom substation should also be included on the figure/map. A second, more detailed location map would also be of benefit, showing the location of the proposed project on the Ash River, and the location of the project relative to the Trans Caledon Tunnel.

- **Section 4.5: Land use character of proposed site and surrounding area (p39):** Include photographs of the study area should be included in this section. This would provide the reader with a better understanding of the study area and its characteristics. In addition a section on the current white water rafting and other tourist activities in the area should also be included. This would include information on the number of tour operators that offer white water rafting, estimate of the number of people that use the river, where the majority of visitors come from, time of the year when tours take place, number of staff employed by the tour operators etc. This is the information that will be required to assess the potential impact of the project on the white water rafting sector (see comments below).

**Key Recommendation**

In order to enable the SIA to provide decision makers with the required information it is recommended that additional information be added to **Section 6.1.1.1 Impacts on Tourism Activities (p44).** In this regard the section should clearly indicate if the rapids that will be lost due to the scheme are important in terms of training for slalom canoeists and hosting of events. The section should also comment on the ability to host events if three large rapids are lost. The section should indicate if there are similar grades on the river or would the loss represent the loss of a unique rapid in terms of grade category in the
Ash River. The section should also include information on the number of tour operators that offer white water rafting, estimate of the number of people that use the river, time of the year when tours take place, number of staff employed by the tour operators etc.

The findings of the assessment of the potential impact on white water rafting should also be included in the discussion of key findings (see above).
ANNEXURE A: CV

Tony Barbour
ENVIRONMENTAL CONSULTING AND RESEARCH

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Tony Barbour’s experience as an environmental consultant includes working for ten years as a consultant in the private sector followed by four years at the University of Cape Town’s Environmental Evaluation Unit. He has worked as an independent consultant since 2004, with a key focus on Social Impact Assessment. His other areas of interest include Strategic Environmental Assessment and review work.

EDUCATION
- BSc (Geology and Economics) Rhodes (1984);
- B Economics (Honours) Rhodes (1985);
- MSc (Environmental Science), University of Cape Town (1992)

EMPLOYMENT RECORD
- Independent Consultant: November 2004 – current;
- University of Cape Town: August 1996-October 2004: Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher;

LECTURING
- University of Cape Town: Resource Economics; SEA and EIA (1991-2004);
- University of Cape Town: Social Impact Assessment (2004-current);
- Cape Technikon: Resource Economics and Waste Management (1994-1998);

RELEVANT EXPERIENCE AND EXPERTISE
Tony Barbour has undertaken in the region of 220 SIA’s, including SIA’s for infrastructure projects, dams, pipelines, and roads. All of the SIAs include interacting with and liaising with affected communities. In addition he is the author of the Guidelines for undertaking SIA’s as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa.

Tony was also the project manager for a study commissioned in 2005 by the then South African Department of Water Affairs and Forestry for the development of a Social Assessment and Development Framework. The aim of the framework was to enable the Department of Water Affairs and Forestry to identify, assess and manage social impacts associated with large infrastructure projects, such as dams. The study also included the development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation.

Countries with work experience include South Africa, Namibia, Angola, Botswana, Zambia, Lesotho, Swaziland, Ghana, Mozambique, Mauritius, Kenya, Ethiopia, Oman, South Sudan and Sudan.