

Independent technical review of the  
“Strategic Environmental Assessment for  
the proposed Rufiji Hydropower Project”  
in Selous Game Reserve  
World Heritage site, Tanzania

November 2019

Independent review commissioned by IUCN (international Union for Conservation of Nature)

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## Executive summary

This independent technical review assesses the “Strategic Environmental Assessment Report for the proposed Rufiji Hydropower Project”, dated April 2019 (“the Rufiji Assessment”) that relates to the planned Rufiji River Hydropower Project (RRHP). The RRHP comprises a 130m high dam on the Rufiji river at Stiegler’s Gorge, creation of a 100km long, c.914km<sup>2</sup> reservoir plus a power plant, a transmission line, workers camps and access roads, all of which will be within the Selous Game Reserve, a natural World Heritage Site. This review follows a similar format to, and builds upon, the independent technical review of the Project EIA commissioned in April 2019 by IUCN, International Union for Conservation of Nature (IUCN 2019).

The c. 50,000km<sup>2</sup> Selous Game Reserve (SGR) is an IUCN category IV protected area<sup>1</sup>. It has been a natural World Heritage Site since 1982 but has been on the List of World Heritage in Danger since 2014 due to intensive poaching. In 2018, the threat from the Project was added to the justification for the continued inclusion of SGR on the List of World Heritage in Danger.

This review assesses the degree of alignment of the Rufiji Assessment with 1) widely-accepted international standards, in particular environmental assessment of large hydropower projects, as set by the International Finance Corporation (IFC), Organisation for Economic Co-operation and Development (OECD), and United Nations Environment Program (UNEP), 2) Tanzania’s National Guidelines for Strategic Environmental Assessment dated June 2017, and 3) IUCN guidance on environmental assessment in World Heritage sites.

This review finds that, in almost every way, the Rufiji Assessment does not meet the expectations of a Strategic Environmental Assessment (SEA). It does much to try to justify the RRHP, without looking objectively at the economic, environmental and social costs, benefits and risks of developing the RRHP – let alone giving similar consideration to the costs, benefits and risks of a range of other potential options to achieve desired outcomes (such as power generation) which is the whole point of an SEA. Given the advanced stage of project planning, this means the Rufiji Assessment cannot deliver the credible input into strategic decision-making that an SEA is intended to provide.

The Rufiji Assessment falls substantially below widely-accepted international good practice SEA standards and IUCN guidance on environmental assessment. Likewise, the Rufiji Assessment appears to fall short of national policy guidance. In particular:

- The Rufiji Assessment is not clearly embedded in a strategic decision-making process; rather it seems more like an attempt to justify a decision that has already been made;
- The full range of economic, environmental and social benefits and costs of the RRHP are not outlined and assessed;
- Widely-available information on potential impacts of the RRHP has been ignored, and major potential impacts omitted – e.g., loss of downstream fisheries and wildlife owing to altered flood regimes, and environmental impacts of agricultural expansion from irrigation;
- The impact assessment methodology is not transparent but appears to consistently over-rate positive impacts of the RRHP, and to under-rate its negative impacts, and in some cases is demonstrably incorrect;
- The cumulative impacts of the RRHP and other landscape developments are not assessed;

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<sup>1</sup> In July 2019 the government of Tanzania [initiated a process to split SGR into two](#) comprising Nyerere National Park and SGR; media reports say this was [approved by parliament](#) in September 2019.

- Assessment of project alternatives – whether hydropower or other energy production – forms the bulk of most SEAs of this nature, but is given extremely cursory attention in the Rufiji Assessment;
- The environmental and social benefits and costs of project alternatives are not outlined and assessed – this is the essence of SEA and as such this is a critical gap;
- Notwithstanding the weaknesses above relating to poor assessment of alternatives that may question the justification for the project to proceed at all, mitigation outlined for the Project is piecemeal and inadequate;
- There does not appear to have been any open public consultation. Key stakeholders were consulted, but there seems to have been little effort to address their concerns.

In summary, the Rufiji Assessment falls far short of normal standards of SEA for projects of this magnitude and complexity and neither does it seem to be embedded in a true strategic decision-making process. The Rufiji Assessment therefore does not provide a sound basis for decision-making about the RRPP. It certainly gives no confidence that the RRHP would be the best environmental, social or economic option to address the energy and development needs of Tanzania.

## Background and approach

### Scope and context

This rapid technical review assesses the “Strategic Environmental Assessment Report for the proposed Rufiji Hydropower Project”, dated April 2019 (“the Rufiji Assessment”) that relates to the planned Rufiji River Hydropower Project (RRHP). The RRHP comprises a 130m high dam on the Rufiji river at Stiegler’s Gorge, creation of a 100km long, c.914km<sup>2</sup> reservoir plus a power plant, a transmission line, workers camps and access roads, all of which will be within the Selous Game Reserve, a natural World Heritage Site.

The c. 50,000km<sup>2</sup> Selous Game Reserve (SGR) is one of the oldest protected areas in Africa. It is an IUCN category IV protected area<sup>2</sup> with some zones (in particular those near Stiegler’s Gorge and in the seasonally flooded wetlands just downstream of the proposed dam) designated for photographic and visual tourism and managed sport hunting in other zones; no other consumptive resource use is allowed. It has been a natural World Heritage Site since 1982 but has been on the List of sites World Heritage in Danger since 2014 due to intensive poaching. In 2018, the threat from the Project was added to the justification for the continued inclusion of SGR on the List of World Heritage in Danger. Selous was inscribed on the World Heritage List under Criterion (ix) - outstanding example of ongoing ecological and biological processes and criterion (x) - the most important and significant natural habitats for conservation of in-situ biodiversity.

The review assesses the degree of alignment of the Rufiji Assessment with:

1. Widely-accepted international standards, in particular for environmental assessment of large hydropower projects, as set by the International Finance Corporation (IFC), the Organisation for Economic Co-operation and Development (OECD), and the United Nations Environment Program (UNEP). Assessments meeting these standards are required by major financiers for hydropower projects.
2. Tanzania’s National Guidelines for Strategic Environmental Assessment dated June 2017 (URT 2017).
3. IUCN guidance on environmental assessment in World Heritage sites.

### Documents reviewed

This review focuses on review of the following document: “Strategic Environmental Assessment Report for the Proposed Rufiji Hydropower Project” prepared by Tanzania Electricity Supply Company (TANESCO) Limited, and submitted to the Director of Environment, Division of Environment, Vice President’s Office, April 2019 (URT 2019).

The review also draws upon available scientific and third-party literature, where necessary (as cited).

### Benchmarks for the review

Much national and international guidance exists on good practice in Strategic Environmental Assessment and safeguards for large hydropower projects. The most widely-accepted standards and guidance for SEA are those published by OECD (2006) and UNEP (Abaza *et al.* 2004).

Likewise, a wealth of guidance has been published on safeguards for large hydropower. Most comprehensive was the review by the World Commission on Dams (WCD 2000). Particularly

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<sup>2</sup> In July 2019 the government of Tanzania [initiated a process to split SGR into two](#) comprising Nyerere National Park and SGR; media reports say this was [approved by parliament](#) in September 2019.

pertinent to environmental safeguards is recent guidance by IFC (2018a). Further, a number of recent SEAs for hydropower (e.g., (IFC 2018b) offer good practice models for such assessments.

### Review team expertise

The review was conducted by a team of two biodiversity specialists. They have extensive recent practical experience of applying international good practice, in particular World Bank/IFC performance standards, to large-scale hydropower projects in Africa and world-wide, from project-, lender- and government-advisor perspectives. One previously led biodiversity aspects of an SEA for the hydropower sector in another country. Both have experience of evaluating and managing impacts of large-scale development projects on natural World Heritage sites in Africa.

### Alignment of the SEA with widely-accepted international standards, in particular for environmental assessment of large hydropower projects

Table 1 (below) summarises the review findings against the most relevant principles outlined in OECD and UNEP SEA guidance, as well as those outlined in the Rufiji Assessment itself (URT 2019; pp 2-3), and WCD and IFC hydropower environmental assessment guidance. Other less relevant principles not tabulated include issues such as operationalisation of SEAs once complete. While not a comprehensive review against all such available guidance, this review does cover core recurring principles in available guidance.

*Table 1 : High-level review of the Rufiji Assessment against the most relevant principles in widely-accepted international SEA guidance and hydropower environmental assessment guidance*

Principle	Source*	Review findings
Establish clear goals	OECD, UNEP, WCD	<ul style="list-style-type: none"> <li>The Rufiji Assessment includes nine objectives (pp 5-6), which are quite clear and broadly appropriate. However, these objectives are not then used systematically as a basis for discriminating between alternatives in the rest of the Assessment.</li> </ul>
Early consideration in order to identify the most appropriate approach to meet objectives and to avoid impacts through good site selection and Project design	IFC, UNEP, WCD	<ul style="list-style-type: none"> <li>Any SEA should, by definition, precede EIA for any specific Project for which it aims to aid decision-making. The Rufiji Assessment was conducted after EIA and late in the decision-making process, as a contract has been signed for construction and site preparation has already begun. The Rufiji Assessment is therefore not part of a credible strategic decision-making process.</li> </ul>
Be integrated with existing policy and planning structures	OECD	<ul style="list-style-type: none"> <li>The Rufiji Assessment has a chapter reviewing a variety of national policies and frameworks, but in most cases does not explicitly assess the degree of alignment with these policies and frameworks.</li> </ul>

Principle	Source*	Review findings
		<ul style="list-style-type: none"> <li>• The Rufiji Assessment does not refer to any national or regional conservation action plans nor evaluate how the Rufiji Project would affect them.</li> <li>• The Rufiji Assessment does not assess or demonstrate alignment with the General Management Plan for SGR but instead implies that the General Management Plan would require substantial revision in the light of RRHP impacts. No justification is provided for this assessment.</li> </ul>
Be flexible, iterative and customised to context	OECD, UNEP	<ul style="list-style-type: none"> <li>• The Rufiji Assessment seems to have been conducted through a rapid, linear process, rather than informing iterative changes in design.</li> <li>• The RRHP is highlighted as being a national-level project, and most of its power will be exported beyond the Rufiji basin. Given this context, it is inappropriate to restrict the Assessment scope to the basin level (particularly when considering alternatives).</li> </ul>
Comprehensively analyse the potential impacts and risks of the Project	IFC, OECD, URT, UNEP, WCD	<ul style="list-style-type: none"> <li>• In general, the Rufiji Assessment is based on very limited underpinning data and frequently does not even attempt to provide a plausible justification for claims that are made. This applies for example to very significant claims about the potential consequences of negative impacts (e.g., the claim that the reservoir would result in “a significant positive change for the benefit of wildlife in the SGR”; page 98) and about potential positive benefits (e.g., the claim that the RRHP may have a positive impact on livelihoods in the Rufiji delta, page 81, or the claim that the reservoir will enhance, rather than damage, tourism potential, page 96). Without robust and objective underlying data, these claims are speculative wishful thinking, and do not contribute to a comprehensive analysis of impacts and risks.</li> <li>• The Rufiji Assessment focuses on positive Project impacts (e.g., Table 1), with limited, incomplete and apparently inappropriate consideration of potential negative Project impacts. For example, the effect of this industrial-scale development inside a protected area is not even mentioned as a</li> </ul>

Principle	Source*	Review findings
		<p>potential negative impact on tourism. The SEA does not appear to have reviewed even long-standing, widely-available published information in order to comprehensively analyse potential impacts of a Stiegler's Gorge dam (e.g., Mwalyosi 1988)</p> <ul style="list-style-type: none"> <li>• Some impact assessments are inappropriate, with an apparently consistent bias in under-ranking negative impacts in comparison to positive impacts. For example, IUCN (2019) recognises that <i>“it is highly likely that there will be significant negative impacts on freshwater biodiversity in the Rufiji River (especially on migratory fish) which may in turn result in potentially significant impacts on the livelihoods of thousands of people dependent on fisheries in the upstream catchment, including the Kilombero Valley”</i>. However, changes in fish movements are only ranked at a level of 2 of 5 (Table 7.1), owing to inappropriate scoring of the extent, duration and reversibility of such changes (even ignoring the potential magnitude of this impact).</li> <li>• Some assessments are factually or scientifically incorrect. For example, the Rufiji Assessment considers there to be highly significant positive changes to aquatic habitats in the reservoir area as a result of the Project. The justification for this unlikely statement (p 98) is based on an incorrect understanding of aquatic ecology and biodiversity conservation – loss of native habitat (a stretch of river) and replacement with unnatural habitat (a reservoir) is usually significantly negative for biodiversity conservation, particularly in the tropics (e.g., Turgeon <i>et al.</i> 2019). This is particularly true for reservoir stratification, which is well documented to cause major in-reservoir and downstream impacts to aquatic biodiversity (as has long been identified as a risk for a reservoir in this location: e.g., Mwalyosi 1988).</li> <li>• Despite the proposed Project being in a natural World Heritage Site, there is no clear attempt to assess impacts on the Site’s Outstanding Universal Value, an issue also identified with the Project EIA (IUCN 2019).</li> </ul>



Principle	Source*	Review findings
		<ul style="list-style-type: none"> <li>• Where impacts are quantified, the scale of analysis is inappropriate and misleading. For example the Rufiji Assessment repeats the statement that the RRHP reservoir will flood only 1.8% of the SGR, whereas the proportional impact on riverine vegetation and on the Rufiji River will be vastly greater.</li> </ul>
Comprehensively analyse the potential impacts and opportunities of 1) alternative Project designs and 2) alternative projects to achieve the same objective	IFC, OECD, URT, UNEP, WCD	<ul style="list-style-type: none"> <li>• There is no assessment of alternative Project designs, e.g. reducing the reservoir size.</li> <li>• The relative impacts of alternative projects are only cursorily assessed, whereas such material usually represents the majority of an SEA.</li> <li>• In particular, non-hydropower energy generation alternatives are dismissed solely on economic grounds, without consideration of any potential for them to have lower environmental/social impacts than hydropower, or indeed to have potentially greater benefits. In addition, the potential economic costs of RRHP are not considered.</li> <li>• It is stated that “...there are a number of potential sites for hydropower plants in Tanzania...”, but no assessment is made to compare relative costs and benefits of these alternatives.</li> <li>• No consideration is given to demand-side management or improvements of existing infrastructure as any part of an alternative option to the Rufiji Project.</li> <li>• A significant part of the alternatives analysis section (pp 85-86) is given not to discussion of Project alternatives but to challenges the Project is likely to face from water shortages.</li> </ul>
Provide explicit justification for the selection of preferred options and for the acceptance of significant trade-offs	IFC, OECD, UNEP, WCD	<ul style="list-style-type: none"> <li>• A no-power option is rejected with good justification.</li> <li>• However, extremely limited justification is given for the selection of the preferred option against any realistic alternatives. For example, the Rufiji Assessment states that “...there are a number of potential sites for hydropower plants in Tanzania, [for some of] which feasibility and detailed planning have been conducted...” and identifies a few very brief justifications for selecting the RRHP</li> </ul>

Principle	Source*	Review findings
		<p>(pp 83-84), but does not assess whether a set of other hydropower (and/or other electricity generation) projects could meet or exceed these justifications while generating similar electricity capacity and other benefits.</p> <ul style="list-style-type: none"> <li>• There is no risk assessment to identify the relative risks of attempting to reach all goals via this single Project, versus multiple smaller options. The latter may potentially be more expensive, but considerably less risky.</li> <li>• Trade-offs (i.e., negative impacts and economic costs of developing Rufiji) are given limited attention in the Assessment, let alone evaluated, accepted or justified.</li> </ul>
Integrated assessment of environmental, social, health and economic considerations	IFC, OECD, UNEP, WCD	<ul style="list-style-type: none"> <li>• Economic considerations are clearly stated to be the main reason for selection of hydropower among electricity generation alternatives (p 84). Cost assessments do not appear to incorporate environmental and social externalities (i.e., costs borne by other stakeholders, such as loss of fisheries) so it is inevitable that the full cost of hydropower production to the nation has been considerably underestimated.</li> <li>• Positive environmental and social impacts are mentioned, but without consideration of the associated trade-offs. For example, flood control could have positive human safety impacts, but would have potentially major negative impacts on wildlife and fisheries (IUCN 2019). Likewise, agricultural expansion could have positive social – but negative environmental – impacts.</li> </ul>
Assess cumulative impacts from other sectoral or spatially-related actions	IFC, URT, UNEP, WCD	<ul style="list-style-type: none"> <li>• The existence of numerous other projects and programmes in the Rufiji basin, including but not limited to upstream uranium mining, oil and gas exploration, upstream dams and irrigation, downstream agricultural development programmes and wider land-use changes means that cumulative impacts may be significant and would be expected to be assessed in detail. This is also required by Tanzania’s National SEA Guidelines (e.g., Table 2 in URT 2017). However, while cumulative impacts are mentioned in the</li> </ul>

Principle	Source*	Review findings
		<p>Rufiji Assessment, their assessment (e.g., Table 7.3) focuses on impacts which may accumulate over time (an incorrect understanding of the meaning of cumulative impacts in environmental assessment) rather than assessment of this Project in the context of other projects/actions (as is correctly identified as a need in the Assessment ToR on p 155). This is therefore a major gap compared to international good practice guidance and recent Tanzanian national policy.</p>
<p>Involve key stakeholders and encourage public involvement</p>	<p>IFC, OECD, URT, UNEP, WCD</p>	<ul style="list-style-type: none"> <li>• A range of key stakeholders appears to have been consulted during development of the Rufiji Assessment, but 1) the timeline (8th January through 1st February 2019) is incredibly short for meaningful consultation for a project of such a scale and complexity, 2) there are no apparent responses to many significant stakeholder concerns that were raised (but have been left ungrouped and un-assessed in Appendix V), and 3) it does not appear that the final Rufiji Assessment has been shared with stakeholders for review.</li> <li>• It appears that stakeholder comments were sought only on the Rufiji project, rather than on a <i>range</i> of potential project options as is appropriate to an SEA.</li> <li>• Broader public involvement does not appear to have been sought, despite this being requested in the Assessment ToR (pp 148-149) and despite the potential for “...<i>significant negative impacts on the livelihoods of many thousands or tens of thousands of people dependent on the downstream Rufiji River</i>” (IUCN 2019).</li> <li>• The status and role of the World Heritage Committee and IUCN (which has a formal Advisory Body role under the World Heritage Convention) as stakeholders are both downplayed and no real attention or response is given to the concerns communicated repeatedly by either of these bodies, for example in WHC decisions <a href="#">36 COM 7B.5</a> of 2012, <a href="#">41 COM 7A.17</a> of 2017 and <a href="#">42 COM 7A.56</a> of 2018, and in the <a href="#">2014 and 2017 IUCN Conservation Outlook Assessments</a> for SGR.</li> </ul>

Principle	Source*	Review findings
		<ul style="list-style-type: none"> <li>The consultation took place in a context where a decision to proceed with the RRHP had already been taken and <a href="#">where senior members of government reportedly stated that individuals opposing the project would be jailed</a>. However, the consultation does not appear to have taken any special measures to allow stakeholders to freely express their concerns and opinions (e.g., allowing anonymous submission of comments). It is therefore doubtful whether the full range and strength of concerns could plausibly have been identified.</li> </ul>
Include an effective, preferably independent, quality assurance system	OECD	<ul style="list-style-type: none"> <li>The Project developer contracted Sokoine University of Agriculture as consultants to conduct the Rufiji Assessment. However, there is no apparent independent review or assurance mechanism.</li> </ul>
Be transparent throughout the process, and communicate the results	OECD	<ul style="list-style-type: none"> <li>The quality of the core impact assessment (Table 7.1) is difficult to assess, as environmental impact scores are not defined (e.g., what are level 1 vs. 2 spatial aspects?) but (as outlined above) many scores seem inappropriate.</li> </ul>

\* Principles adapted from: (IFC 2018a); (OECD 2006); URT (2019); UNEP (Abaza *et al.* 2004); (WCD 2000).

## Alignment with national SEA guidelines

The core legal/policy framework for SEA in Tanzania is the *National Guidelines for Strategic Environmental Assessment* (Vice President's Office 2017). These guidelines align closely with international guidance. As such, the Rufiji Assessment appears to fall short of national policy guidance in a number of important areas including both the key principles for SEA set out in national guidelines (Table 2) and in terms of the expected contents (Table 3).

Table 2 : Review of the Rufiji Assessment against the key principles for SEA set out in Tanzanian National Guidelines for SEA (URT 2017)

Principle	Review findings
a) Early proactive consideration of the environmental and	<ul style="list-style-type: none"> <li><b>Principle not respected:</b> the Rufiji Assessment was conducted late in the process once a decision to proceed had been taken, a contract awarded and works begun.</li> </ul>

Principle	Review findings
social effects of strategic actions;	Consideration of environmental and social effects is very incomplete.
b) Broad institutional and public engagement;	<ul style="list-style-type: none"> <li>• <b>Principle not respected:</b> selected stakeholders consulted through a rapid process, no on-going engagement or broad public engagement. Draft assessment does not appear to have been shared for comments. Concerns that have been raised have not been addressed in the assessment. The clearly stated concerns of key stakeholders including WHC and IUCN in their Advisory Body role are not acknowledged.</li> </ul>
c) Analysis and integration of qualitative and quantitative information within a dynamic, interactive framework;	<ul style="list-style-type: none"> <li>• <b>Principle very partially respected:</b> some qualitative and quantitative data is integrated, but much of it is out-of-date or irrelevant (see IUCN 2019 for further details) and some specifically-relevant and readily available information is ignored. Little evidence of an interactive framework for integrating additional information.</li> </ul>
d) Flexibility to allow adaptability to the planning and sectoral development cycle;	<ul style="list-style-type: none"> <li>• <b>Principle not respected:</b> Late implementation means no adaptation of either the project or sectoral planning seems to have been entertained.</li> </ul>
e) Early warning of potential cumulative effects and large-scale changes; and	<ul style="list-style-type: none"> <li>• <b>Principle not respected:</b> cumulative effects not assessed at all, many potential large-scale changes (e.g., changed</li> </ul>
f) Identification of best practicable options that can be articulated from the policy level to the individual project level.	<ul style="list-style-type: none"> <li>• <b>Principle not respected:</b> Extremely cursory evaluation of alternative projects that could meet the stated objectives and no evaluation of alternative project designs.</li> </ul>

Table 3 : High-level review of the Rufiji Assessment against the key content recommended in national SEA guidance (URT 2017)

Content	Review findings
Non-technical summary	<b>Adequate:</b> summarises report contents and findings.
Introduction: including scope and methodology	<b>Weak:</b> discusses scope, with methods in subsequent chapter. However, scoping the SEA at a basin level is not appropriate to a national-level project.
Proposed bill, regulation, policy, strategy, plan or programme	<b>Insufficient:</b> focuses on one project, rather than a broader plan (e.g., for power generation).
Environmental analysis: baseline	<b>Insufficient:</b> almost no data on biodiversity, despite the selected Project being inside a Natural World Heritage Site.
Environmental analysis: legislative framework	<b>Adequate:</b> brief discussion of relevant policy and legislation.
Environmental analysis: public/ stakeholder engagement	<b>Insufficient:</b> no public consultation (only selected stakeholders), brief consultation period, little or no consideration of stakeholder input received, input from key stakeholders not addressed or selectively included.
Environmental analysis: impact assessment	<b>Insufficient:</b> no consideration of cumulative effects from the Rufiji Project and other actions in the landscape.
Environmental analysis: alternatives compared against environmental indicators	<b>Insufficient:</b> alternatives not compared against environmental indicators.
Recommendations: changes; mitigation; alternatives	<b>Insufficient:</b> some mitigation measures mentioned, but many important impacts and risks unmitigated; no evidence of serious consideration of alternatives.

## Alignment with IUCN’s World Heritage Advice Note on Environmental Assessment

Table 4 (below) uses the assessment presented above (Table 2) to summarise the degree of alignment of the Rufiji SEA with the principles of IUCN's World Heritage Advice Note on Environmental Assessment. Alignment is weak in most areas.

Table 4: Review against the principles of IUCN's World Heritage Advice Note on Environmental Assessment. For further details please see Table 1 above.

Principle	Review findings
1: Rigorous environmental assessment early in decision-making process	<ul style="list-style-type: none"> <li>The SEA has too many gaps and flaws to be considered rigorous. It has also not been conducted early in the decision-making process, as it was produced subsequent to the Rufiji EIA and after a contract was awarded and works had begun.</li> </ul>
2: Appropriate experts	<ul style="list-style-type: none"> <li>An appropriate set of stakeholders was consulted. However, insufficient information is provided to assess whether the individual experts consulted had appropriate World Heritage, protected area and biodiversity knowledge.</li> </ul>
3: Impacts on OUV assessed, including direct, indirect and cumulative impacts	<ul style="list-style-type: none"> <li>The impact assessment ranking is not fully defined, and thus not transparent or repeatable. Few data are presented to justify impact rankings, which consistently appear too high for positive impacts in relation to negative impacts, and at times are demonstrably incorrect.</li> <li>Assessment of impacts is at an inappropriately low level of resolution. Significant sources of secondary data do not seem to have been used (or not used to an appropriate extent), and primary data is very limited.</li> <li>Impacts on OUV are assessed, but not at an appropriate level of resolution: impacts to individual features contributing to the OUV are rarely assessed individually; nor are they quantified.</li> <li>Readily available published assessments of potential impacts have been ignored, and the following major potential impact types are not assessed at all: the effect of a disrupted flood regime on fisheries and wildlife, the barrier effect of the 100km long reservoir for mobile terrestrial species, impacts of downstream erosion (scouring etc) and all indirect impacts (e.g., induced access and in-migration which can lead to increased poaching for example).</li> <li>The potential economic costs of the RRHP (for example to upstream fisheries or downstream farmers) have not been considered.</li> <li>There is no assessment of cumulative impacts of the Rufiji Project alongside the many other developments occurring in the Rufiji basin, many of which will clearly contribute to cumulative impacts, for example upstream hydropower</li> </ul>

Principle	Review findings
	<p>projects. Assessment of cumulative impacts is critical to SEA so this is a major gap.</p>
<p>4: Analysis of alternatives</p>	<ul style="list-style-type: none"> <li>Analysis of alternative scenarios is the core function of most SEAs. In the Rufiji Assessment, analysis of either alternative project designs or alternative scenarios is cursory. It is stated that a number of alternative hydropower projects exist, but barely any further discussion or assessment is given. Non-hydropower electricity generation alternatives are dismissed solely on economic grounds, without consideration of relative environmental and social costs/benefits. No consideration is given to demand side management or improvements to existing infrastructure.</li> </ul>
<p>5: Mitigation Hierarchy</p>	<ul style="list-style-type: none"> <li>SEA should focus on the avoidance stage of the mitigation hierarchy, by assessment of alternative projects and selection of those which have the highest benefit: cost ratio (in economic, environmental and social terms). However, the Rufiji Assessment pays only cursory attention to the economics of alternative projects, and does not assess their relative environmental and social impacts at all.</li> <li>SEA can also inform the minimisation stage of the mitigation hierarchy, by evaluation of alternative project designs, but the Rufiji Assessment does not conduct such an evaluation.</li> <li>Mitigation measures are discussed for some impacts of the RRHP, but many other important impacts remain unmitigated, including the barrier effects of the dam for fish and of the 100km-long reservoir for mobile terrestrial species, in-direct impacts such as increased poaching due to induced access, impacts on upstream fisheries etc. Many of the mitigation measures proposed are speculative and unlikely to be effective (see IUCN 2019 for details).</li> </ul>
<p>6: Chapter on World Heritage with clear conclusions about impacts on OUVs</p>	<ul style="list-style-type: none"> <li>A small section on World Heritage status is provided within the chapter on policy, legal and institutional frameworks. However, the conclusions about impacts on OUVs are based on a biased and incomplete impact assessment and focus on highlighting potential positive impacts (e.g., on hippopotamus) without discussion of negative impacts.</li> <li>Even the most fundamental impacts on OUV are ignored or not ranked as significant, such as disruption of the dynamic flood regime that is the basis for World Heritage listing under criterion (ix), and the loss of a significant land area for many</li> </ul>



Principle	Review findings
	<p>of the species for which the site is listed under criterion (x). There is no discussion of the impacts on the integrity of the property (including ecological function and connectivity and unimpeded ecological and evolutionary processes).</p> <ul style="list-style-type: none"> <li>• The chapter does not clearly describe the responsibilities and obligations of the United Republic of Tanzania as a State Party to the World Heritage Convention.</li> <li>• The clearly, publicly stated and very specific concerns of the World Heritage Committee and of IUCN in their role of formal Advisory Body to the convention<sup>3</sup> are neither acknowledged nor addressed.</li> </ul>
7: Public disclosure and thorough public consultation	<ul style="list-style-type: none"> <li>• No information on public disclosure is available, so this cannot be assessed.</li> <li>• There does not appear to have been any effort at public consultation beyond selected stakeholders.</li> <li>• The stakeholder concerns that were raised are not addressed.</li> <li>• Stakeholders do not seem to have had the opportunity to comment on the draft document.</li> </ul>
8: Environmental Management Plan	<ul style="list-style-type: none"> <li>• A strategic environmental management framework is presented but details of how it will be implemented, including the scope of required operational management plans and how it will be funded, is not provided.</li> </ul>

## Degree to which the Rufiji Assessment fulfils the criteria of a Strategic Environmental Assessment

There are varying definitions of Strategic Environmental Assessment. In essence, SEA is an earlier-stage, broader-scale, higher-level way of assessing options for achieving development goals than a project-focused Environmental Impact Assessment (EIA). SEA is a decision-making support tool, that is implemented before the decision to proceed with a particular project or project variant is made.

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• <sup>3</sup> For example in WHC decisions [36 COM 7B.5](#) of 2012, [41 COM 7A.17](#) of 2017 and [42 COM 7A.56](#) of 2018, and in the [2014 and 2017 IUCN Conservation Outlook Assessments](#) for SGR.

Table 5 (below), summarises the key differences between SEA and EIA (following OECD 2006) and assess the degree to which the Rufiji Assessment represents an SEA.

In almost every way, the Rufiji “SEA” (TANESCO 2019) is closer to representing an EIA than an SEA. In some aspects, the Assessment does not even meet EIA standards. The core failure of the Assessment is to focus on justifying the Rufiji project, without looking broadly at the economic, environmental and social costs, benefits and risks of developing the Rufiji project versus a range of other potential project alternatives for meeting the stated objectives and policy goals.

Table 5: Assessment of alignment of the Rufiji “SEA” (TANESCO 2019) with definitions of EIA and SEA (OECD 2006)

EIA	SEA	Rufiji “SEA”
Applied to specific and relatively short-term (life-cycle) projects and their specifications.	Applied to policies, plans and programmes with a broad and long-term strategic perspective.	<b>EIA-level:</b> firmly focused on the Rufiji project, with almost no consideration of alternative options to meet defined policy goals.
Takes place at early stage of project planning once parameters are set.	Ideally, takes place at an early stage in strategic planning.	<b>Below EIA-level:</b> developed at a late stage of project planning after a decision was made, a contract signed and works begun.
Considers limited range of project alternatives.	Considers a broad range of alternative scenarios.	<b>Insufficient for SEA-level:</b> considers a range of project alternatives, but so briefly as to represent only a token gesture (only three pages of a > 200-page document). This is a core part of an SEA and therefore is a major gap.
Usually prepared and/or funded by the project proponents.	Conducted independently of any specific project proponent.	<b>EIA-level:</b> funded by project proponent and prepared by proponent’s consultants.
Focus on obtaining project permission, and rarely with feedback to policy, plan or programme consideration.	Focus on decision on policy, plan and programme implications for future lower-level decisions.	<b>EIA-level:</b> focuses on justifying Rufiji project rather than consideration of range of alternatives to achieve policy goals.
Well-defined, linear process with clear beginning and end (e.g., from feasibility to project approval).	Multi-stage, iterative process with feedback loops.	<b>EIA-level:</b> simple linear process.

EIA	SEA	Rufiji “SEA”
Emphasis on mitigating environmental and social impacts of a specific project, but with identification of some project opportunities, offsets, etc.	Emphasis on meeting balanced environmental, social and economic objectives in policies, plans and programmes. Includes identifying macro-level development outcomes.	<b>EIA-level:</b> emphasis firmly on assessing impacts of the Rufiji project, with no consideration of potential value of project alternatives in meeting policy goals.
Limited review of cumulative impacts, often limited to phases of a specific project. Does not cover regional-scale developments or multiple projects.	Inherently incorporates consideration of cumulative impacts.	<b>Below EIA-level:</b> no assessment of cumulative impacts of multiple projects, sectors and wider developments This is a core part of an SEA and therefore is a major gap.

## Conclusions

The analyses documented in the previous sections identify many significant and substantial gaps. The Rufiji Assessment falls fundamentally short of both international and national guidance for SEA. This is of particularly serious concern, given the scale and complexity of this Project, its location in a globally-important natural World Heritage Site, and the significance of the Project’s potential environmental and social impacts. In particular:

- The Rufiji Assessment is not clearly embedded in a strategic decision-making process; rather it seems more like an attempt to justify a decision that has already been made;
- The cumulative impacts of the Project and other landscape developments are not assessed;
- Assessment of project alternatives – whether hydropower or other energy production – forms the bulk of most SEAs, but is given extremely cursory attention in this Assessment;
- The environmental and social benefits and costs of project alternatives are not outlined and assessed; neither is there a robust assessment of the economic viability of the RRHP;
- There does not appear to have been any open public consultation. Selected stakeholders were consulted, but there seems to have been little effort to address their concerns.

The Rufiji Assessment cannot be considered an SEA; in most ways, is closer to representing an EIA than an SEA. Nonetheless, it still fails to adequately assess impacts of the Rufiji Project itself.

Notably:

- The full range of economic, environmental and social benefits and costs of the Rufiji project are not outlined and assessed;
- Widely-available information on potential project impacts has been ignored, and major potential Project impacts omitted – e.g., loss of downstream fisheries and wildlife owing to altered flood regimes, and environmental impacts of agricultural expansion from irrigation; indirect impacts are not considered at all.

- The impact assessment methodology is not transparent but appears to consistently over-rate positive impacts of the Rufiji Project, and to under-rate its negative impacts, and in some cases is demonstrably incorrect;
- Mitigation outlined for the Project is piecemeal and inadequate.

In summary, the Rufiji Assessment falls far short of normal standards of SEA for projects of this magnitude and complexity and neither does it seem to be embedded in a true strategic decision-making process. The Rufiji Assessment therefore does not provide a sound basis for decision-making about the RRPP. It certainly gives no confidence that the RRHP would be the best environmental, social or economic option to address the energy and development needs of Tanzania.

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