

Stakeholder Engagement

Strategic Environmental Assessment (SEA)
of the Hydropower Sector
in Myanmar



Stakeholder Comments & Responses: SEA Baseline Assessment Report

© International Finance Corporation 2017. All rights reserved.

2121 Pennsylvania Avenue, N.W.

Washington, D.C. 20433

Internet: www.ifc.org

The material in this work is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. IFC encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly, and when the reproduction is for educational and non-commercial purposes, without a fee, subject to such attributions and notices as we may reasonably require.

IFC does not guarantee the accuracy, reliability or completeness of the content included in this work, or for the conclusions or judgments described herein, and accepts no responsibility or liability for any omissions or errors (including, without limitation, typographical errors and technical errors) in the content whatsoever or for reliance thereon. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent.

The contents of this work are intended for general informational purposes only and are not intended to constitute legal, securities, or investment advice, an opinion regarding the appropriateness of any investment, or a solicitation of any type. IFC or its affiliates may have an investment in, provide other advice or services to, or otherwise have a financial interest in, certain of the companies and parties.

All other queries on rights and licenses, including subsidiary rights, should be addressed to IFC's Corporate Relations Department, 2121 Pennsylvania Avenue, N.W., Washington, D.C. 20433.

International Finance Corporation is an international organization established by Articles of Agreement among its member countries, and a member of the World Bank Group. All names, logos and trademarks are the property of IFC and you may not use any of such materials for any purpose without the express written consent of IFC. Additionally, "International Finance Corporation" and "IFC" are registered trademarks of IFC and are protected under international law.

INTRODUCTION

Myanmar has immense hydropower potential. It is home to four of the region's largest river basins: Ayeyarwady, Chindwin, Sittaung and Thanlwin. Tapping the country's extensive hydropower potential could provide a critical source of electricity for the national grid and could power economic growth, which is expected to average at least 6.8% in coming years. Myanmar also has one of the lowest electrification rates in Asia, where less than a third of the population has access to the electricity grid (World Bank 2014).

In October 2016, Myanmar's Ministry of Natural Resources and Environmental Conservation and the Ministry of Electricity and Energy with the support from IFC and the Australian government commenced a country-wide Strategic Environmental Assessment (SEA) of the hydropower sector to understand the effects on environmental and social values across Myanmar's primary river basins. Once completed, the SEA will be a tool for decision makers to be more informed of environmental and social risks when planning.

The SEA is a first step to better understand, prioritize and plan sustainable hydropower development across Myanmar; it is not pro or anti hydropower but advocates for sustainability. Drawing on stakeholder views including advice and recommendations from an expert group, advisory group, civil society organizations, researchers, private sector, and others, the SEA provides a deeper understanding of the importance of communities' values and reliance on riverine resources. There will be no perfect recipe for hydropower development in Myanmar over the next

20-30 years coming out of the SEA, but there will be an informed hydropower pathway for each major basin that takes a balanced approach, replacing the current piecemeal project-by-project planning approach.

During the baseline research phase of the SEA, stakeholders were encouraged to provide feedback on Baseline Assessment Report. This data would become the foundation for the final SEA. A public feedback period of three weeks from June to July 2017 provided stakeholders with the opportunity to review the research developed and offer their comments and expertise by chapter. The following document captures the comments gathered by the SEA research team.

Stakeholders were provided with a wide-range of ways to contribute. Some submitted their comments by email, others discussed their feedback at meetings and in workshops. Those comments are compiled here and divided by chapter of the SEA Baseline Report. Individuals' and organizations' names have been removed to protect the identity of stakeholders involved in this process.

Throughout the process, stakeholder perspectives have provided the foundation for the SEA. Over 55 stakeholder engagements were held.

For more information on the SEA process visit:

www.ifc.org/hydroadvisory

In partnership with



SEA 3-stage process

SEA stakeholder engagement promotes an inclusive, transparent and fair process.



SEA stakeholder engagement process includes

-
-  Listening to stakeholders' environmental & social values
 -  Discussing stakeholders' concerns
 -  Strengthening government capacity
 -  Encouraging multi-stakeholder dialogue
 -  Seeking feedback and comments on methodologies, approaches and draft reports
 -  Promoting transparency & knowledge sharing
 -  Proactively working with media
 -  Sharing and disseminating final results

TABLE OF CONTENTS

1. General comments	6
2. Chapter 1 - Introduction.....	10
3. Chapter 2 - Hydropower.....	19
4. Chapter 3 - Geomorphology and Sediment Transport	30
5. Chapter 4 - Terrestrial Biodiversity	43
6. Chapter 5 - Fisheries, Aquatic Ecology and River Health	49
7. Chapter 6 - Economic Development and Land Use	57
8. Chapter 7 - Social and Livelihood.....	73
9. Chapter 8 - Peace and Conflict.....	84

1. GENERAL COMMENTS

#	Comment	Response
1.	<p>Executive Summary: An executive summary is needed for each of the chapters and a synthesis is needed to highlight the key findings under each theme.</p> <p>Identify data gaps: Clearly identify as part of the Executive Summary or the conclusion the data gaps that need to be filled, this can then form part of the mitigations/recommendations in identifying further studies that need to be conducted to inform hydropower planning.</p> <p>Consistency: Ensure uniformity between the chapters on the basin by basin analysis and what analysis is done in the baseline and impact assessment, as some chapters cover existing impacts better than others.</p> <p>Impact assessment: Most important areas will be the siting of HPPS and the cumulative impacts</p>	
2.	<p>Data sharing and consultation: between the SEA team and JICA/NEWJEC is required to ensure that the business-as-usual (BAU) case consider the revised power demand projects and energy mix. The SEA uses the ADB Power Sector Assessment in 2014, so it important to integrated the projections in the new Energy Master Plan. For example, the actual demand was higher in 2015/16 so this needs to be considered in the BAU.</p>	<p>Data gaps have been raised in each theme, to help prioritize future studies at the basin and sub-basin level.</p> <p>All chapters tried to improve the information on existing impacts of hydropower projects and the basin by basin analysis.</p> <p>The primary purpose of the SEA is to provide the first edition of the sustainable development planning framework for hydropower in each major river basin in Myanmar, to improve project siting from the outset by considering site and cumulative environmental and socio-economic impacts at sub-basin and basin levels.</p>

#	Comment	Response
3.	<p>Salinity: Consider the impacts of changes in flow and sediment transport by hydropower dams on flushing salinity in Delta areas.</p> <p>Disaster risk reduction: Impact assessment should consider the changes in water level, flooding and erosion downstream of projects. Earthquakes and other natural disasters could also be considered.</p>	<p>Basin-wide or system impacts will be included in the sustainability analysis. Zones of influence will be used to determine potential project impacts in the sustainability analysis.</p>
4.	<p>Impacts of existing hydropower: The impacts of existing hydropower projects in Myanmar is not well considered in the baseline chapters. For example, the loss of livelihoods and agricultural land associated with the UPL project has been studied by Spectrum and there is still no Township authorities assigned to provide agricultural land or address resettlement issues. Out-migration is occurring due to loss of income and agricultural land and some areas have not been provided adequate services.</p> <p>BAU case: Prior to the impact assessment there should be a discussion on what is the best scenarios for projections of power demand to use. The WWF study <i>'An alternative vision for Myanmar's power sector'</i> could be used to inform the scenarios.</p> <p>Women and electrification: The power demand projections could also consider the gendered use of electricity in a recent report published by Spectrum.</p> <p>Map symbols: Some of the map symbols for the existing, planned, under construction and suspended hydropower projects is difficult to distinguish.</p> <p>Basin by basin analysis: Consistency is needed across the chapters to ensure that there is a summary of key issues in each of the basins. Efforts should be made to aggregate statistics at the basin level where possible.</p>	<p>It was noted that all chapters needed to improve analysis on existing impacts. The SEA team plans to release a separate report on the findings from the consultation with communities affected by Lower Yeywa and Upper Paung Laung hydropower projects.</p> <p>For the business-as-usual (BAU) case the SEA assumes that any of the projects in the pipeline could proceed, allowing the analysis to consider all planned projects.</p> <p>The 'Women and Electrification Report' is interesting; however, it is difficult to use in a nation-wide study.</p> <p>Many symbols have been improved to distinguish between status of hydropower projects.</p>

#	Comment	Response
5.	Consultation in Rakhine State: The SEA team should consider regional river basins consultation in the Rakhine State.	The SEA team will assess the political and conflict situation in Rakhine State before committing to any consultations.

	Comments	Responses
6.	<ol style="list-style-type: none"> 1. Do we have a baseline to work forward from here with confidence? I think there is substantive amount of information. Critical to identify still existing major gaps (related to most chapters) and discuss their implications (perhaps in the intro) 2. Need to understand the purpose of baseline reports and process way forward to provide meaningful input 3. Uniformity between reports <ol style="list-style-type: none"> a) Strategic synthesis linking the theme to hydropower SEA and development would be useful b) Do we talk about scenarios? c) Independent national thematic baselines vs. more hydropower SEA focused baselines -> some implications in terms of creating stronger linkages between themes and hydropower 4. How do we move forward -> overlay the themes... siting, cumulative impacts (positive and negative)? Some information will be more important than other 5. Introduction could have narrative to guide into the baselines, rather than overall SEA process 6. KBA legal protection (lack of). No misunderstanding that there is high investment and level of protection compared to the need 7. Important to understand what we don't know to understand how much we can actually say when moving forward... how far can we take 	<ol style="list-style-type: none"> 1. There is sufficient data to define baseline values in the 58 sub-basins in Myanmar. 2. Baseline reports define values at the basin level for each of the key themes of the SEA. The key issues highlighted in these chapters will be used to define indicators for the sub-basin evaluation and project sustainability analysis. 3. a) Noted. b) The SEA will not define scenarios, the BAU case assumes that all projects in the pipeline could proceed. The Final SEA report will define a Sustainable Development Framework for the sector. c) Links to hydropower are further defined in the next phase, Sustainability Analysis. 4. Each theme will use the baseline analysis to determine 3-5 key indicators/criteria to define baseline value ratings for each sub-basin and impact indicators for a rapid assessment of planned projects. 5. The Introduction will now include the sub-basins in Myanmar and more overview of the purpose, objectives and methodology. 6. The team will bring biodiversity organizations together to discuss KBAs and PAs in Myanmar. 7. The SEA will define key data gaps and should be a 'first edition' of a framework for planning. One of the key recommendations is to prioritize specific gap-filling studies at basin and sub-basin level. 8. Hydrology and flow is covered in the geomorphology and hydropower chapters. It should be noted that here is also limited hydrological data for major basins in Myanmar. The State of Basin Assessment (SOBA) for the Ayeyarwady River Basin is setting up a source model for the Basin. The SEA

Comments		Responses
	<p>the specificity of SEA process/recommendations based on what we have and what we don't have</p> <p>8. Hydrology?</p>	<p>team will liaise with the SOBA process to see if future plans recommended by the SEA can be modelled.</p>

2. CHAPTER 1 - INTRODUCTION

Comments		Responses
B1.	<p>Introduction, 5.3 National Committees. Include the Myanmar National Committee on Large Dams (MNCOLD), which was established since June 2014, and is 97th member of the ICOLD. On 14 July, 2017 the Parliament enacted the MNCOLD constitution as Law no 41/2015.</p> <p>The MNCOLD has 7 members of Patron lead by Minister of MOALI and 15 Executive Committee members, all are experienced Water Resource Engineers. The purpose of establishing MNCOLD is to promote the dam engineering in Myanmar in line with ICOLD practices and guidelines. It shows Myanmar's commitment to sustainable development of hydropower projects</p>	<p>This was included in the hydropower chapter.</p>
B2.	<ol style="list-style-type: none"> 1. This report should also guide the reader to understand how the other baseline reports should be read and understood in an integrated manner in the context of hydropower SEA/development 2. Currently the intro is an intro to the SEA and the broader SEA process, not so much on the baselines 	<p>The introduction was re-structured to provide an overview of the basins and sub-basins, the context of hydropower development, stakeholder consultation events and a summary of legal and institutional issues. Each individual baseline chapter now has its own Executive Summary and Conclusions.</p>

Comments		Responses
C1.	<p>Energy alternatives Part 1, p. 2: “While the country has abundant energy resources - including renewable alternatives - hydropower is the main source of fuel for electricity requirements, followed by natural gas and coal (ADB 2013).”</p> <p>Comment: The introduction should include further detailed discussion of the alternatives, including renewables. Information on the options for energy mix would usefully inform the SEA’s analysis of hydropower sector within the broader energy sector.</p>	<p>The business-as-usual (BAU) case used in the SEA assumes that all projects could go ahead in the next 30 years. The SEA focuses on hydropower given the immense E&S risks which are not well understood or documented.</p>
C2.	<p>Potential and risks Part 1, p. 2: “Future hydropower investments carry great potential to contribute to poverty reduction and economic growth if they are well executed” and “they also carry huge risks if environmental and social issues are not carefully assessed and integrated into a systematic sustainable development decision-making framework”.</p> <p>Comment: The statement regarding potential is not exclusive to hydropower. Other renewables would have at least equal capacity to contribute to poverty reduction and economic growth. Similarly, if not done well, they carry risks and may further impoverish (in relation to hydropower this has been demonstrated in many studies, such as the report of the World Commission on Dams (2000), Thayer Scudder- <i>The Future of Large Dams</i> (2005), and other publications). While social and environmental issues are noted, the report works from the assumption that impact mitigation is always possible through careful assessment, rather than recognizing cases in which impacts are best avoided by not building. It is important to acknowledge that even where E&S risks are carefully assessed and integrated into a decision-making framework, impacts will not be entirely avoided.</p>	<p>All other chapters have included more on the impacts of existing projects in Myanmar. The introduction chapter also acknowledges that the addition of up to 48,000 MW of medium to large scale hydropower projects under BAU development over the next 30 years will entail most major rivers being developed, resulting in river fragmentation, substantial changes to river processes and functions, and the loss of E&S values.</p> <p>The SEA will provide a sustainable development framework (SDF) for hydropower in each major river basin in Myanmar. If utilized, this will facilitate making better decisions that involve project locations, and help assess cumulative environmental and social impacts at sub-basin and basin levels.</p>

Comments	Responses
<p>C3. Scope and objectives Part 2.1, p. 3: “The SEA is not a process to promote hydropower or to recommend projects for development. It is not intended to identify which of the planned projects should proceed, or to provide a detailed environmental impact assessment (EIA) of individual projects.”</p> <p>Comment: This is a crucial point in terms of understanding the scope and objectives of the SEA and the framing of the analysis, and should be emphasized.</p>	<p>This was emphasized by providing more information on the overall methodology for the SEA.</p>
<p>C4. ‘Sustainable hydropower development’, Part 2.1, p. 4: Comment: The term ‘sustainable hydropower development’ is referenced throughout the report, yet the term and criteria are not defined. More detail is required with respect to the definition and standards used to define this term for the purposes of the SEA and specifically in the Myanmar context.</p>	<p>Further definition on the sustainable development framework (SDF) for the hydropower sector is now in the Introduction chapter.</p>
<p>C5. Scope and objectives, Part 2.1, p. 4: Objectives include: “to ensure a more informed dialogue between stakeholders” and “enhanced understanding by decision makers and other stakeholders of the range of stakeholder values and priorities that need to be considered in formulating the sustainable hydropower development pathway.”</p> <p>Comment: Broader information is needed on the assumptions that underlie the proposed ‘informed dialogue’. For an informed dialogue on hydropower, information is required on, for example, how much energy is needed, for domestic use or export, basis for demand projections, could this demand be met in other ways through alternatives, options for addressing distribution and efficiency issues, demand side management. The described focus of the SEA is to develop an E&S rating for different projects, but this does not tell us anything about hydropower capacity needed overall, or balance between mix of options.</p>	<p>The SEA provides an initial (‘first edition’) planning framework and a clear roadmap of actions to implement and progressively improve future hydropower and related river basin planning.</p> <p>In doing so, integrated basin-wide planning is immediately brought into the front end of hydropower project siting and decision making to develop a more sustainable sector. Integrated basin-wide planning is essential for contending the number and scale of proposed projects rather than promoting the continuation of BAU development. It also provides stakeholders with essential base-level planning information.</p>

Comments	Responses
<p>C6. <u>Scope (Salween), Part 3.3, p. 13:</u> Comment: The SEA is limited in not examining issues of transboundary impacts in neighboring countries on a shared river, including in Thailand with respect to the Thanlwin/Salween.</p>	<p>The SEA does include trans-boundary impacts in the analysis. For example, the Hat Gyi dam and sub-basins in the Thanlwin are discussed in relation to Thailand. Also, the sub-basins in Myanmar are already modified from existing hydropower development in PR China which is considered to define the baseline values.</p>
<p>C7. <u>States and regions, Part 3.9, p. 23:</u> “The SEA analysis is primarily at the basin level, however from a water governance perspective it is very important to also consider the location of specific hydropower projects by state and region.</p> <p>“Many of the projects are planned in the upstream states/regions with 15 hydropower projects planned in Kachin State and 21 in Shan State. These upstream projects fall within areas of high biodiversity value and could impact the water resources of downstream areas with the potential to cause conflict between states/regions. There is also active conflict, contested areas and regional autonomous zones in Kachin and Shan states, which further complicate matters. Even in the smaller basins, the two projects planned in the Lemro River would require coordination between the Chin and Rakhine states.”</p> <p>Comment: This is critical to the conflict, political and nation-building issues described in later sections, there is a need to better articulate how basin planning and management between states and regions will inform the analysis, especially as most proposed projects are located in upstream and ethnic minority areas.</p>	<p>The final recommendations will include river basin planning both at the basin and sub-basin level. The issues of Federalism and state/region control of natural resources will also be discussed in the final SEA report.</p>
<p>C8. <u>Stakeholder engagement plan, Part 4.1, p. 25:</u> “The SEP outlines the stakeholder consultation and communication activities throughout each step of the SEA and the key stakeholder groups. SEP was prepared to ensure that the key stakeholder groups are identified and effectively engaged in each of the key steps of the SEA. The SEP</p>	<p>The stakeholder engagement map has been updated in the introduction chapter to show the scope of consultations. The stakeholder consultation undertaken for the Peace and Conflict analysis was also included. There is also a separate stakeholder engagement map on the IFC website.</p>

Comments	Responses
<p>reviewed and updated regularly as the SEA progresses to reflect experience and advice from ongoing consultations”.</p> <p>Comment: The SEP is a useful tool. How it be regularly reviewed and updated as the SEA progresses? The process should be open, transparent and participatory.</p>	
<p>C9. <u>Learning from existing projects, Part 4.4, p. 29:</u></p> <p>Comment: The report notes learning from experience and issues of existing hydropower projects in Myanmar, including legacy issues. We note that there is also scope for learning from other countries or projects within the region where hydropower is more developed. In particular, where similar challenges are faced such as, e.g. lack of government capacity, weak judicial system and enforcement of regulations, managing impacts on food security and agricultural systems, lessons from existing legacies of resettlement and livelihood replacement programs.</p>	<p>Noted, this has been updated in the Conflict chapter.</p>
<p>C10. <u>Opposition to large-scale hydropower, Part 4.4, p. 29:</u> “Although some CSOs were against large-scale hydropower development until the peace process is resolved there is a starting point for dialogue on options for hydropower development that may benefit local communities and generate revenue for states and regions.”</p> <p>Comment: This statement appears to assume that opposition to large-scale hydropower relates only to concerns around peace and conflict. There is considerable opposition to large-scale hydropower from communities, civil society and other stakeholders in Myanmar for a range of reasons. Efforts should be made to understand and analyze the opposition to hydropower as concerns may not be captured in consultation meetings, especially where communities or groups have boycotted or refraining from participating in the SEA process.</p>	<p>It is stated in the Introduction that CSOs are also opposing large-scale projects due to the environmental and social impacts.</p>

Comments		Responses
C11.	<p><u>Objectives of the SEA:</u></p> <p>“Define a sustainable development pathway for Myanmar over the next 20 years and beyond” (“and achieve broad consensus on this pathway”).</p> <p>The objective should be explained further in paragraph beginning: “SEA is not a process to promote hydro...”, drawing on ICEM’s presentation at baseline workshops, which highlight what SEA is and is not to make it clearer that SEA role is to inform planning and decision-making, rather than to make plans and take decisions.</p>	<p>The SEA purpose, objectives and vision has been articulated with more detail in the revised introduction chapter, particularly in relation to the sustainable development framework (SDF) which the final SEA will set out.</p>
C12.	<p><u>Impact Assessment:</u></p> <p>Phase 2 of the SEA process has had its title changed after the opening section. It is first described as “impact assessment”. It is then described on page 5 as “sustainable development pathway setting”. The section on page 5 appears to describe an impact assessment, providing analysis to rank projects (and presumably overall approaches/scenarios?) according to impact and sustainability. This not the same as ‘setting a sustainable development pathway’, which would entail making decisions about those projects and scenarios and defining an approach to be taken.</p> <p>Suggest change “sustainable development pathway setting” to “sustainability analysis and impact assessment”</p>	<p>Noted, Phase 2 has been changed to ‘Sustainability Analysis’. Also, the sustainable development pathway setting has been modified to Sustainable Development Framework (SDF).</p> <p>The SDF will provide an initial (‘first edition’) planning framework and a clear roadmap of actions to implement and progressively improve future hydropower and related river basin planning. In doing so, integrated basin-wide planning is immediately brought into the front end of hydropower project siting and decision making to develop a more sustainable sector.</p>
C13.	<p><u>Timeline, p.5</u></p> <p>Fig 2.1. sets out the process and timeline. The process described here is very short and does not include sufficient time for collecting data, analyzing and consulting on finding, or drafting and finalizing conclusions.</p>	<p>The timeframe has been extended as noted in Figure 3.1.</p>

Comments		Responses
	<p>The review process for the baseline is already over time. Assessed by looking at the baseline reports, the Impact Assessment phase requires a very large amount of work and significant additional consultation. The timeline for phase 2 (3 months) and 3 (2 months) is not sufficient to enable the SEA team to provide the necessary level of comprehensive analysis or broad consultation to ensure the final SEA findings are accurate, insightful and provide a strong basis to inform future decisions. Moreover, the baseline is not yet complete and so the Impact Assessment phase presumably cannot be complete until 3 months passed the finalization of the baseline, on which it should be based.</p>	
C14.	<p><u>Section 3.3, p.12-14</u></p> <p>Which dam(s) are suspended? Text on page 12 indicates Mong Ton HPP has been suspended, but maps on pages 12-14 indicate that only Weigyi is suspended.</p>	<p>The Mong Ton and Myinstone hydropower projects were included in the introduction chapter as examples of large-scale projects that are suspended. The Hydropower chapter provides a list of the status of all projects in Myanmar, the Introduction chapter now introduced the sub-basins (without hydropower) as there was overlap between these two chapters.</p>
C15.	<p><u>Stakeholder Engagement (SEP), pg. 25 onwards</u></p> <p>The SEP is helpful and demonstrates a good level of consultation given the short time period and challenging scope. However, this remains a very limited level of consultation given the extremely large areas covered by the study and the highly diverse environments and dynamics (e.g. political and economic dynamics, conflict and peace, cultural variations, ethnic perspectives, women and other marginalized groups, etc.). The sites of community consultations are should not be considered representative of issues in other locations.</p>	<p>The consultation with local communities affected by existing hydropower and the stakeholder engagement activities conducted as part of the peace and conflict analysis are included in the Introduction chapter. It is recognized that the consultations are not representative, but provide important ground-truthing opportunities to discuss hydropower development at the basin, sub-basin, state/region and community level.</p>
C16.	<p><u>Section 4.4.to 4.7, pg. 27 onwards</u></p>	<p>Noted, these were initial discussions with stakeholder to guide the analysis in the baseline. The level of consultation suggested would need to be undertaken in follow-up studies at a sub-basins or project</p>

Comments		Responses
	<p>The Affinity Diagram and mapping process to inform the tables of issues and opportunities is helpfully described. However, the groups and individuals involved in consultations as well as the limitations of the approach limit the findings. This means that this should be taken as an informative guide, but far from an exhaustive or complete picture of the issues that concern communities affected by hydropower projects in Myanmar.</p> <p>Additional consultation in contrasting locations and communities (for example) might be important to verify the validity of issue ranking and ensure that key issues are not sidelined. Both gender and land issues are insufficiently and unevenly treated in the SEA Baseline, for example. It is not clear to what extent they have been prioritized.</p> <p>The Impact Assessment and subsequent phases should conduct further consultations to improve the analysis of issues as well assessment of impacts.</p>	<p>level. Further rounds of regional consultations will be done to present the findings for the SEA.</p>
C17.	<p><u>Section 5.7.1, p.38-39</u></p> <p>EIA Procedures approved in 2015, not 2016</p>	<p>Noted.</p>
C18.	<p>1. I generally agree with the methodology that the report assesses the ecological sensitivity and human pressure on the river reaches. The assessment results are critical for strategic environmental assessment of hydropower projects. Site selection is the most effective measure for reducing adverse environmental impacts of hydropower. So, the ecological sensitivity assessment is also vital for reasonable site selection of proposed hydropower projects. I suggest the project team to integrate ecological sensitivity analysis with human pressure evaluation. For each river reach, both the ecological sensitivity and existing human pressure should be considered in SEA and site selection of hydropower projects.</p>	<ol style="list-style-type: none"> 1. The Aquatic Ecology and Fisheries will assess ecologically sensitivity and human pressures in the next phase. 2. This is completed in the next phase of the SEA particularly in relation to Aquatic Ecology and Terrestrial Biodiversity themes. 3. Cultural values will be overlaid in the sustainability analysis phase. 4. Noted, downstream of dams will be included as an impact indicator in the Sub-Basin Evaluation.

Comments	Responses
<p>2. The report doesn't review the existing methodologies for ecological sensitivity analysis and human pressure evaluation. As I know there are a lot of similar studies globally. The report should review the relevant literature and analyze the assessment parameters and methodologies. The methodologies applied in this report should be based on existing methodologies and applicable to Myanmar rivers.</p> <p>3. The geological disaster and cultural heritage are two critical factors that are missed in the ecological sensitivity in this report. Hydropower project should avoid the areas with high risk of geological disaster or high values of cultural heritage. Project safety is the most important issue of hydropower development, so geological disaster must be considered in the ecological sensitivity assessment. Conservation of cultural heritage is extremely important in Myanmar, so it should not be missed in the assessment (Myitsone Dam is an example for this).</p> <p>4. For the analysis of human pressure, the degree of regulation and fragmentation by existing hydropower projects are described in section 5. However, only the Dams Downstream and Reservoirs are considered in Appendix 1. I suggest to replace the Dams Downstream and Reservoirs with DOR and DOF that explicitly describe the impact of existing dams on fragmentation and regulation.</p>	

3. CHAPTER 2 - HYDROPOWER

Comment		Response
A1.	<p>Seasonal storage or type of hydropower projects (HPPs): It would be useful to include a GIS layer or further analysis on which of the planned projects have the potential for seasonal storage and type of projects i.e. run of river, storage or multi-purpose reservoir.</p> <p>Tariffs: The World Bank (WB) are conducting a study on tariffs, will the SEA team include reference to this work in future steps of the SEA.</p>	<p>Seasonal storage: Annex B, the Hydropower Database, provides the information on live and dead storage, mean annual inflow and resulting retention period in days.</p> <p>Tariff: The SEA Team will primarily focus on the environmental and social (E&S).</p>
A2.	<p>Linking with new Energy Master Plan: There are important linkages for the SEA with the Energy Master Plan by JICA, NEWJEC and MOEE. The baseline analysis of power demand has been completed and the energy mix (e.g. hydro, gas, coal) is being assessed now. The Energy Master plan does not consider large-scale mainstream hydropower projects and the objectives are to 1) fill the national supply gap with hydropower, 2) consider environmental and social impacts, and, 3) feasibility of projects.</p>	<p>The SEA team has been in close contact with JICA and NEWJEC to discuss the progress of the JICA Power Sector Strategy.</p>
A3.	<p>Hydropower chapter: Very good stock taking of the hydro power situation in Myanmar and will be an important reference for future assessments.</p> <p>Electricity consumption: The data for 2011 i.e. 110 kWh is correct. But you may want to use the data for 2015, which is 263 kWh per person per year. This is more updated, also reflecting the fact that during the last few years' electricity consumption has increased significantly.</p>	<p>Text updated</p>

Comment	Response
<p>B1.</p> <ol style="list-style-type: none"> 1. Governance: Clarify responsibilities and mandates of union vs. regional governments to authorize hydropower projects and their respective roles in the process to develop hydropower projects 2. Summarize key information with maps, data and graphs: A strategic synthesis that gives a meaningful summary and brings the key issues up within 5 pages up-front in the doc (exec summary) 3. Information gaps - how are those spelled out in the document - Bring some of the Quality Control chapter info up-front to ensure that reader also understands what is missing etc. <ol style="list-style-type: none"> a) Lot of secondary information sources b) How to improve the reliability? c) How to ensure that gaps and uncertainty is communicated clearly? d) Information gaps - government should have info 4. Salween mega dams and their status (major impact in terms of how we look at the overall SEA) 	<ol style="list-style-type: none"> 1. Included with reference to the law (Page 10) 2. Completed 3. Will be described in more detail next stage 4. Will be described in more detail next stage

Comments	Responses
<p>C1. <u>Overall comments:</u></p> <p>Comment: While there is a detailed list of existing and planned hydropower projects described, the chapter lacks any specific discussion of impacts. It does not indicate which are the ‘most likely’ to proceed or specific concerns or issues with respect to those projects. The project information also lacks data on major social impacts such as resettlement.</p> <p>Comment: This section would benefit from additional information and general canvassing of significant social, environmental and economic risks of hydropower projects, in order to inform the SEA analysis (and subsequent informed dialogue). This could include, for example: recent studies demonstrating a pattern of under-assessment of impacts from hydropower projects (Kirchherr et al, 2016), in particular social impacts, such as food security and livelihoods impacts on downstream communities; research on economic and performance risks, including the ‘Oxford study’ highlighting problematic cost overruns and performance challenges across many large dams (Ansar et al, 2014); and research on uncertainties and risks in the relationship between climate impacts and hydropower performance and impacts (see e.g., World Bank, 2011).</p>	<p>The SEA does not aim to delve deep into each individual project but an overview of the projects in the context of the sub-basin evaluations.</p> <p>The purpose of the Hydropower Chapter is to describe the engineering aspects of each existing and under construction power plant and planned projects. Next stage will describe social and environmental of sub-basins including overview of projects.</p>
<p>C2. <u>Improving existing capacity, Part 1, p. 1:</u></p> <p>Comment: The report notes that available hydropower capacity is currently about 50% of installed capacity due to poor maintenance and losses from distribution and transmission. How will issues of improving capacity, performance and maintenance of existing projects to meet demand be addressed in the SEA?</p>	<p>Some information has been added to the Hydropower chapter, but a more detailed discussion will be presented in the next phase.</p>

Comments		Responses
C3.	<p><u>Assumptions regarding energy access target, Part 2.2, p. 2:</u></p> <p>Comment: As noted in the general comments, the report cites the flawed assumption that 100% electricity access by 2030 necessarily requires massive grid expansion. This highlights the question of the information and analysis that is required to meet the SEA’s objective of ‘informed dialogue’ on the hydropower sector, including the need to examine emerging options increasingly available for generation and distribution, such as small-scale, de-centralized, hybridized and other technologies that provide potential alternatives to massive grid expansion and large-scale hydropower.</p>	Will be discussed in the next phase.
C4.	<p><u>Severity of impacts of Upper Irrawaddy projects, Part 4.1.1.7, pp. 22-23:</u></p> <p>"Developing all the proposed projects could have severe impact on the basin given that about 600 km of rivers would be inundated" and "potentially 44km" would be dry for at least part of the year."</p> <p>Comment: The reports notes severity of impacts from proposed Upper Irrawaddy projects. If all dams are built, they would have significant water quality impacts, and reservoirs would generally reach the tailraces of dams above. There are further severe impacts beyond inundation and drying out that should be noted, such as changes to seasonal variations, alterations to aquatic ecosystems and habitats, sediment transport, etc. These would in turn have extremely serious implications for fisheries, agricultural productivity and food security and livelihoods of riverine populations.</p>	The analysis of the environmental and social impacts will be discussed in the next phase.

Comments	Responses
<p>C5. BAU scenario based on ‘most likely’ to proceed, Part 4.9, p. 67: “The status of existing HPPs at the basin level provides the foundation for analysis in this baseline report for each of the key themes. During the impact assessment phase, the SEA team will define the business as usual (BAU) case to 2035 based on analysis of the planned HPPs in each of the major basins. BAU is defined as projects ‘most likely’ to proceed in the next 20 years based on the development process and key technical data in the HPP database. The team will overlay the location of existing and pipeline hydropower projects on critical E&S values to categorize projects in terms of potential impact on significant biodiversity, geomorphology and sediment transport, fisheries and aquatic ecology, livelihoods, and conflict and ethnic minorities. The impact on other economic sectors will also be assessed.”</p> <p>Comment: Additional explanation is need on how the BAU and ‘most likely’ projects will be determined.</p> <p>As noted in the general comments, we recommend that the BAU scenario is not confined to hydropower projects, but should include hydropower within the context of a broader mix of energy options. This will enable assessment of the proposed projects in the BAU scenario not in isolation, or merely in terms of E&S values, but in the context of key issues including projected demand, whether for use domestically or for export, other options for meeting demand through alternatives to large-scale hydropower, efficiency, improvements to existing capacity, etc.</p>	<p>The BAU is reflected in MoEE’s present update of the Energy Master Plan. It is not the in the scope of the SEA to do a separate master plan as JICA is developing a Power Sector Strategy and other donors are likely to develop a hydropower master plan. The discussion will include assessment of energy conservation, reduction of use of fossil fuels, and use of renewable energy technologies.</p>
<p>C6. TOC-v:</p>	<p>Tables provided in Annex B.</p>

Comments		Responses
	It would be helpful if an extra annex were added, compiling all basin data in the tables "hydropower development in the ... basin" and "existing and planned ... in ... basin", to provide country overview in 1 page	
C7.	<p><u>Section 2.1 - p1</u></p> <p>“Available capacity is about 50% of installed capacity due to poor maintenance.” Park this for the roadmap, where maintenance and upgrading should be addressed as a (partial) solution to meet power demands.</p>	To be discussed in the next phase.
C8.	<p><u>Section 2.2 - p2</u></p> <p>“... demand for electricity is expected to rise by 9.6% annually ...”</p> <ul style="list-style-type: none"> - It is not traceable where this expectation comes from, and there is no validation (whilst being a sensitive parameter for all following analyses within SEA); - Normally, on such a crucial parameter a scenario- and sensitivity- analysis is presented. Suggest to add that. 	The source of the projected demand growth figure of 9.6% annually is from ADB (footnote 9) and MoEE (footnotes 10 and 11 in final text – Section 3.3). This compares with a growth 2009-10 to 2013-14 of 17.6%. The growth scenarios in the MoEE presentation range between 8.1% and 11.7%. As the economy grows, demand growth will stabilize at a lower level. Detailed power demand studies would be required, which are not in the scope to the SEA.
C9.	<p><u>Table 4.5 - p16</u></p> <p>NP stands for "not provided/published"? These data require completing, as they are essential information for justification/reject of the plants in respect of impacts/alternatives. Same for all other locations where NP is used</p>	MoEE will need to add the missing data to the hydropower database as it becomes available. Many projects are still at pre-feasibility or feasibility level and main parameters have not yet been determined.
C10.	<p><u>Section 4.1.1.2 - p17</u></p> <p>“... moving upstream each reservoir would reach the tail water of the upstream hydropower plant.”</p> <ul style="list-style-type: none"> - preferably also the lateral flooding extent should be shown; 	Annex C shows reservoir inundation for those projects for which sufficient data is available using a digital elevation model (DEM) in the GIS mapping. Note that for a correct reservoir inundation map, information on full supply level is required. It should also be noted that while the DEM model is a useful tool, a detail reservoir map requires a

Comments		Responses
	- is an indication for over-planning (too many plants on too short stretch) > relevant for impact assessment and roadmap later on?	ground control to calibrate the model. The SEA does not envisage such fieldwork.
C11.	<p><u>Section 4.1.1.2 - p18</u></p> <p>“... not clear what percentage of the power would be exported.”</p> <p>That information is essential to justify the planned capacity development and for further scenarios in the roadmap (i.e. the split domestic use/revenue generation). A suggestion (if also over the next months these data could not be retrieved) is to dress some scenarios to enable the economic modeling later on.</p>	The present uncertainty in the development of the hydropower sector in Myanmar, the growth in electricity demand in PRC and large scale development in the mainstem of the major rivers makes determination now of exports uncertain, even if MoEE has some estimates. MoEE’s ongoing energy master plan is considering alternatives, including buying back exported energy for electricity generated in Myanmar.
C12.	<p><u>Section 4.1.1.5 - p21</u></p> <p>“...in the sub-basin after Myitsone, not because of its viability but...”</p> <p>It seems unlikely that anyone will go for not-viable plants, just because they are easily accessible. Viability is to be one of the first filtering criteria to be wielded in the SEA judgments. We expect that it will be treated as such.</p>	The phrase quoted was provided in a SPIC (developers of Myitsone) document and does not necessarily mean that the project is not viable. It means that of the seven projects SPIC is considering in the Ayeyarwady Headwaters, even though another project could be more financially viable, developing Laza first due to ease of access would be preferable to developing Chipwi, Wutsok, Pisa and Khaunglanphu or Renan in a more difficult terrain. That would create revenue for developing the other projects.
C13.	<p><u>Section 4.1.1.7 - p22/23</u></p> <p>“about 600 km of rivers would be inundated ... 44 km of rivers would be dry during part ...”</p> <p>Inundation and drying out are by far not the only severe impacts on a basin (and its inhabitants). Changes in the timing of the seasonal dynamics, frequencies, duration, band-widths and lead times impact as well. Building (the) projects will also impact on water quality, nutrient suppletion, sediment regime, living conditions for riverine organisms, livelihoods, and so on. Advise to address this properly in the upcoming impact assessment phase.</p>	Impacts will be discussed next stage.

Comments		Responses
C14.	<p><u>Section 4.1.2 - p23</u></p> <p>“...more than 15.5 km have been left dry or partly dry between dam and powerhouse.”</p> <p>It is unclear what is meant here, and what the relevance/significance of this observation is.</p>	<p>This refers to diversion projects where powerhouse is at a certain distance downstream from dam connected through headrace canal or tunnel. The river bed between dam and powerhouse will at times (mostly in the dry season, but also at times in the wet season) be left dry if no environmental flow facility is built into the dam.</p>
C15.	<p><u>Section 4.2, p.39</u></p> <p>Figures inconsistent with Introduction chapter (section 3.3) - adjust accordingly.</p>	<p>Adjusted as per recommendation</p>
C16.	<p><u>Section 4.2.1</u></p> <p>Including Yawahthit and Weigy, where data on export % isn't available, leads to significantly underestimating the amount of electricity for export. If these two projects were taken out, estimated electricity for export would be around 80% (8,804MW/10,960MW). This has potential implications for subsequent phase, depending on how the SEA assesses projects slated for domestic generation versus those for export.</p>	<p>The Wei Gyi and Ywathit hydropower plants are mutually exclusive as the former interferes with the latter. MoEE is not proceeding with Wei Gyi.</p>
C17.	<p><u>Fig. 4.15 - p47</u></p> <p>“... a 792 km long penstock ...”</p> <p>Adjust to: 792m.</p>	<p>Adjusted as per recommendation</p>
C18.	<p><u>Section 4.2.4.1 - p51</u></p> <p>“... and the need to resettle several villages ...”</p> <p>We hardly know of any dam where resettlement could be entirely avoided. Why this is raised as a setback for this dam only?</p>	<p>The developer specifically mentioned that the resettlement would entail completely relocating several villages, and therefore social impacts would be too severe for the project to become viable.</p>

Comments		Responses
C19.	<p><u>Annex 1 - p68</u></p> <p>“No information was available on these topics for any of the existing power plants or proposed projects.”</p> <p>How then can/will impact assessment be done on this subject? How will the data gap be filled satisfactorily?</p>	<p>The missing data will be available when feasibility studies are completed.</p>
C20.	<p><u>Annex 1 - p69</u></p> <p>“When reservoir areas were not available, we did not attempt to measure them for proposed projects.”</p> <p>It would be very useful to at least estimate them. Such is not too difficult using basic DTMs/GIS.</p>	<p>Annex C shows some reservoirs illustrated with GIS for dams which FSL was available. Because there is uncertainty of the exact location of the dam and ground control has not been made, they are only indicative.</p>
C21.	<p><u>General</u></p> <p>The chapters collate and extend a vast amount of information relevant to decisions on hydropower development in Myanmar. Data has been rigorously gathered from a diverse range of academic and government sources, as well as other organizations. The authors perform a great service in making this information publicly available to enhance decisions on trade-offs between sectors to improve economic and social benefits while reducing environmental and social risks.</p> <p>There are a large number of typographical errors in the text that are not detailed here.</p> <p>1. The aim “to i) define a sustainable development pathway for hydropower” sounds like it could be as paradoxical as sustainable mining. If any dam has a finite lifetime (e.g. due to siltation) it is by definition unsustainable. I understand the upper Ayeyarwady has a substantial silt load. So one might speculate (subject to evidence) that there is no sustainable development pathway for hydro there? Perhaps the aim could be qualified “define a sustainable development pathway for hydro, where sustainability is technically possible, rather than implicitly assuming it is?”</p>	<p>Comment 1: The SEA aims to develop a sustainable development framework (SDF for the hydropower sector. The SDF will provide an initial (‘first edition’) planning framework and a clear roadmap of actions to implement and progressively improve future hydropower and related river basin planning. In doing so, integrated basin-wide planning is immediately brought into the front end of hydropower project siting and decision making to develop a more sustainable sector.</p> <p>Comment 2: The sustainability analysis for the conflict and social and livelihoods theme will ensure that equitable and distributional issues are covered in the Final SEA report.</p> <p>Comment 3: Broad consensus is one of the objectives of the SEA and agree that it may be difficult to achieve; however, this goal has ensured the SEA has been designed to consult a broad range of stakeholders.</p> <p>Stakeholder engagement has been key to inform and guide the SEA. Numerous stakeholder meetings and consultations have been held to map local authorities’ and communities’ environmental and social</p>

Comments	Responses
<p>2. Might the first aim not be qualified to add “equitable (e.g. just/democratic/consensual-FPIC)” as well as sustainable? I am sure no one would want to impose “sustainable” hydro without consent, right?</p> <p>3. Aim ii) “achieve broad consensus on this pathway” – well when a “broad consensus” on democratic reform of the 2008 military constitution emerges, agreement on this subsidiary issue might be possible. But in the meantime, while there are shooting wars going on, any decisions in conflict areas represent de facto assertions of control and as such is likely to exacerbate conflict. So “broad consensus” sounds rather fanciful to me, particularly from a Kachin/Shan perspective & consulting unelected EAGs (including ones being shot at) is not a substitute for peace-time decision-making.</p>	<p>concerns, as well as expectations for hydropower development in Myanmar.</p>
<p>C22. The hydropower chapter does a marvelous job of pulling together government and industry data, and enhancing it with further analysis. It is an excellent factual accounting of the hydropower sector in Myanmar.</p> <p>There are three areas where I think that the information provided in this chapter could be enhanced (and perhaps these are covered in latter chapters):</p> <ol style="list-style-type: none"> 1. Potential for application of strategic assessment for dam siting. A number of systems have been proposed to enable national governments to systematically plan hydropower projects so as to preferentially site dams at sites that minimize social and environmental impacts while providing economic benefits, e.g. MRC. (2010). Basin-wide rapid sustainability assessment tool. Vientiane, MRC. The SEA could usefully outline the relevant tools and list barriers and opportunities for their application. 2. Data on environmental impact assessment in Myanmar Commentary in this chapter cites environmental impact assessments for several projects yet the law and process for EIA is not described. It would be useful to outline EIA processes in Myanmar and any options for enhancing these procedures to meet international best practices. 	<ol style="list-style-type: none"> 1. Will be discussed in the next stage 2. Text has been introduced on the Myanmar EIA requirements 3. Will be discussed in the next stage

Comments	Responses
<p>3. Application of environmental mitigation measures.</p> <p>While I appreciate the great difficulty in gaining systematic and accurate data, it would be useful if there were a description of the environmental mitigation measures applied in the hydropower sector in dam design, because of EIA and in operations. For instance, in China in the Lancang/Mekong basin in Yunnan, the following biodiversity impact mitigation measures are applied to different degrees and with different effectiveness:</p> <ul style="list-style-type: none"> • Transporting fish • Fish ways • Fish lifts • Tributary river fish reserves • More active fisheries administration • Fish breeding & release • Environmental flows • Sediment flushing • Artificial fish egg breeding nests • Thermal pollution control <p>Given the dominance of Chinese companies in hydropower development in Myanmar, it would be useful to know if they are transferring their knowledge and implementing these mitigation measures in Myanmar. It would also be useful to know the barriers and opportunities for the government of Myanmar to require such mitigation measures.</p>	

4. CHAPTER 3 - GEOMORPHOLOGY AND SEDIMENT TRANSPORT

Comment		Response
B1.	<ol style="list-style-type: none">1. Strategic synthesis relevant to the hydropower SEA exercise in the beginning (exec summary)2. Bring up the gaps also as part of the above, since important to appreciate what we don't know to guide SEA and be realistic what type of analysis (and reliability) is possible with current baseline3. Speaks clearly about implications, indicators and issues to consider in potential scenario development, which is useful for the next steps	Executive Summary added and knowledge gaps included.

Comments		Responses
C1.	<p><u>Section 1.1 - P.3</u></p> <p>Section describes the scope of the entire SEA. But this report only deals with the present processes, not the projections, not the scenarios, not the impacts. Suggest to re-write the introduction accordingly.</p>	Introduction clarifies that this report is only the baseline of the SEA.
C2.	<p><u>Table 3.1 - P.10</u></p> <p>This analysis (where it comes to predicting sediment contribution) should be refined with vegetation cover/deforestation map. In addition, sub-soil characteristics (depth of layers, karsts) and fractures map should be intersected as well to come to a much more refined assessment of erodibility.</p>	Sediment supply and transport is a very complex process and it is recognized that land use changes exert a large effect. Recommendations will include a more in-depth analysis be completed where information is available.
C3.	<p><u>Section 3 - P.12</u></p> <p>“These characteristics govern the characteristics of the rivers ...”</p> <ul style="list-style-type: none"> - There are many more characteristics that govern rivers, see a.o. comment on page 10; <p>“These” refers to the preceding tables. However, these tables do not reflect characteristics; they reflect categories (made by the authors).</p>	Agreed there are many more characteristics that contribute to rivers, but the fundamental form of rivers is related to geology, slope and rainfall. The ‘Categories’ are comprised of the characteristics of slope, geology, etc. Text has been clarified to acknowledge that <i>all</i> catchment activities will contribute to river systems.
C4.	<p><u>Section 4 - P.18</u></p> <p>“In Figure 4.11, the river flowing ...”, and “In the western portion of Figure 4.11, the meandering ...”</p> <p>Change 4.11 to 4.4.</p>	This text was part of the figure caption. Numbering has been corrected.
C5.	<p><u>Section 4.1 - P.19</u></p> <p>“... include unrecognized changes to cross-sections ...”</p> <p>What about obvious man-made changes as is HPP, channelling, bank- protection, bridges, sand mining, navigability improvements? These are not</p>	The ‘unrecognized changes’ refers to changes in the cross-sections where the river flow is measured (gauging sites). Cross-sectional changes at these sites will have a very large impact on the determination of river flow. This was not a reference to land or

Comments		Responses
	<p>so, hard to detect and should be included.</p> <p>“... assumed to be applicable to the other river catchments ...”</p> <p>This assumption should be substantiated. Monsoon rainfall can show significantly different patterns over vast areas as is Myanmar.</p>	<p>channel changes that might locally affect the channel cross-section. The text has been clarified.</p> <p>It was agreed that monsoonal patterns vary considerably across Myanmar. The statement intended to highlight the linkage between peak sediment load and peak flow. It did not intend to imply that peak sediment loads will occur at all locations at the same time. The text has been clarified.</p>
C6.	<p><u>Section 4.2 - P.21</u></p> <p>“... which the authors suggest is a reasonable assumption ...”</p> <p>The assumption in itself is already highly debatable, as is its applicability (being very case sensitive). That being so, the authors should motivate why they believe the assumption as such is reasonable, why it applies to the Myanmar rivers, and why it is solid (enough) to adopt it for further use in the SEA.</p>	<p>This is not being adopted for use by the SEA. It is being cited as a study relevant to the baseline condition of the river. The text has been changed to clarify that the authors mentioned (ar Garzant et al.), and not the authors of the SEA.</p> <p>This is a very important study and that it is probably most applicable to the sand sized material in the system. Sand is important because it maintains channel and delta stability. This study highlights that the headwaters of the Ayeyarwady are the likely source of half the sand in the system, which is a very important finding, especially as the Chindwin is generally assumed to provide the ‘majority’ of sediment in the system.</p>
C7.	<p><u>Section Figure 4.10 - P.22</u></p> <p>Figure is cut-off. Suggest to reposition elsewhere.</p>	<p>Figure is truncated to only show Myanmar. The remaining GMR is not relevant to the discussion.</p>
C8.	<p><u>Section 4.2 - P.23</u></p> <p>“The colors in Figure 4.12 correspond to the ‘soft’ and ‘hard’ rocks shown in the geologic map in Figure 2.2. ‘Hard’ rocks are more likely to persist as bedload because soft rocks</p>	<p>There was an error in the figure referencing in this section, and part of a figure caption was erroneously included in the text. These errors have been corrected. The aim of the section is to highlight that fine-sediment (silts and clays) and coarse sediment (sand and gravels) have different sources and both should be considered.</p>

Comments		Responses
	<p>will abrade (erode) and able to be transported in suspension. Sediment inputs based on values presented in this report.”</p> <p>The purpose of this part up to next chapter 5 is unclear, and confusing: same colors are used as in Fig. 4.11, and both colored areas are in the "rock" area as defined in 2.3. Advise to rewrite or leave out.</p>	
C9.	<p><u>Section 5 - P.24</u></p> <p>“... the following data and information gaps have been identified ...” Additional gaps are: vegetation cover / deforestation - man-made structures influencing the rivers - soil sub-strata (as karst en layer depths).</p> <p>“... information by the relevant Ministries and groups.” Suggest to add: and by parallel projects as SOBA/AIRBM.</p>	<p>There is some available information on vegetation and deforestation and this is considered by other themes. Have added man-made structures to the list.</p> <p>Unfortunately, the delay to SOBA has meant that the SEA will not be able to draw upon information generated from the project.</p>
C10	<p><u>Section 6.1 - P.25</u></p> <p>“...rate of water level change in a river...” Level changes are only one aspect. Flow changes are to be treated as well as the two are not correlated 1 to 1.</p> <p>“...altering the quantity of sediment...” It is not only the sediment quantity that influences geomorphology. Changes in its composition (quality) may trigger their own changes.</p> <p>“...loads can reduce floodplain deposition.” Not only that: such reduction can -even worse- provoke erosion of floodplains.</p>	<p>All components of flow (magnitude, duration, frequency, rate of water level change and seasonality) are listed as important.</p> <p>Volumes can be written about how hydropower can affect geomorphology-this is a brief overview only. Text modified to address these suggestions.</p>

Comments		Responses
	<p>“...impact through the smothering of habitats and the biota, and impacts from potentially poor water quality;” Add: and impacts on downstream erosion/sedimentation, flooding, safety.</p> <p>“These effects include:” To rephrase: “The triggers and their main effects include:”</p> <p>“... that can alter sediment budes and affect river bank stability;” budes > budgets add [after stability]: and water quality.</p> <p>“...and river channel conditions; ...” Change to: “... and river channel and water quality conditions; ...” Note; water quality impacts may (this applies to both the intake location and the downstream location for releasing drainage water).</p>	
C11	<p><u>Section 6.1 - P.26</u></p> <p>• “... water remaining in the channel.” Add: “and can lead to higher water levels (flooding) at spots that were previously not inundated.”</p>	Noted.
C12	<p>• <u>Section 6.3 - P.26</u></p> <p>“Climatic changes, along with hydropower developments and irrigation extractions are ...” Add: “and industrial extractions/discharges, and urbanization”</p> <p>“...but rather alters the seasonality and pattern of delivery, ...”</p>	<p>Text altered to highlight importance of hydropower and irrigation in the context of the SEA and that these are discussed in other chapters of the report.</p> <p>This discussion is focussed on hydrology rather than water quality</p>

Comments		Responses
	<p>Alter in to: “the seasonality, pattern and quality...”</p> <p>“...so is unlikely to affect the quantity of ...”</p> <p>This is an incorrect conclusion and can in no way be maintained. There are countless examples of reservoirs that lose substantial volumes to groundwater and/or to evaporation.</p> <p>“These attributes (relatively small scale developments on low order tributaries), suggest that collectively they could exert only a small to moderate low impact on the hydrology of river systems.”</p> <p>This conclusion is debatable and too fast: lower order Strahler basins in general generate the more sediment (fractioning, slides, etc.). The report contradicts itself on this (statements in 6.4).</p> <p>“...major factor affecting the hydrology of the basins ...”</p> <p>But what about affecting fish (migration, triggered by pulsing and temperature), fish propagation (sensitive to pulsing and temperature), flash floods, etc.?</p>	<p>Loss of water from hydropower to groundwater and evaporation is stated, but the most common impact of hydropower is the alteration of flow patterns, not the change in flow volumes.</p> <p>The overall impact of the irrigation dams is debatable. When the first draft of this report was written the SEA team only had an incomplete list of the irrigation projects in the catchment. Since then, additional information has been obtained and it is likely that irrigation is exerting a larger impact than first suggested. The text has been altered to include this discussion.</p> <p>Issues affecting fish are discussed in another chapter.</p>
C13	<p>Figure 6.3 - P.0</p> <ul style="list-style-type: none"> Quality of images to be improved substantially - cannot be verified/assessed now. 	Image enlarged and explanation enhanced
C14	<p>Figure 6.10 - P.5</p> <ul style="list-style-type: none"> Quality of images to be improved. 	Image enlarged and legend clarified
C15	<p>Section 6.5.3 – p6</p> <ul style="list-style-type: none"> “...a reduction in material available for deposition.” Additionally: lower sediment loads can cause severe erosion (to far) downstream. 	Erosion included in text

Comments		Responses
C16	<p><u>Section 7 - P.37</u></p> <p>•</p> <p>“...or rate of water level change in a river... “</p> <p>Change to: “or rate of water level and/or water flow change in a river... “</p> <p>“These ‘responses’ can include channel deepening or widening, bank erosion, channel constriction (if high flows are removed) ...”</p> <p>Add [after “removed”]: “, changes to water quality, temperature, clarity, salinity.”</p> <p>“... alter the nutrient quantity and composition in the discharge;”</p> <p>Also, the quality, as different nutrients bind to different sediment particle sizes. Hence, the nutrients that typically attach to the relatively bigger suspended load particles could be held back in the storage (by the flow being paralyzed);</p> <p>Add after “discharge”: and can induce downstream erosion.</p>	<p>Magnitude, duration and frequency of flow changes already included in text</p> <p>Text clarified to emphasize that the discussion relates to geomorphic processes</p>
C17	<p><u>Table 7.1 - P.37</u></p> <p>•</p> <p>To add as an indicator: Dam operation and maintenance.</p> <p>Explanation: The Annual sediment loads and the Seasonality of sediment loads (first 2 mentioned indicators) are not sufficiently decisive. Short-term fluctuations/changes like those caused by dam flushing- and spilling- regimes (timing, magnitude, duration) can have severe (unsustainable) impacts on downstream stretches and on the habitats and livelihoods.</p> <p>To add as indicator: River use changes.</p> <p>Explanation: they may lead to loss of livelihoods by filling up of deep fish ponds, small scale sand mining becoming impossible (by too high depths, or material being washed away), water quality becoming unsuitable for fish propagation/domestic use.</p>	<p>Annual, monthly and daily flow rates added as indicators.</p> <p>Land use changes are already included as indicator.</p>

Comments		Responses
	<p>“Irrigation volumes and seasonality of extractions” Add [after “extractions”]: “and return flows (drainage)”</p>	
C18	<p><u>Section 8.1.1 - P.38</u></p> <ul style="list-style-type: none"> “contributing to the changes is presently relatively small ...” In respective of what the reports presents, this is a too strong formulation. At best one could say: “At present, there is hardly any data to judge the contribution of hydropower development; hence it is our preliminarily assumption that the contribution is relatively small.” 	<p>The list of existing and under construction hydropower projects made available to the SEA team has increased substantially since the first draft of this report. The discussion regarding impacts of hydropower on flow has been modified.</p>
C19	<p><u>Section 8.1.2 - P.38</u></p> <ul style="list-style-type: none"> “...the future drivers of changes ...” To be added as a driver: Climate Change (a.o. via sea level rise, changes in intensity/duration/timing/location of rainfall). “...and water for irrigation;” Add: “, for industrial development, and for domestic use and consumption”. 	<p>Climate change is included as a major theme under biodiversity and climate change so not highlighted here.</p>
C20	<p><u>Section 9 - P.41</u></p> <ul style="list-style-type: none"> “Where applicable findings from the Ayeyarwady can be applied to other river basins to provide a high-level understanding of sediment transport in the absence of data;” Suggest rewording: “In the absence of data, findings from the Ayeyarwady are assumed to be applicable to other river basins to provide a first feel for the sediment transport.” “...where in the river are sand and / or gravel being extracted ...” 	<p>Text clarified</p>

Comments		Responses
	<p>Add [after “extracted”]: “and other potential uses such as fisheries, fish ponds, transportation, commerce.”</p> <p>“...changes to navigation in the past few years due to changes in the size or distribution of sandbars?”</p> <p>Navigation is not the issue here and a very indirect tracer for sediment changes > suggest to rephrase: “...changes in the past few years related to the sedimentation- and erosion-pattern (shallows and depths)?”</p>	
C21	<p><u>Section 9.1 - P.41</u></p> <p>• “... such as river bank-agriculture and sand mining.”</p> <p>Add [after “mining”]: “and other potential uses such as fisheries, fish ponds, transportation, commerce.”</p>	<p>It is not possible to address all aspects of all issues in this brief overview report. These other land uses are addressed under other themes.</p>
C22	<p><u>General comments</u></p> <p>• 1. The knowledge management of the chapter could be improved in two ways. First, the chapter does not clearly and systematically present the state of the knowledge and the knowledge gaps, and they could be made more explicit in the report. For example, the report does not explain the extent and quality of the literature review and the basis for identifying research gaps. State of the knowledge and knowledge gaps are crucial for understanding the starting point of the assessment of the hydropower development and for focusing future efforts. Second, the report discusses various existing reports, analyses and literature but these sources are not always adequately cited. Adding the missing references would increase the usefulness of the report and allow the reader to evaluate the cited knowledge. In addition, it would help to differentiate between existing knowledge and the knowledge that was produced within the report.</p>	<ol style="list-style-type: none"> 1. The intent of the chapter is to provide a brief overview of the existing information. This is clarified in the introduction of the report 2. References have been reviewed and clarified 3. Figure size has been increased and figures clarified where possible. Clarity was lost during the editing phase of the draft and attempts will be made to limit that occurring again 4. Climate change is presented under another theme. The role of climate is discussed at a high level and is clarified 5. Transboundary issues are discussed in the catchment sensitivity and assessment reports 6. Linkages to other themes has been revised and discussion increased

Comments	Responses
<p>2. Most figures are not readable due to small figure sizes and low resolution. Please improve figures. This applies also to other chapters of the full SEA report.</p> <p>3. The topic of climate and its link to sediments is practically omitted. For example, research in the Mekong River Basin has shown that weather and climate are major drivers of sediment transport (Darby et al., 2013; Darby et al., 2016). Climate change may also influence erosion and sediments.</p> <p>4. Transboundary issues are not discussed. Transboundary issues are relevant particularly in the sediment management of Thanlwin, which has extensive dam development in the Chinese part of the Basin.</p> <p><u>Section specific comments</u></p> <p>5. Section 1.4 Linkages to other themes. The presentation of the linkages could be improved by covering all linkages systematically by following the order of the key themes of the full report (hydropower, biodiversity, aquatic ecology and fisheries, economic development and land use, social livelihoods and conflict) and by describing each linkage with adequate examples. This would highlight and make explicit the importance and cross-cutting nature of the geomorphology and sediments.</p> <p>6. Section 1.5 Studies and activities relevant to the theme. Map of monitoring stations and a statement on the extent and adequacy of the monitoring data could be added. This would help to understand the data availability and future needs.</p> <p>7. Section 5 Information gaps. Major gaps that could be emphasized further are a) the spatial information on the sediment sources, b) the understanding of critical geomorphological sites and processes that have high significance for ecology and social and economic activities.</p>	<p>7. Monitoring data and sites were not provided directly to this project and this report draws on existing data held by ICEM. A total review of sediment monitoring is beyond the SEA scope</p> <p>8. Climate change is a separate theme and the linkages will be enhanced.</p> <p>9. The fundamental reason for maintaining ‘sediment supply’ is because of its importance in underpinning biogeophysical and social processes. This has been previously stated so was not repeated in this section. The section has been slightly revised to again highlight these linkages.</p> <p>It is intended that subsequent reports will continue to highlight the data needs and information gaps that are required to be filled for sustainable development of hydropower. Unfortunately, the rate of hydropower development far exceeds the rate at which these data can be collected, so the SEA needs to use whatever information is available to try and inform and guide hydropower development. There are some major ‘lessons’ that have been learned with hydropower development, hydropower and geomorphology and these can be drawn upon to guide the discussion while real data is collected.</p>

Comments	Responses
<p>8. Section 6 Description of the key themes. Climate change and its potential effects on erosion and sediments could be included as a separate theme or included into existing ones.</p> <p>9. 9. Section 7 Definition of sustainability objectives and impact assessment parameters. Here a stronger link could be established between the ‘sediments’ and the ‘biophysical processes and social activities’. I consider it is important to connect geomorphology and sediments to other themes of the report when making sustainability objectives.</p> <p>10. Section 9 Assessment Methodology. Two suggestions to consider: climate and its role in erosion and sediment transport could be added to literature review; for basin scale, spatial analysis of sediment generation a potential method can be based on universal soil loss equation. See for example Zhou et al. (2014).</p> <p><u>Minor comments</u></p> <p>11. Problem with page numbers in table of contents References Darby, S. E., Leyland, J., Kummu, M., Räsänen, T. A., and Lauri, H.: Decoding the drivers of bank erosion on the Mekong river: The roles of the Asian monsoon, tropical storms, and snowmelt, <i>Water Resources Research</i>, 49, 1–18, 2013. Darby, S. E., Hackney, C. R., Leyland, J., Kummu, M., Lauri, H., Parsons, D. R., Best, J. L., Nicholas, A. P., and Aalto, R.: Fluvial sediment supply to a mega-delta reduced by shifting tropical-cyclone activity, <i>Nature</i>, 539, 276-279, 10.1038/nature19809, 2016. Zhou, Q., Yang, S., Zhao, C., Cai, M., and Ya, L.: A Soil Erosion Assessment of the Upper Mekong River in Yunnan Province, China, <i>Mountain Research and Development</i>, 34, 36-47, 10.1659/MRD-JOURNAL-D-13- 00027.1, 2014.</p>	

Comments	Responses
<p>Overall, Chapter 3 thoroughly compiles data and information that is available in Myanmar on geomorphology and sediment transport. It is evident that a great deal of effort was taken to synthesize existing research on the geomorphology and sediment transport of Myanmar's rivers.</p> <p>The primary concern is that the geomorphic and sediment data that does exist in Myanmar are not detailed enough to thoroughly assess the potential impacts from various hydropower infrastructure options in the future. Additional baseline data are needed to fill the current information gaps, which is necessary to thoroughly assess the potential impacts of future development on the country's rivers. Specific examples are discussed below.</p> <p>The study mentions that Myanmar is a major contributor of sediment, carbon and nutrients to the Andaman Sea, but this has not been accurately or consistently quantified. While there is course knowledge regarding the annual sediment budget and there is also agreement that sediment transport in the basin is demonstrates patterns of seasonality, this information needs to be understood at a local scale to effectively map the sediment sources and sinks that contribute to the overall sediment budget. More data is needed to locally describe the geomorphic state (i.e. width, length, drainage), hydraulic features (i.e. flow velocity), sediment grain sizes, and sediment transport capacity across all significant tributaries in the country.</p> <p>While much of this kind of detailed information is beyond the scope of the SEA, it is important that these data needs be documented so that data collection for future EAs and CIAs can be focused accordingly.</p> <p>It is widely understood that hydropower impoundments will change the geomorphology of river systems by altering the magnitude, frequency, duration and seasonality of rivers. There is not enough existing data available for this study to</p>	

Comments	Responses
<p>accurately describe the local and existing hydrology of Myanmar’s rivers. This type of data should include more detailed and local analyses of river discharge and seasonal fluctuations.</p> <p>Furthermore, there are a variety of drivers in the country that will affect river function. These drivers have not fully been realized and locally mapped, such as extractive uses like irrigation and drinking water supply or river stretches that are important for river navigation. These drivers should be fully integrated with the potential hydropower development scenarios to understand the full scope of developmental impacts. It is also evident that climate change has already impacted the Ayeyarwady basin. Yet, it is unclear how future climate change will continue to impact the river ecosystems and what those regional differences across the country’s landscape will look like. This information is necessary to fully understand how present and future hydropower projects are likely to impact the characteristics of rivers in Myanmar and how their operations and functions will be impacted by changes in river seasonality and discharge</p>	

5. CHAPTER 4 - TERRESTRIAL BIODIVERSITY

#	Comments	Responses
A1.	Ecosystem Services: Please include more information in the biodiversity chapter on ecosystem services.	An expanded section has been added on ecosystem services
A2.	Biodiversity: There are lots of unknown key biodiversity areas (KBAs) or areas in some river basins that have not been surveyed, how will these be included?	Since the baseline chapter was drafted the IFC supported a two-day workshop on KBAs convened as part of the SEA process. That event involved relevant government agencies, international and national NGOs and experts from the academic community. It involved intensive working sessions to review and update the KBA network which was defined about six years ago, it led to the major expansion of the network to include more terrestrial and aquatic system areas. The baseline assessment report was then revised to reflect the results of the KBA workshop.
A3.	<p>Ecosystem services: More analysis is needed to highlight the importance of ecosystem services. The WWF work in Myanmar on natural capital and other studies on ecosystem services could be incorporated into the biodiversity chapter.</p> <p>National Sustainable Development Strategy (NSDS) 2008: The SEA should include reference to the NSDS 2008 which still informs natural resource management and policy in Myanmar.</p>	<p>The section on ecosystems services has been expanded substantially to take on the WWF work and other studies.</p> <p>The chapter includes significant references to the National Biodiversity Action Plan 2016, which builds on the NSDS 2008.</p>

#	Comments	Responses
C1.	1. Comments on this being one of the most important chapters of the report, as impacts from hydropower development on biodiversity will in turn affect other functions and values of river systems, such as livelihoods.	The SEA team has tried to respond to all comments in the revised version of the biodiversity chapter. A major addition since the baseline assessment, responding to many of the comments, focus on the sustainability analysis volumes including a detailed

#	Comments	Responses
	<p>2. Yet conclusions drawn about biodiversity occurrence, distribution and condition are highly influenced by the quality of data, which is generally poor throughout many regions of Myanmar, and especially in states such as Kachin, Shan, and Chin where considerable hydropower development is expected to occur.</p> <p>3. While Chapter 5 includes information on aquatic biodiversity, this chapter focuses primarily on terrestrial biodiversity, a distinction that seems somewhat arbitrary and not especially helpful for a study on the effects of hydropower development. For example, Key Biodiversity Areas (KBAs) and Protected Areas (PAs) are generally delineated and managed with no inclusion of freshwater needs. This is often true globally, but especially pertinent here in Myanmar. Their benefits to freshwater are limited to proximal benefits, which are limited to local watershed issues, as altered connectivity, flow alteration, water pollution, and exotic species affect streams and rivers in PAs and KBAs from upstream and downstream.</p> <p>4. While there are some KBAs that include freshwater species, most current KBAs are designed for terrestrial biodiversity and do not encompass the watershed or other smaller contributing areas and habitat features critical for freshwater ecosystem process protection. Therefore, evaluating the number and area of protected areas, particularly without any assessment of management effectiveness, seems like a weak approach that makes assumptions about the effectiveness of protected areas and KBAs. This is good baseline information to be sure, but it is only partially relevant to an assessment of potential hydropower impacts, and in some cases, may be misleading.</p> <p>5. See the following in terms of potential limited benefits of PAs to freshwater ecosystems and the biodiversity they support: Michele Thieme; Nikolai Sindorf; Jonathan Higgins; Robin Abell; Judy A Takats; Robin Naidoo; Annalee Barnett. 2016. Freshwater Conservation Potential of Protected Areas in the Tennessee and Cumberland River Basins, USA. <i>Aquatic Conserv: Mar. Freshw. Ecosyst.</i> 26 (Suppl.</p>	<p>assessment of 58 rivers sub-basins in terms of geo-morphology, aquatic systems and terrestrial biodiversity. Responses to each comment in turn:</p> <p>1. The SEA team agrees on the importance of the biodiversity chapter – which needs to be read in conjunction with the separate ecological baseline assessment chapters on geo-morphology and aquatic systems. The three bio-physical chapters are complementary.</p> <p>2. Yes, the SEA team has emphasized the situation with data as part of the introductory chapter of the baseline assessment report – and in annexes – substantial analysis of forest cover has been added to the biodiversity chapter with detailed commentary on the status of data in an annex.</p> <p>3. The SEA team agrees on the need to consider terrestrial and aquatic systems as fundamentally integrated. Aquatic systems were allocated its own chapter given its fundamental relevance and importance for the hydropower sector. The team also agrees on the weaknesses of the KBA system which had been defined some six years earlier. For that reason, a major two day working session of government agencies, INGOs and national NGOs and academic experts was convened and the KBA network was revised. The baseline and other chapters were then revised to accommodate the new digitized KBA areas and boundaries. This freshwater system includes a greatly expanded number of wetland KBAs. The issue of effective management of KBAs and PAs is given greater attention to aquatic systems is a very important</p>

#	Comments	Responses
	<p>1):60–77. Diego Juffe-Bignoli, Ian Harrison, Stuart H.M. Butchart, Rebecca Flitcroft, Virgilio Hermoso, Harry Jonas, Anna Lukaszewicz, Michelle Theme, Eren Turak, Heather Bingham, James Dalton, William Darwall, Marine Deguignet, Nigel Dudley, Royal Gardner, Jonathan Higgins, Ritesh Kumar, Simon Linke, G. Randy Milton, Jamie Pittock, Kevin G. Smith, Arnout van Soesbergen. 2016. Achieving Aichi Biodiversity Target 11 to improve protected areas performance and conserve freshwater biodiversity. <i>Aquatic Conserv: Mar. Freshw. Ecosyst.</i> 26 (Suppl. 1): 133–151. Abell et al. 2016. Looking beyond the fence line: assessing protection gaps for the world’s rivers. <i>Conservation Letters</i> DOI: 10.1111/conl.12312 Roux, D. J. et al. 2008. Designing protected areas to conserve riverine biodiversity: Lessons from a hypothetical redesign of the Kruger National Park. <i>Biological Conservation</i> 141((1) 100-117. Abell et al. 2007. Unlocking the potential of protected areas for freshwaters. <i>Biological Conservation</i> 134(1) 48-63 https://doi.org/10.1016/j.biocon.2006.08.017</p> <p>6. The analysis of forest cover change is used a surrogate for forest ecosystem health, and should be seen as such. It is not a direct measure of biodiversity, but can provide useful insights. A true biodiversity assessment would have much more information on not just tree canopy-cover, but would include summaries of inventories/surveys on more than one taxa group, most typically plants, mammals, birds, reptiles, amphibians, and at least one invertebrate group. Typically, other information such as habitat condition, disturbance and biology would also be noted.</p> <p>7. However, this does not mean that this chapter is not worthwhile, especially given the scope of the assessment (country-wide) and reason for the assessment (hydropower). In many cases, canopy-cover is an indicator of ecosystem health (especially in forested ecosystems) which is important for river flows and sedimentation - and consequently hydropower potential. What is not known is the</p>	<p>comment – and one which needs to be reflected in the sustainability framework to be prepared as the final report of the SEA.</p> <p>4. The SEA has not assessed management effectiveness of PAs and KBAs where they fall outside PAs – as it goes beyond the scope of the SEA. While recognizing its importance, the SEA process was unable to assess management issues in the 5.7% of the country under PAs. We have included a series of boxes on specific PAs in the revised biodiversity chapter which provides commentary on management issues and experience. The issue of PA management should be raised in the sustainability framework as an important opportunity for a broader contribution by the hydropower sector – and an essential part of effective watershed management.</p> <p>5. References have been reviewed. The SEA team believes that the issue of fresh water habitat conservation as part of the national protected area systems should be addressed as part of the sustainable development framework to be prepared by the SEA team.</p> <p>6. Forest cover change cross referenced with KBAs is used as a surrogate for forest ecosystem health and of biodiversity status trends generally. The revised definition of the national KBA network as part of the SEA was given priority because of the basic assumption that KBAs consider existing inventories/surveys on various taxa groups, including plants, mammals, birds, reptiles, amphibians, and invertebrates. The revised KBA system also provides commentary on habitat</p>

#	Comments	Responses
	<p>actual condition on the ground - which may be better or worse than the canopy-cover indicates. This type of assessment also does not adequately cover dry-forest regions, which could show less forest than occurs on the ground, so could be misleading.</p> <p>8. The changes in forest cover and the health status in river basins documented in this chapter are remarkable, and should be discussed in terms of their effects on sediment and nutrient loading, stream temperature, and increased flashiness of the hydrologic regime. These are discussed in terms of ecosystem services, but it would be helpful to be more explicit in terms of ecosystem health and biodiversity. Similarly, these same effects should be addressed for mining and other development impacts.</p> <p>9. The country is sub-divided by WWF terrestrial ecoregions. Ecoregions can be used as a very coarse proxy for biodiversity distribution, but tell us little about condition. It is a little strange that the report used terrestrial ecoregions and not freshwater ecoregions for this assessment - which would have been more appropriate given this is a hydropower assessment. See, for example, the following reference which includes condition and trend information similar to that for terrestrial ecoregions: http://www.feow.org/ecoregions/details/sitang_irawaddy</p> <p>10. The country is sub-divided down to the township level for further assessment, but interestingly, not sub-basin, which would have been more useful.</p> <p>11. The stated objective of this chapter is to draw on existing information to “establish an evidence base for defining areas of the country which have biodiversity of international importance,” and to identify specific areas within sub-basins that are of special significance. This does not seem to have been done, as this report is mostly about tree canopy-cover, and sub-basins have not been delineated (nor any data presented for them). This does not mean that this chapter is not useful, as it is a useful compendium of existing information at the major basin level. However, to</p>	<p>condition, disturbance and biology. Apart from that important innovation, and as important as it is, the SEA has not been able to review inventories and surveys for specific taxa. We note that the National Biodiversity Action Plan does provide such a review. The SEA could provide recommendations on priorities for inventory and survey.</p> <p>7. One way we have tried to include some sense of actual condition on the ground is to draw on anecdotal evidence provided by the Advisory Group and through discussions with conservation NGOs and academic experts. We have updated the analysis of status and trends in the WWF ecoregions accordingly. That was especially important in the dry zone and for forest types with low canopy – which is not well reflected from space analysis of forest cover changes. We agree that forest cover assessment does not adequately cover dry-forest regions, which could show less forest than occurs on the ground.</p> <p>8. We agree with this comment – and refer to the geomorphological chapter in which the issue of sediment and nutrient loading and flow is considered in detail – and the relationship they have with watershed ecosystem health. The economics chapter provides description and commentary on the mining sector and other sectors for their ecosystem and environmental health impacts as part of the baseline.</p> <p>9. The aquatic systems chapter uses freshwater regions especially for the Ayeyarwady and Chindwin systems (which it divides into five hydro-ecological regions).</p>

#	Comments	Responses
	<p>be even more useful, it should have at least taken the two largest and most important basins (Ayeyarwady and Thanlwin basins) and compiled/analyzed the information at the sub-basin level.</p> <p>12. No mention of locally conserved areas and sites, and over-reliance on PAs as indicators of an areas importance for biodiversity (understandable but PAs should not be the only proxy measure when assessing potential biodiversity impacts of hydropower for planning purposes)</p> <p>13. Over-identification of shifting cultivation as a driver of deforestation although the REDD+ assessment has found that it is not.</p> <p>14. No clear distinction of relative importance of drivers of deforestation and degradation (over-emphasizing local level use threats taking information from the Oikos PA book) - should look at the REDD+ drivers of deforestation and degradation document which did a good job of describing this.</p> <p>15. Should also refer to the world heritage tentative lists for species lists and why each site is of regional and global biodiversity importance.</p> <p>16. Over-reliance on KBAs as an indicator of biodiversity value. It's a useful indicator but shouldn't be considered the only one - need to keep the door open for other ways of measuring biodiversity importance as more data comes in about different sites.</p> <p>17. Important Bird areas are cited for one park but oddly not included otherwise, even though a lot of them are important because of water birds (where are the water birds in this report? where is mention of their important migration sites? Especially since there's data about them available.</p> <p>18. The chapter has generated a lot of content but without synthesis, perspective or analysis of what matters and why. Worth pointing out areas that have high biodiversity value and are claimed under customary tenure/protected in local ways that aren't part of the PA system.</p>	<p>10. The SEA now divides the country into 58 sub-basins and provided individual assessments on their ecological values, social and livelihoods, and conflict status and trends – that detailed assessment is now a separate volume as part of the sustainability analysis report. We have also included a synthesis of that sub-basin analysis in the revised biodiversity baseline assessment chapter.</p> <p>11. In response the team developed a stand-alone assessment of ecological values in 58 sub-basins of Myanmar. Still more work is to be done in understanding each sub-basin fully – but for the SEA, the analysis at this level has been a foundation for the sustainability analysis phase and report.</p> <p>12. We have now expanded that to cover the new KBA system cover 42% of the country – and an original analysis of stream/river diversity and priorities for intact river approaches and special conservation investment.</p> <p>13. An important point – and the revised biodiversity chapter has tried to address it.</p> <p>14. We agree that this requires further treatment. The team is currently referencing the UN REDD+ Readiness Roadmap 2013.</p> <p>15. We have now included references to the World Heritage documentation in analysis of the aquatic and terrestrial systems in both chapters – and through the various case boxes.</p> <p>16. The major expansion of the KBA network and descriptors has greatly improved this indicator for the SEA.</p>

#	Comments	Responses
		<p>17. The SEA team has included detailed consideration of aquatic species and water birds has part of the revised aquatic systems baseline chapter and in the sub-basin evaluations.</p> <p>18. We have brought together a synthesis section at the end of each section and at the end of the chapter in the revised biodiversity baseline which draws from the sub-basins analysis. That identifies the sub-basins and areas of greatest biodiversity value and why.</p>

6. CHAPTER 5 - FISHERIES, AQUATIC ECOLOGY AND RIVER HEALTH

#	Comments	Responses
B1.	<ol style="list-style-type: none"> 1. Given the limited amount of data, the river reach analysis seems to be one appropriate approach for classification and understand e.g. how rare some systems are 2. In this report, it is important to highlight the current information gaps -> precautionary approach. We can use proxies to try and delineate some specific areas, to avoid painting the whole country as SENSITIVE (ones or some already included in the report) -> Endemism correlation with River Reach Rarity 3. Important to ensure that IBAT data is treated per the caveats mentioned in the report, particularly regarding endemism in upper reaches. 4. Chapter 5. Please include sand mining into the list of mining activities. Major issue and only going to increase as construction grows in Myanmar, particularly in the Irrawaddy/Chindwin basin 5. The overall gaps in terms of fisheries, aquatic BD, endemic, migratory etc. species could be brought up early in the report and address the implications in terms of need for precautionary approach 	<ol style="list-style-type: none"> 1. Noted 2. Information gaps have been highlighted as an issue at the same time as identifying recent aquatic biodiversity surveys that are starting to fill this gap 3. Limitations of the IBAT data has been recognized in the text 4. Sand mining has been mentioned as a mining pressure as well as alluvial gold mining, though its distribution is widespread but not specific enough to map 5. The gaps in data have been mentioned, and there will be a recommendation in the final analysis which emphasizes the need to fill these gaps as soon as possible e.g. during EIAs

#	Comments	Responses
C1.	<p>In general, an excellent document, a very comprehensive background and well presented. The coverage of groups of species was well done, and presented very good supporting data, and noted the discrepancies (e.g. IBAT and recent surveys) clearly and rather honest in its appraisal.</p> <p>It was great to see nutrition. I have one major points that I think should have more consideration, and be highlighted as this is an SEA for hydropower: Fish Migration, it is mentioned here and there, (word searchers have migration at 3, and migratory at 3). Considering the importance of migratory fish species to the area for commercial (e.g. Hilsa, Tenualosa ilish), livelihood (e.g. small fish, short distance migrators such as the cyprinids, barbus (nutrition centres!)), and, conservation species (e.g. Snow trout (Schizothorax spp and Mahseer (Tor spp-also commercial)</p> <p>I would have expected a section devoted to this group of fishes importance, around what we know (more than you think) and how they are distributed (Hilsa start in sea, and have been recorded up to Myitkyina now, and we think they are spawning), and what we need to know.</p> <p>Although this SEA only concentrates on large and medium rivers, hydropower at any scale could have big effects (noted in document but very brief) (see photo), and from a nutrient point of view most important as these small hydro structures impede small fish migration (But I am getting off track a little for scope of this document).</p> <p>Key migratory species identified, and while these are captured in the different listings, it is their migratory needs that make them most important and vulnerable to hydropower development.</p>	<p>An additional sub-section on fish migration has been added, with more specific information on species such as Hilsa</p> <p>The value of mainstems as a migratory pathway has been emphasized.</p> <p>Have tried to improve readability of maps</p>

#	Comments	Responses
	<p>Hilsa (<i>Tenualosa ilish</i>) Pangasius spp Tor spp Schizothorax spp Anguila and other eels</p> <p>A few slight formatting issues also to consider to increase readability.</p> <ul style="list-style-type: none"> - Fig 3.1. Hard to figure out where zones start and end, unless good local knowledge. Catchment sizes and length of rivers on maps. These are very nice maps. - Yewa or Yeywa dam, on the actual structure it says Yeywa dam Sensitivity map colors a bit hard to distinguish 	
C2.	<p>This is another very important chapter of the report, and it is not clear why it is separated from the previous chapter on biodiversity.</p> <p>The river reach classification that serves as the foundation of the analyses does not include the diversity of river ecological systems and processes that support and maintain river habitats and biodiversity. It is focused more on a sub-set of attributes. For instance, it ignores headwaters, and it is impossible to protect individual reaches of rivers without understanding the array of environmental processes, often from upstream, which help maintain specific river reaches. The approach generates a limited set of sensitive areas as priorities that will be challenging to manage and protect given the dynamics and diversity of river ecosystems. This classification is also wanting in several other critical attributes. For instance, the classification focuses on medium and large rivers, and does not include smaller ones, which can be critical for habitats and processes that support species. This is exemplified in the Thanlwin basin, where there are few river reach priorities because it lacks many large tributaries due to the nature of its geology and topography.</p>	<ul style="list-style-type: none"> • Aquatic ecology has been treated as a separate topic from terrestrial biodiversity, because the impacts are very different, so it is easier to consider them separately • River reach class is one set of comprehensive data that is readily available for the whole of Myanmar (except the Rakhine sub-basins.) The data set also includes headwater streams, but these have not been included in the maps (only down to medium sized rivers) because of the level of detail would be confusing at the scale of the whole country. Small rivers and headwater streams is available in the data sets and analysis. • We agree that it is difficult to distinguish each and every river reach type on the maps at this scale. When we consider the sub-basins and impacts in greater detail, more specific diagrams have been presented.

#	Comments	Responses
	<p>The river basin classification maps that are one of the key products of this chapter are difficult to see in terms of the size and format they are included in the report. Related, the colour schemes used for classification are so similar from one to the other, that making visual distinctions is nearly impossible, especially for the larger river basins. It would be helpful to include separate maps of each sub-basin for greater clarity. Major river/tributary names should be labelled on all maps. This is a serious shortcoming of many of the maps included in the report, but one that can be easily addressed. Lack of labels of this kind makes the maps difficult to use, especially those maps that classify river reaches per biodiversity significance or human pressure.</p> <p>Sub-basin boundaries should also be shown where possible. An overview map of the country with each major river basin and sub-basin labelled with the river name should be included for orientation at the beginning of the chapter. It is surprisingly difficult to find a good map showing all major rivers in Myanmar, with landmarks like towns and cities for geographic reference. (In Figure 3.6 it is not clear why for this map only a “floodplain index” rather than a river reach classification is shown. Floodplain index is not explained in the narrative).</p> <p>The evaluation of ecosystem occurrence and rarity is a good product here, but its usefulness is limited since the classification was limited in the types of rivers that were classified – with a bias on large rivers.</p> <p>Data deficiency is especially prevalent for aquatic species and habitats and is potentially a major flaw in the analysis documented in this chapter. A large proportion of the aquatic species known in Myanmar’s river basins are listed by IUCN as “data deficient.” Similarly, a high percentage of species in the IBAT database (as high as 27%) are likewise classified as “data deficient.” A relatively large number of new species (36) were identified in recent</p>	<ul style="list-style-type: none"> • Maps have been focused a bit more, the Floodplain index map for the Sittaung was more of a place marker than the final product. • Data deficiency is recognized as a limitation of this assessment, and the methods used are an attempt to make the best use of whatever information we have got. Where there are specific examples of other studies on fish or mollusks, these have been included as case studies. • It is unrealistic for a study of this scale to be able to provide the comprehensive information about geomorphological features such as rapids and shoals, so these have not been used. • Data limitations and approaches to dealing with this has been included in the methodology. • It is recognized that the ecological value index used tries to identify those river reaches which are in some ways unique and important to be protected. A systematic analysis of all the ecosystem functions and services that rivers provide has not been used, partly because of data difficulties, but also because all rivers will be providing these in some degree, and it is difficult to use this to distinguish the important parts of rivers. • Similarly, in the absence of comprehensive data on water quality or river health, it is difficult to map river health status.

#	Comments	Responses
	<p>surveys of a few regions in a short period of time, suggesting that many, many additional new species will be found with further survey effort in more locations. The highest reported numbers of endemic fish tend to occur in higher gradient/elevation headwater or mountain streams, where many additional species remain undescribed, and in the Inle and Indawgyi Lake basins, likely somewhat biased toward places where long records of species exist or known biodiversity hotspots. Data used for identifying stream reaches of biodiversity significance is based on global data and is perhaps biased toward KBAs, karst landscapes and confluences.</p> <p>The report was unable to include finer-scale features important to aquatic biodiversity such as shoals, rapids, pools, spawning grounds due to lack of information. This, lack of data on native species, combined with even less data on the distribution and impact of non-native fish species reinforces the need for more detailed basin-scale survey data for cumulative impact assessments of hydropower development or EAs for individual hydropower projects.</p> <p>Consequently, this issue in general needs a section of its own in this chapter, to describe at a high level the major data gaps, likely biases (for example, basins that might be so data-poor across all species or sources that they are likely under-emphasized), and generally how those biases are addressed in the analyses.</p> <p>Ecological sensitivity defined using rare and endangered species belies the sensitivity of the ecosystem to development issues, ecosystem processes and habitats, and excludes those that contain common species important to regional biodiversity representation. This approach may be lacking some significant concepts. Given the lack of biodiversity survey data, maintaining the entire suite of ecosystem processes and habitats through classifying and identifying the best</p>	<p>The approach taken has been to map human pressures and assume that where these are high, the river health status will be lower.</p> <ul style="list-style-type: none"> • The references on this have been noted. • Migratory species have a separate sub-section – see above • The evaluation of impacts of existing dams is included in the human pressure index, and for certain basins the ecological value has been downgraded slightly due to existing dams in the descriptions of each sub-basin (i.e. not in the baseline) • The use of density of fisheries was considered as a GIS overlay, but not used, because it was patchy and distributed by township. A surrogate for the use of fishery has been taken as the density of rural populations above each river reach, which is part of the river reach classification data set. <ol style="list-style-type: none"> 1. The percent of forest cover above each river reach is another attribute of the river reach classification provided in the WWF dataset. It is taken from global assessments in 2000, so it does not reflect recent losses of forest cover. It is however the only comprehensive data set available to us, without doing primary analysis on this. 2. “Well-preserved landscape around Inle Lake” – this is taken from descriptions from UNECSO World Heritage designations, which presumably also includes cultural changes on the

#	Comments	Responses
	<p>examples of ecological systems throughout the watersheds seems a better choice than focusing on relatively sparse data and poorly known biodiversity – an approach known as the “Coarse Filter” approach, which is supplemented with known species data. Maintaining functional environmental processes and habitats for the freshwater realm in a connected fashion makes sense for sustaining biodiversity, but this is not well discussed. See Higgins 2003 and Higgins et al., 2005 for concept and criteria for classification and designing priorities for freshwater conservation: Higgins, J. V., M. Bryer, M. Lammert and T. FitzHugh. 2005 “A Freshwater Classification Approach for Biodiversity Conservation Planning”. <i>Conservation Biology</i> 19(2) 432-445 Higgins, J. V. Maintaining the Ebbs and Flows of the Landscape – Conservation Planning for Freshwater Ecosystems. Chapter in: Groves, C. R. and contributors. 2003. <i>Drafting a Conservation Blueprint: A Practitioner's Guide to Regional Planning for Biodiversity</i>. Washington, D.C.: Island Press.</p> <p>A summary from Higgins and Chapin about the Ayeyarwady freshwater ecoregion from a global assessment used to identify last freshwater biodiversity strongholds includes the following: The Ayeyarwady (Irrawaddy) River (Moderate/High Confidence) is located in the Sittaung-Irrawaddy freshwater ecoregion, which is a tropical and subtropical floodplain and wetland complex. The information on species diversity patterns within this ecoregion is not well documented, and based to a great extent on expert knowledge. According to supplementary information to Abell et al (2008), the fish fauna in this ecoregion includes 241 documented species, 25% of them endemic to this ecoregion, considered the highest level of endemism in the eastern Himalaya drainages. The river supports a freshwater dolphin, and is a critical area for migratory birds. Expert opinion considers the diversity to be higher, and new species were recently discovered, and continue to be. The lower river supports extensive rice cultivation. This ecoregion comes</p>	<p>landscape. The high human pressures on the Inle Lake sub-basin is recognized in the analysis.</p> <p>3. Indawgyi Lake is mentioned twice because it features both as a Ramsar site and in World Heritage listings – the detail is not repeated</p> <p>4. The use of the name Thanlwin has been corrected. Note that the international river is known as the Salween, while the river in Myanmar is the Thanlwin.</p>

#	Comments	Responses
	<p>out as being high in the rarity-weighted index, moderate in current threats to freshwater biodiversity, and moderate-high in potential future hydropower development.</p> <p>The summaries of species information included in the chapter are good, but as mentioned above, this is an old approach and is insufficient for protection and sustaining the variety of aquatic fauna and flora that is poorly studied or unknown. The lack of a focus on migratory species and their range requirements, migration corridors and spawning locations is also a critical issue not well addressed.</p> <p>The evaluation of impacts from dams is solid, but does not separate existing condition from future threats well enough. The evaluations of types and degrees of threats for terrestrial and freshwater ecosystems seems well done in general. However, the distinction between current condition and future threats might be better articulated.</p> <p>The report uses land use data as a surrogate for human pressure on freshwater resources, which is reasonable. There is discussion about using “density of fisheries” but please note that this is not included in the GIS overlays.</p> <p>The metric used for deforestation is percent of upstream watershed deforested, regardless of when this deforestation occurred. This is an understandable and reasonable metric given the available data. However, the assumptions and biases in this approach are not fully explained.</p> <p>While cumulative deforestation may provide a good measure of human impact, it may also be biased toward the effects of subsequent land uses, such as agriculture, which already have their own metrics. It may be more helpful to include some measure of recent deforestation as the metric here. For example, can the Global Forest Watch database be</p>	

#	Comments	Responses
	<p>used and mapped to river reach? Using a proximal contributing area evaluation as well could also strengthen this evaluation.</p> <p><u>Other comments on this chapter:</u></p> <p>Page 32: it is not clear what “...in a well-preserved landscape” means when referring to Inle Lake. The watershed of this lake, like the lake itself, has been highly altered by cultural and agricultural practices.</p> <p>Page 33: not clear why Indawgyi Lake Wildlife sanctuary is listed for a second time in this section.</p> <p>Fig 4.3 refers to the Thanlwin River as the “Salween,” whereas elsewhere in the document, the river is called by its currently accepted name, “Thanlwin.” Should use consistent naming throughout.</p>	

7. CHAPTER 6 - ECONOMIC DEVELOPMENT AND LAND USE

#	Comments	Responses
A1.	<p>Floodplain agriculture: Consider the connection between the river and floodplains and the role of sediment and nutrient transport for agricultural productivity.</p> <p>Navigation: The economic chapters should consider the importance of navigation and local boat transport.</p>	<p>This linkage has been considered in Table 3.2. While nutrient transport is important for agricultural production in the flood plains and deltaic areas it has not been possible to quantify the relationships or talk about this linkage with any degree of precision.</p> <p>Navigation has been considered in the transportation section of the economics report.</p>
A2.	<p>Use of fuelwood: In the forestry section of the Economics chapter, please check the ADB figures and refer to other figures on fuelwood use as this is generally lower except for in charcoal production areas.</p> <p>Navigation: Navigation is not only declining due to road transport, there is also limited investment in fleet and infrastructure. The analysis should be more aspirational and consider the impacts of hydropower on expanding the sector.</p>	<p>Noted. Estimates have been updated based upon. Kissinger, G. 2017, Background report for identifying the drivers of deforestation and forest degradation in Myanmar. UN-REDD and MONREC. Annual level at around 20-22 million tons of fuelwood per year. Unclear whether charcoal production estimates, including exports are included in this figure.</p> <p>Thank you for the comment. However, the role of the baseline assessment is limited to understanding current conditions in each of the sectors, past trends and drivers, and start identifying possible interactions with HP. Possible interactions between HP and navigation have been noted in table in Table 6.3, which recognizes interactions between navigation and hydropower.</p> <p>Moreover, it should be noted the baseline report does note underinvestment is an important driver of trends in the sector: “While the sector has the potential to be competitive, it has not received adequate investment. Per a recent ADB report, the sector has been “abandoned by the Government”. Starved of even basic investment its competitiveness has been eroded by more modern road-based transport” Section 6.6 page 79</p>

#	Comments	Responses
A3.	<p>Economics chapter: Value of hydro power was estimated to be \$735 million, solely based on equivalent gas-based production costs. This is OK but need a caveat so that not to mislead the readers.</p> <p>Consistency between hydropower and economics chapter: double check the data to ensure consistency as pp 10-12 of the Economics Chapter also provides data of similar context but with different values.</p>	<p>The method of estimation is clearly cited in the text (page 4), and the source for the cost data given in footnote 9.</p> <p>By and large the same sources were used for both pieces of analysis. The figures have been double checked for consistency.</p>

#	Comments	Responses
B1.	<ol style="list-style-type: none"> 1. Explores the links between economic sectors and HP well 2. Land use and tenure in itself not deeply assessed in the context of HP and economic development <ol style="list-style-type: none"> a) Trade-offs b) Conflict c) Peace process d) Federalization e) Benefit sharing 3. Agriculture - Impacts on the delta extremely important element <ol style="list-style-type: none"> a) Type of ag (floating rice vs high input intensive ag) b) Sediment transport 	<ol style="list-style-type: none"> 2. This analysis will be explored in the final SEA report. The issue of conflict is considered in a separate section of this study (Chapter 8). Land tenure issues are not investigated in any detail in this section as the focus has rather been on agriculture, forestry and mining as productive sectors. The report recognizes the importance of land tenure as a development issue and its potential role in depressing agricultural productivity through effectively reducing investment. The text has been changed in section 3.7 to emphasize this. Short-comings in land tenure arrangements will undoubtedly need to be addressed when considering the mitigation of hydropower development. 3. As this is the baseline, we have not sought to investigate the impacts in any detail, rather the focus has been on identifying current conditions, trends and drivers in the different sectors. Potential impacts will be investigated in the sub-basin evaluations.

#	Comments	Responses
C1.	<p><u>Table 1.3, P.9</u></p> <p>This table, ranking sectors in terms of the level of interaction with hydropower does appear to provide a useful set of priorities, albeit at a very broad level.</p>	<p>The SEA aims to take a broad, bird’s eye view of the environmental and social values associated with the hydropower sector.</p>
C2.	<p><u>Section 2.1.3, P.13</u></p> <p>It is good that the assessment recognizes the importance of prioritizing domestic energy needs, rather than exporting energy. This is clearly an important issue for many people in Myanmar in terms of use of strategic natural resources to benefit the people.</p>	<p>Noted.</p>
C3.	<p><u>Section 2.1.5, P.14-15</u></p> <p>The statement regarding the clear costs advantage of hydropower should be qualified. Historically, hydropower projects have externalized or significantly underestimated environmental and social costs – better incorporation of these costs would affect cost competitiveness of hydropower versus other energy sources. Also, hydropower face cost overruns and delays e.g. see Oxford University 2014 Study, which found “overwhelming evidence that budgets are systematically biased below actual cost” https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2406852</p>	<p>Noted. The study recognizes the potential external costs. Nevertheless, as a matter of fact these costs have generally not been fully internalized. The cost curves LCOE and are used to illustrate the motivation for wanting to pursue hydropower. The perceptions of direct costs are probably the most important factor driving technology choice in the sector. It should also be noted that the external costs of other technologies are not generally included in these cost curves either (e.g. greenhouse gas (GHG) emissions, other air pollution etc.) and the large cost overruns (associated with many large-scale projects with significant civil-works components) are not factored into estimates of LCOE from these sources. With regards to cost overruns, depending on the wording of concession agreements, the (private sector) developer would generally need to agree to bear some or all this risk, it unlikely that all this cost would pass through to the consumer.</p>
C4.	<p><u>Section 2.2.2, P.17-18</u></p>	<p>The question of technology choice in the power sector and the potential for demand reduction measures are important issues for Myanmar. It is important to ensure that environmental and social impacts are given</p>

#	Comments	Responses
	<p>The discussion of the future energy mix is very limited. It does not appear to include any assessment of future changes in cost/efficiency (e.g. very large cost reductions and efficiency increases for renewables can be expected), leading to underplaying potential role of renewables in future mix. It also fails to identify the importance of social and environmental impacts as a critical factor in determining the mix - especially the major concerns about the harmful climate and ecological and health impacts of coal generation. It also has no reference to the role that energy efficiency measures can play.</p>	<p>adequate consideration in power sector planning. The SEA will contribute to improving this planning process through the systematic assessment of the environmental and social implications of hydropower development plans.</p> <p>The scope of the SEA does not extend to the consideration of alternative power development strategies in any detail as the focus is on the E&S impacts of hydropower. Section 2.2.2 serves to put plans for hydropower development into the broader power sector context. This section is descriptive, it does not seek to prescribe a suitable generation mix, or demand-side measures. The mitigation section of the report will make recommendations about follow up research. It is likely that some recommendations will be a thorough investigation of alternative power generation options and demand side projections.</p>
C5.	<p><u>Section 3.4, P.29 onwards</u></p> <p>The report is negative about the usefulness and impacts of swidden agriculture (see environmental issues linked to agriculture). This appears as a one-sided and subjective assessment. Anecdotally, and on the basis of existing research, there is in fact evidence of widespread deforestation caused by illegal logging of high value trees.</p> <p>Swidden agriculture forms a vitally important livelihood and a strong part of the culture and identity of many rural and ethnic communities in Myanmar. Failure to recognize the potential and importance of this practice undermines the credibility of this assessment and also raises significant risks if planning and development is not conducted with a full understanding of the importance of such practices.</p>	<p>The assessment tries to reflect a broad range of views in the literature regarding swidden agriculture and tried to present a balanced - albeit brief - summary of these views. The account relied mainly on publicly available academic and grey literature on the topic including:</p> <p>Schmidt-Vogt, D., Leisz, S.J., Mertz, O. et al., 2009, An Assessment of Trends in the Extent of Swidden in Southeast Asia, Hum Ecol (2009) 37: 269;</p> <p>Thien, U.S., 2012, Study on the Evolution of the Farming Systems and Livelihoods Dynamics in Northern Chin State. GRET/LIFT;</p> <p>Win, S., 2004, Investigation on Shifting Cultivation Practices Conducted by the Hill Tribes for the Development of Suitable Agroforestry Techniques In Myanmar;</p> <p>Chan, N., and Takeda, S., 2016, The Transition Away from Swidden Agriculture and Trends in Biomass Accumulation in Fallow Forests Case Studies in the Southern Chin Hills of Myanmar; and,</p>

#	Comments	Responses
	<p>The following comment in the forest section, immediately after analysing the main drivers of deforestation, is an example: <i>"Other contributory factors to deforestation include the conversion of land for small scale, generally household, agricultural production, and the extension and/or intensification of swidden agriculture. However, these factors seem to be of secondary consideration for the forestry sector because they generally take place in areas where forest resources are already degraded and of limited commercial value. Furthermore, there seems little available data on the extent of this type of land conversion. Some commentators suggest that the expansion of swidden agriculture remains a cause of deforestation in some upland areas in Myanmar". (page 52)</i></p> <p>This section should be revised to provide a more balanced assessment of the drivers of deforestation and degradation, and of the importance and impact of swidden agriculture practices and small-scale agriculture.</p>	<p>Ziegler, A.D., Bruun, T.B.,Guardiola-Claramonte, M., Giambelluca, T.D., Lawrence, D., Lam, N.T., 2009, Environmental Consequences of the Demise in Swidden Cultivation in Montane Mainland Southeast Asia: Hydrology and Geomorphology. Hum Ecol. 37:361–373.</p> <p>It has been supplemented by materials from: Andersen, K.E., 2015, Study of Upland Customary Communal Tenure in Chin and Shan States. Outline of a Pilot Approach towards Cadastral Registration of Customary Communal Land Tenure in Myanmar. Land Core Group. Kissinger, G. 2017, Background report for identifying the drivers of deforestation and forest degradation in Myanmar. UN-REDD and MONREC.</p> <p>Secondly, it should be noted that logging and fuelwood extraction are identified as the main drivers of deforestation in section 4.4. The text has been amended to reflect the ambiguous nature of the evidence on the relationship between deforestation and shifting cultivation.</p> <p>Thirdly, the account does try to evaluate the importance of swidden systems for the agricultural sector, with estimates of land use for swidden agriculture and number of households likely to be involved in/dependent upon swidden.</p> <p>The upper estimates for swidden clearly demonstrate the potential importance of the practice in the country. At the same time, there are no transparent or robust estimates of the current extent of swidden agriculture in Myanmar, its productivity, nor its environmental impacts (positive <i>and</i> negative). The SEA is an assessment of agricultural production in the context of hydropower. As such it does not seek to account for cultural or other values, these are addressed in chapters 7 and 8 of this assessment.</p>

#	Comments	Responses
C6.	<p><u>Section 3.8, P.33</u></p> <p>Related to comment above, suggest delete “some assessments have suggested that swidden agriculture is the single largest cause of forest loss in Myanmar”. This statement is inconsistent with section 4.5, which indicates that main causes of deforestation in the river basins are due to e.g. mining, logging, plantations etc.</p>	<p>Noted. Agreed that this statement is potentially misleading and does not sit well with section 3.4 and section 4 on the forestry sector, it has been removed.</p>
C7.	<p><u>Section 3.7 & 3.8, P.33 to 35</u></p> <p>There is an absence of acknowledgement of the damaging impacts on soil and the environment of the continued spread of mono-cropping. For example, the spread of banana production in Kachin is displacing people, plus the agrochemicals used are causing harm to adjacent paddy areas. The spread of corn production (see http://www.world-grain.com/articles/news_home/World_Grain_News/2016/12/Myanmar_corn_production_foreca.aspx?ID=%7B6205447A-9257-4032-8673-6BE8CEAF349D%7D&cck=1) is also regarded by local organizations and small scale farmers as a driver of deforestation, just as it has also been in Thailand.</p>	<p>Noted. Sections 3.3, 3.7 and 3.8 have been amended to better reflect these concerns.</p>
C8.	<p><u>Section 3.10, P.35</u></p> <p>It is an unhelpful and narrow framing to discuss impacts on agricultural production alone, instead of on agriculture and rural development (in particular smallholder agriculture). The people are missing from the assessment and impact analysis, and this needs to be addressed in subsequent stages.</p>	<p>Please note this is not an impact analysis, it is a baseline report. Moreover, the focus is on potential interactions with hydropower. People and livelihoods are addressed in Chapter 8.</p> <p>Page 7 states the objectives and limitations to this analysis, “Other sections of the SEA deal with the implications of hydropower development for bio-physical systems and communities. This section takes the first step in developing an investigation of the linkages between hydropower and the economy and the likely impacts of hydropower development on economic</p>

#	Comments	Responses
		production...[The section]... baseline seeks to develop a broad strategic picture of relevant economic sectors, highlight development and environmental issues, identify interactions with hydropower development and identify potential cumulative impacts of hydropower and other economic development.”
C9.	<p><u>Section 4, P.39 onwards</u></p> <p>The forest section looks like it has a good assessment of where the timber extraction is happening.</p>	Noted.
C10.	<p><u>Section 4.3, P.45</u></p> <p>It is helpful to see a good recognition of the role of community forestry, but there is no reference to government targets in this area (Masterplan), which are not being met. Also, it is unclear how these more sustainable forest activities are going to be impacted by hydropower. Could this be checked against Government maps of CF plantations?</p>	<p>Noted. Where policy is a driver for established trends it has been included (e.g. ban on timber exports). But elsewhere where targets are in place, but not impacting events on the ground, it has not been taken into account.</p> <p>We will consider the impact on community forestry of hydropower development if it turns out to be relevant, in the impact assessment phase of this project.</p>
C11.	<p><u>Section 5.6</u></p> <p>The assessment correctly talks about "land issues" in 5.6 (mining section). Why is this not included in the agriculture and forests sections, where it is of critical importance?</p> <p>This is one of many areas where it appears that perhaps the different sections of the reports are drafted by different people/organizations with varying levels of attention, completeness and quality.</p>	Noted. Weak tenure rights have been noted as a critical factor in depressing agricultural development, the text has been adjusted to emphasise this in sections 3.7 and section 4.4.

#	Comments	Responses
C12.	<p>General</p> <p>The chapters collate and extend a vast amount of information relevant to decisions on hydropower development in Myanmar. Data has been rigorously gathered from a diverse range of academic and government sources, as well as other organizations. The authors perform a great service in making this information publicly available to enhance decisions on trade-offs between sectors to improve economic and social benefits while reducing environmental and social risks.</p> <p>There are a large number of typographical errors in the text that are not detailed here.</p> <p>ENERGY</p> <ul style="list-style-type: none"> - I miss a discussion on the impact of FDI in energy sector, page 13-14 mentions sharing contracts and exports of electricity, but no evaluation of how these contracts are impacting - Reflection on the amounts of energy/power needed for type of industries and link to opportunities for smaller generation by renewables (cf manufacturing vs heavy industry) - I miss more attention for small-scale grids and investment opportunities there.... overall it seems this report is taking an old-school approach to favoring a centralized main grid and large-scale production units (coal and hydropower) vs decentralized multi-source grids. Section 2.2.2 on page 18 should elaborate and introduce references for the potential capacities mentioned (cf recent WWF study on renewables). - need to include a reflection on the state of the transmission lines and the grid itself (cf Yeywa system not being able to generate its potential because of limited transmission capacity) 	<p>Noted.</p> <p>ENERGY</p> <p>Noted. Section has been amended to highlight the role of FDI. Section 2.1.6 looks at financing and details ownership of sector assets. The text has been altered to highlight that most private sector investment is FDI. Please note that it is beyond the scope of the SEA to examine the broader implications of FDI in the power sector. Any evaluation of the appropriateness or otherwise of sharing contracts in the sector is a matter for the mitigation section of the SEA, and possibly recommendations coming out of the SEA.</p> <p>Noted. At present Myanmar, has very low levels of electricity consumption. Relatively high growth in demand is to be expected if Myanmar is to achieve higher rates of economic productivity – which will be essential for poverty reduction efforts. The SEA considers current plans, any discussion of alternative demand forecasts or alternative generation options will need to be addressed in follow up studies.</p>

#	Comments	Responses
	<p>AGRICULTURE</p> <ul style="list-style-type: none"> - Page 21: statement of Myanmar using only 10% of its renewable water resources needs explanation. How is rain fed agriculture considered here? It seems that 10% is referring to the amount of water that is "mobilized" (freshwater withdrawals). Needs to be clarified + add reference - Page 28: rapid expansion of concessions....is the omission of link to land ownership issues intentional? - Page 32 section 3.2 - include reference to work of MIID on riverbank gardens or alluvial agriculture and its high productivity + land management issues - Page 32 section 3.8 - include social issues (in analogy to section 5.6 on page 	<p>Noted. However, it is beyond the remit of the SEA baseline to discuss generation alternatives in any detail. The SEA does not prescribe any approach to power sector development, but describes current investment plans. The mitigation, enhancement and avoidance section of the report will briefly consider these alternatives, although any substantive analysis will need to be considered as a recommendation for follow up research.</p> <p>Please note that section 2.1.1, page 16 states that “Peak load in 2014 was an estimated 2,400 MW. Although peak load in 2013-2014 was only a little over half installed capacity of around 4.5 GW, electricity supplies have been dogged by load shedding and black-outs.” The following paragraphs serve to emphasise these issues, including current underinvestment in T&D. A sentence has been added indicating issues with transmission lines to hydropower plants.</p> <p>AGRICULTURE</p> <p>Noted. The text has been altered to clarify the point. References are included in the footnotes (i.e. FAO, 2011, Irrigation in Southern and Eastern Asia in Figures 2011. AQUASTAT; and, Drury, L., 2017, <i>The Group Water Resources of the Ayeyarwady Basin</i>; Naing M.M., 2005, Paddy field irrigation systems in Myanmar. ftp://ftp.fao.org/docrep/fao/010/ai408e/ai408e01.pdf</p> <p>Noted.</p> <p>Noted. The text has been adjusted in sections 3.7 and 4.4. to emphasise the importance of land tenure issues.</p> <p>Noted. Unfortunately, the SEA research team was unable to locate this work.</p>

#	Comments	Responses
	61 for mining) - land ownership should be discussed	Noted. Social issues have not been included in the forestry and agricultural sectors as they appear in the literature to be less acute than in the mining sector. Moreover, social issues tend to be less directly related to agricultural or forestry practise than social issues in the mining sector. Nevertheless, we do recognize the importance of the kind of chronic social issues that characterise many rural communities in Myanmar – these are addressed in Chapter 7.
C13.	The context and background presented in this chapter is comprehensive and informative. However, there are sections that can be improved with additional attention to literature sources. First, much of the data on the forestry sector is out of date and needs to be updated. For example, the data of Sweden’s agriculture practices is two decades old, and there is newer data available. Second, some reference papers cited are opinion pieces, rather than peer reviewed or scientific papers, and as such may not be readily accepted by stakeholders such as government ministry officials, especially when they are exceedingly negative or written from a viewpoint outside Myanmar. Suggest only citing peer reviewed or scientific papers in this and other chapters, except where useful to provide a factual basis of understanding.	<p>Best available data was used. Comprehensive searches for up-to-date data sets on the prevalence of swidden agriculture were not available – although the figure of 15 million Ha cited by the forest department in the 1990s was also cited as a realistic current figure in a 2015 paper, the text has been amended to include this reference. The other data included on forestry dates from 2014, 2015 and 2016. If newer data sets are available these will be incorporated.</p> <p>All cited texts are clearly referenced. Where available priority has been given to peer reviewed academic papers. Where these are not available there has been greater reliance on grey literature, including publications by donors, NGOs and government. Not including grey literature would weaken the report considerably, for this reason these sources are retained.</p>

#	Comments	Responses
	<p>In this chapter, a high level and appropriate analysis is applied to identify where key economic sectors may be impacted by hydropower and where they may impact on hydropower. My comments here focus on agriculture as the sector where this analysis could be usefully extended.</p> <p>1. <u>Agricultural policies</u></p> <p>The agriculture section provides a great overview of historical production and current trends in the sector. It would be useful to report briefly on the agricultural policies for Myanmar to ascertain more precisely the extent of any impacts from hydropower. For instance, is Myanmar opting to increase high volume, low value rice exports following the previous trajectory of Vietnam and current policy of Cambodia? If so then the impacts of hydropower on flows to the lowlands is of great importance. Alternatively, if the emphasis is on a more diverse range of high value agricultural products then changes to water flows in major rivers may be less important.</p> <p>2. <u>Cumulative impacts on agriculture in the delta</u></p> <p>In the Mekong basin, there has been considerable debate as to the positive and negative impacts of hydropower development on the floodplains and delta that are so critical for agriculture. Key questions are the extent to which the hydropower dams change flow timing, volumes, sediment and salinity that may impact on delta geomorphology, fisheries and agricultural production. The draft does report that the Myitsone hydropower project downstream of the dam would increase water flows in the Ayeyarwady River by 16% in the dry season and reduce them by 3.5% during the flooding season. At least for the Ayeyarwady delta that is so important for agriculture, can some of the cumulative impacts of basin hydropower development be better estimated?</p> <p>The report suggests a very one-dimensional relationship between the impacts</p>	<p>Noted. Hydropower impacts will be considered in the next phase of the SEA. Policies will be considered through future trends in the agricultural sector. Interactions between likely future trends (as reflected in agricultural policy) and hydropower development will also be considered in the impact analysis. The extent to which these interactions are likely to represent a significant issue for agricultural production can only really be assessed at this stage.</p> <p>Noted. These issues will be considered in the next phase.</p>

#	Comments	Responses
	<p>of hydropower on agriculture. Yet in similar circumstances in the Mekong basin colleagues and I suggest that the two sectors are part of a complex system that is self-reinforcing. Hence, for example, the changes wrought by hydropower on water flows means that rice producers are increasingly forced to use infrastructure that intensifies production and diminishes sources of wild proteins and micronutrients. In turn, this drives up demand for energy and agricultural expansion. See: Pittock, J., Dumaresq, D., & Bassi, A. (2016). Modeling the Hydropower–Food Nexus in Large River Basins: A Mekong Case Study. <i>Water</i>, 8(10), 425. doi: doi:10.3390/w8100425 Among the socio-economic consequences of this hydropower – water – food nexus for the rural poor are diminished access to nutritious food and loss of access to common pool resources. See: Nguyen, K. v., Dumaresq, D., & Howie, C. (2016). Dike compartments in the Mekong delta: Case studies in water governance, farming systems and water regime changes in An Giang Province, Vietnam. In D. H. Blake & L. Robins (Eds.), <i>Water governance dynamics in the Mekong region</i>. Petaling Jaya: Strategic Information and Research Development Centre. Also: Pittock, J., Dumaresq, D., & Orr, S. (2017). The Mekong River: trading off hydropower, fish, and food. <i>Regional Environmental Change</i>, doi: 10.1007/s10113-017-1175-8</p> <p>An issue that the report could well consider is the likely impact of hydropower development on flood flows and thus floating rice production. This agricultural system is important for providing flood-adapted, low input – low output rice production combined with good returns from fisheries and dry season vegetables. Floating rice systems are more profitable and a source of more nutritious foods compared to intensive rice production. However, changes to river flows induced by hydropower may accelerate conversion of open floodplain floating rice systems to infrastructure-based intensive rice production. Myanmar once had 1.28 million hectares of floating rice but by 2015, this had been reduced to 745,037 ha distributed across six regions (1) Kayin (36,566 ha), (2) Mon (42,048 ha), (3) Tanintharyi (20,249 ha), (4) Bago (217,379 ha), (5) Yangon (98,811 ha), and (6) Ayeyarwady (329,982 ha). The</p>	<p>Noted. Cumulative impacts will be considered in the next phase of this study.</p> <p>While such modelling exercises may be useful to elucidate linkages between different sectors and highlight mechanisms by which a mutually reinforcing path-dependency comes about, it is beyond the remit of the SEA. Moreover, it should be noted that, substantial increases in electricity generation capacity will be needed if Myanmar is to be able to meet its economic development targets. In this context, increased energy use in agricultural production is likely to be a small portion of TFEC.</p> <p>These items will be considered in the impact of hydropower section of this study. Again, significant cumulative impacts will be considered.</p>

#	Comments	Responses
	<p>Ayeyarwady delta region has the greatest area at 329,983, accounting for 44.3% of the country's total. See: Nguyen, K. V., & Pittock, J. (2016). Floating rice in Vietnam, Cambodia and Myanmar. Canberra, The Australian National University.</p> <p>General comments</p> <p>In brief, this is an impressive review, but it has some characteristics that limit its usefulness. The report tends to talk as though the main changes are all physical in terms of water, soil, and forests rather than also acknowledging how these changes take place in a social setting that is changing rapidly too. For example, it reviews the potential for hydropower, but does so in a largely technical way, in terms of water supply, without asking how changes in land use and dams too will impact on water. There also seems little analysis of how political changes to land tenure can also mean changes in agricultural labor markets, or how the rapid emergence of mining can also disrupt labor markets, dispossess land, and so on.</p> <p>The chapter also repeats many old statements about the impacts of upland agriculture (esp. swidden) on erosion and forests that have been challenged for either not meaning as much to local farmers as outsiders think, or for overlooking other causes of problems. The key requirement is not just to list physical changes, but to acknowledge how these physical changes can be interpreted in different ways according to household strategies of livelihoods, or how these alternative livelihoods are controlled by others. (I can suggest</p>	<p>Noted. The methodology of this baseline report focuses on bio-physical impacts and cumulative implications. The economics section seeks to establish baseline characteristics of the sectors in question, trends, and illustrate possible interactions with hydropower development.</p> <p>The SEA is only one step towards ensuring environmental and social externalities are better considered in hydropower planning and policy making. It is part of an iterative and on-going planning process.</p> <p>Where outstanding issues emerge that are beyond the scope of the study recommendations will be made for further research.</p> <p>The sections on swidden agriculture have been revised to reflect a more nuanced view of the practice.</p> <p>Significant social impacts of these changes have been addressed in Chapter 7.</p>

#	Comments	Responses
	<p>references if necessary).</p> <p>p24 - a good example of how the chapter talks about agricultural changes and productivity without seeing how political changes in things like tenure are also important. e.g. the chapter complains about low productivity but does not acknowledge the social and political barriers to improved agriculture, or the rapid changes in tenure. The page refers to conflicts re plantations like rubber, but does not also refer to the impacts of rapid plantations on existing agriculture, or the extraction of agricultural labor.</p> <p>p31 - swidden is discussed, but the key thing here is to acknowledge the differing role of agriculture and swidden in total household incomes/ livelihoods, where the old models were more-or-less reliance on swidden, but now swidden is either a relic of old agriculture, or an opportunistic profit-seeking activity from older, established farmers on land where tenure is less regulated.</p> <p>p 32 - and again, the discussion is good, but tends to imply that agriculture is the only way that people get livelihoods - I think many households are now diversifying to the extent that agriculture is one key livelihood (remittances etc. are the rest). The point here is that the report talks about infrastructure to help agricultural productivity - this is useful, but it might not be the most effective way to enhance livelihoods if people are migrating and diversifying.</p> <p>p33 - deforestation and soil erosion are attributed to swidden (also on p52), perhaps the report can indicate that much research in the region has indicated that the impacts of swidden on these has been exaggerated because (i) farmers have risk management strategies that diminish the impacts of erosion and declining soil fertility on their overall agricultural or livelihood</p>	<p>Noted. Where politics or institutional arrangements are drivers of trends, the report has endeavoured to mention this (for example, weak tenure rights are cited as being implicated in deforestation and low agricultural productivity, rice market policy is also noted as effectively a constraint on rice production, similarly liberalisation of the market for pulses has been cited as a driver of increased pulses production). Where important issues arise, but are beyond the scope of the SEA, recommendations for further study will be made.</p> <p>Noted. References on swidden have been amended to reflect the ambiguous and changing relationship between these agricultural practices and environmental outcomes.</p> <p>Noted. Again, this is likely to emerge as more of an issue in Chapter 7. Section 3.6 has been amended to reflect the potentially diversified income stream rural households rely on.</p> <p>It should be noted that the SEA is not an evaluation of agricultural policy, the determination of issues for agricultural development were based upon secondary sources referenced in the text.</p>

#	Comments	Responses
	<p>strategies; and (ii) much upland-lowland flows of sediment and water can be influenced by things other than agriculture (such as pre-existing geomorphology, gullying, road construction (if these act as conduits)) etc. Also, that (iii) some of the proposed solutions to these alleged problems, such as plantation forestry, can make matters worse (e.g. by enhancing water runoff, erosion, etc.).</p> <p>p38 - the soil erosion map of Myanmar at the national scale is probably worth including as it is a graphic that will influence discussion, but I think it is fair to say that these kinds of national maps are entirely misleading and inaccurate: there are various problems (i) the maps give the appearance of accuracy when in fact they are not, (ii) the maps conflate the prediction of erosion with the existence of problems caused by erosion (not the same), (iii) they add to a centralized mode of governance based on scientific expertise from the government, that can often get in the way of local government and diverse forms of development. Thailand has been through this process since the 1960s.</p> <p>p61 - the section on mining again looks only at physical factors, rather than indirect social and political factors such as the influence of conflict concerning mining on local investment in agriculture and infrastructure, the displacement of people, or the extraction of labor for mining.</p> <p>p70 - the section on sand mining is interesting. But I know there are also extraction of “stones” from agricultural ground (e.g. in Dry Zone) which are used as a raw material for gravel for road construction, and which can destroy farm plots when they are removed without permission and in a clumsy fashion. I do not see any reference to mercury-based gold mining, or the high-pressure hoses used for gold mining too. I suspect a key problem here is that these activities have high local impacts but there is little decent empirical work on these.</p>	<p>Noted. Sections relating to swidden have been reviewed and new references added. Other source of erosion has been noted.</p> <p>Noted. This map was included as it serves to illustrate that erosion is potentially an issue over much of the country. Data accuracy and map interpretation is a challenge. We will seek to develop a clearer analysis</p> <p>Noted. Please see the response above.</p> <p>Noted.</p>

#	Comments	Responses
		<p>Mercury – please see the section on water pollution on pages 64-65, “Key concerns include the widespread use of Mercury in gold mining. A recent study showed that concentrations of Mercury in mine-workers were 2.4 times that of the general population as well as high concentrations of mercury amongst sediments in gold mining locations.”</p> <p>Hydraulic mining - please see section on erosion on page 64, “Hydraulic mining is particularly damaging. This is a commonly used mining techniques for the extraction of alluvial gold, tin and precious stones. A high-pressure water jet is used to dislodge the material (rock or sediments) bearing the mineral. The resulting slurry is then processed, typically through sluices to remove valuable material. This type of mining mobilizes large amounts of sediment potentially causing issues downstream, it also leaves large areas vulnerable to further erosion.”</p>

8. CHAPTER 7 - SOCIAL AND LIVELIHOOD

#	Comments	Responses
A1.	Land tenure: In the social/livelihoods or conflict Chapter does the SEA consider the land tenure arrangements and the customary land rights for ethnic groups? It would be useful to map the existing land tenure in the river basins.	Information on land tenure was not available. The possible implications of the new land policy are mentioned in this chapter and in the Introduction.
A2.	Hydropower and gender: Recent studies completed on gender and hydropower related to the Mong Ton and Upper Paung Laung projects could be included in baseline chapters.	The SEA team visited Upper Paung Laung (UPL) and will include some results from this as a case study. The consultation with local communities affected by UPL and Lower Yeywa will be released as a separate report.
A3.	Resettlement: The social/livelihoods and other chapters of SEA should also highlight the resettlement issues associated with existing hydropower projects.	This is included in the case studies of Upper Paung Laung and Lower Yeywa hydropower plants – a new section has been included. The legacy of existing hydropower projects related to historical displacement has also been expanded in Chapter 8- Conflict.

#	Comments	Responses
B1.	<ol style="list-style-type: none"> 1. Similar to some of the other thematic reports, the document does provide a general baseline, but lacks in terms of connecting with the hydropower SEA 2. Most relevant connections seem to emerge from disasters (currently floods covered, not so much others, incl landslides) and access to electricity <ol style="list-style-type: none"> a) Needs to be noted that access to electricity is a beyond-hydropower issues, because access can be provided by different means, including but not exclusively, hydropower 3. Like other reports, tight Hydropower SEA specific summary of key connections with social aspects and livelihoods and hydropower development would be useful to increase relevance and accessibility to the content 	<ol style="list-style-type: none"> 1. The section follows the ToR and provides a general background on some social and livelihoods aspects of Myanmar society that links to hydropower as outlined in the first section. All the indicators reported in this analysis relate to potential impacts of hydropower. 2. Electricity is not just by hydropower, but hydropower is for electricity generation primarily. 3. The connections and the relevance for the sub-themes to hydropower are described in the first chapter on Scope. 4. An explanation of Figure 6.20 has been added. 5. FPIC can be mentioned in the final report.

#	Comments	Responses
	<ol style="list-style-type: none"> Some of the graphs and charts are difficult to understand and their relevance to the context (e.g. figure 6.20 where I think it is onto something, but challenging to interpret) FPIC in the context of major investments, incl. hydropower 	
B2.	<ol style="list-style-type: none"> Chapter 7 on Social and Livelihoods is a very broad topic in itself but the chapter is probably also made broader than it needs to be for the purpose of the SEA. A more narrow and focused targeting would make it easier to provide an analysis of the sector rather than listing the impressive number of policies adopted in recent years, most of which suffer from weak or no implementation. In addition to this general observation there are a few specific issues. Pages 16, 62: When describing the majority ethnic group in the country, I suggest to use Bamar and not Burmese as this is used to describe the entire population (like Myanmar is used). Page 45: Food insecurity is not especially caused by natural disaster and overcoming it is not particularly an issue of increased access to markets, - it is an issue of poverty among the huge population of smallholders and landless farmers as well as an increasing poor urban population due to migration into Yangon. 	<ol style="list-style-type: none"> For baseline policy analysis the SEA ToR requests: "All Myanmar development policies, plans and programs for sectors relating to sustainable hydropower development, including water resources (e.g. irrigation, water supply, flood mitigation), river transportation, protected area management, forestry, agriculture and land management, urban development, mining, archaeological and cultural sites, tourism, legal and customary resource rights, and other issues related to sustainable natural resource use shall be obtained and analysed. A short summary shall be prepared focusing on how each policy relates to water, land and ecosystem resource management and social protection." This has been changed. The text refers to available studies. The focus on natural hazards, mainly flooding, is with a view to link food security to hydropower. The text says 'vulnerable to food insecurity'.
B3.	<ol style="list-style-type: none"> Since SEA relies on the 2014 census data, as some ethnic people raise their concern, some ethnic communities have been missed from the data due to conflict and security reason. I think such kind of constraint should be noted. This news link mention such concern: http://www.mmtimes.com/index.php/national-news/11263-census-ethnicity-data-release-delayed-until-after-election.html. Since most of the large proposed hydropower dam projects are in conflict affected areas, this data has implications in terms of population destiny. In addition, like in the case of Mongton dam previously known as Tassang dam, about 10 years ago, 	<ol style="list-style-type: none"> A paragraph has been inserted into section 2.8 as follows: ¹ It is noted that, "an estimated total of 1,206,353 people were not enumerated in parts of Rakhine State, Kachin State and Kayin State. This represents 2.34 percent of the population. These numbers were added to the overall census population as reported in the provisional results and they have also been included in the main results in the Census publication. However, the analysis and presentation of the detailed information of the 2014 Census is based on data provided by the enumerated population only." Conflict dimension is reviewed in this section of the report.

#	Comments	Responses
	<p>as part of the preparation strategy for the Tassang dam, local ethnic people were reportedly forced to flee from the civil war and relocated at towns and villages where there is the military control. I think that conflict dimension and its implications on population destiny should be taken into account.</p> <ol style="list-style-type: none"> 2. At 6.2.2 boat ownership alone cannot be proxy data for reliance on river since many poor people who rely on river has no boat and they use various fishing methods such as finishing net, fishing rods, bamboo rafting and diving. 3. Regarding food security, here I attach some relevant documents you should refer to especially to include gender dimension and also link with land tenure especially upland area. In addition, like in the report about Paung Laung dam impact on livelihoods at https://s3.amazonaws.com/PHR_Reports/burma-shanstate-english-report-oct2015.pdf, it is worth to be noted especially on legacy and present resettlement issues about planning, construction and operation of some existing dam projects and their impact on access to land, food security and livelihoods restoration. 	<ol style="list-style-type: none"> 2. This is the only available proxy indicator for which data are available for the whole country. As it is written in the text “Detailed information about inland fishers and their locations would be an important indicator for dependency on river water resources for income and food security. In its absence, a proxy indicator for some degree of use and dependence on rivers is the proportion of households that own boats”.

#	Comments	Responses
C1.	<p><u>Development of a Land Law, Part 2.7, pp. 12-13</u></p> <p>Comment: The assessment needs to take into account the realities of a highly problematic landscape for land use policy and law in the country. Given that the National Land Use Policy (NLUP) is currently not being implemented, and the ongoing gaps and inconsistencies in land laws and policies, together with lack of protections for smallholder tenure and customary land rights, land issues will present a major risk and challenge for any large hydropower project. While it is important to note the importance of developing a Land Law and identify how it will relate to ethnic groups / nationalities land rights in context of hydropower (around expropriation of land and involuntary resettlement), much more will be required to ensure protection of rights within the context of large-scale projects in the current highly problematic policy landscape.</p>	<p>The SEA baseline assessment is not a policy assessment in terms of the feasibility of turning policy into legislation and subsequent enforcement, but a current stocktake of existing and draft laws, regulations and procedures. Chapter 1- Introduction also includes the relevant laws and regulations related to hydropower development, water resources and environmental protection. The Final SEA report will include recommendations at the national, state/region, basin and sub-basin level.</p>
C2.	<p><u>Gender, Part 6.6, pp. 52-57</u></p> <p>Comment: While the section on gender presents some useful analysis and data and is relatively comprehensive, some of the analysis is superficial and fails to properly address the gaps and flaws in current institutional mechanisms for protection and support for women and addressing gender inequality.</p>	<p>The gender analysis has been expanded and forms an important part of the Sustainability Analysis i.e. % of female headed households will be used as an impact indicator. Some analysis was hampered by the lack of gender disaggregated data.</p>
C3.	<p><u>Energy trends and drivers, Part 6.7, p. 63:</u> “General development, urbanization, rising incomes, and increased autonomy to ethnic states/regions will increase demand for domestic electricity. For rural electrification, the penetration of solar systems, mainly in areas with better access to imports from China, indicates that availability of</p>	<p>Acknowledged.</p>

#	Comments	Responses
	<p>technology options and their timing and pricing is likely to influence the spread of different types of energy technology. The electricity grid will need to expand rapidly and provide reliable and cheap energy to be able to compete with increasing use of non-grid renewable technologies for rural domestic supply. Urbanization will increase demand for grid-based energy.”</p> <p>Comment: It is important for the SEA to recognize these trends and we commend their inclusion in the analysis. As noted in our general comments, it will be important that identification and mapping of these trends and alternative energy pathways also plays a key role in Phase 2 on defining Sustainable Hydropower development pathways.</p>	
C4.	<p>National energy plan, Part 6.7, p. 63: “During 2015 to 2030, the national electrification program is expected to connect around 7.2 million homes of which more than 99 per cent will be through electricity grid extension. Very rarely (one percent of the time or less), mini-grid systems (in this case, village or town-scale systems) and off-grid systems (solar home systems) are promoted, typically for the smallest and most remote communities, predominantly in Chin, Kachin, Shan and other mountainous and border areas. According to the Energy Master Plan 2015-45, the total share of renewable energy such as mini-hydro, solar and biogas in village electrification made up only 18.9% of the total, while the main power source was local generation by mostly diesel engines.”</p> <p>Comment: As noted in our general comments, we see the SEA as presenting an important opportunity to broaden the analysis around future energy options for Myanmar and ensure that the country is not</p>	<p>The BAU case used in the SEA assumes that all planned hydropower projects greater than 10MW could go ahead in the next 30 years.</p>

#	Comments	Responses
	locked into unsustainable future pathways dominated by an emphasis on large hydropower. We therefore recommend that the BAU scenario applied in Phase 2 is not confined to hydropower projects, but should include hydropower within the context of a broader mix of energy options.	
C5.	<p><u>Section 1, P.5-7 & Section 2.8, P.13</u></p> <p>While the summary of thematic areas on page 1 notes the relevance of issues to hydropower development, they are not sufficiently articulated in the subsequent sections. E.g. the livelihoods and occupation section includes lots of statistics, but no clear articulation of links to hydro development, without which it is difficult to prioritize issues for the impact assessment phase. Suggest end of each thematic section include a brief description how it will be taken forward in the impact assessment phase</p> <p>Section 2.8 - good that gaps and limitations are noted. It would help to add a brief description of how the SEA will try and address the significant gaps in impact assessment phase, particularly those relating to: lack of data on water-related livelihoods, which is critical to understand potential impacts; and challenge of scale, where data is primarily from national, regional and township level; hence it is not clear how this will interact with basin scale data to build picture of potential impacts.</p>	<p>The SEA process has presented the available national scale data to stakeholders and advisory groups. Through a participatory process, it was decided which indicators to use in the sustainability analysis. At the time of writing, it was unknown which elements would be prioritized for inclusion in the impact assessment as these will be defined through further stakeholder consultation.</p> <p>This will be presented in the sub-basin evaluation report.</p>
C6.	<p><u>Section 2.1 to 2.5, P.7-9</u></p> <p>Overview of existing policy frameworks refers almost entirely to policies set out by the previous USDP Government (e.g. NCDP, FESR, etc.).</p>	<p>Noted, the comment will be considered when preparing the policy recommendations as part of the Final SEA.</p>

#	Comments	Responses
	<p>It should be revised to clarify that many of these policy frameworks now have an unclear status and are awaiting review and updating by the new Government.</p>	
<p>C7.</p>	<p><u>Section 2.6, P.11-12</u></p> <p>The gender section is inaccurate in some respects and overstates the level of protection and support for women on gender issues in law and in fact. Gender section refers to the NSPAW, but is brief and superficial. There is now a new plan for implementation, led by Department of Social Welfare (DSW). However, the NSPAW has not been implemented as yet, nor have significant human resources or budget been allocated to activities under NSPAW.</p> <p>Oxfam recommends inclusion of a statement recognizing the significant increase in priority and resourcing needed to see progress on implementation of NSPAW.</p> <p>Related laws such as the Anti-Violence Against Women law have been delayed and watered down in the drafting process.</p> <p>The National Land Use Policy (NLUP) of 2016 does include strong gender and women’s rights provisions. However, it has not been transferred into law nor implemented, and there is no clear plan or timetable to do so. (See further comments below on land and NLUP). Oxfam recommends inclusion of a statement recognizing the need to implement land reforms on the basis of the NLUP. This includes the need to recognize the land rights of women and customary land rights.</p>	<p>At the time of writing the team didn’t find published information or literature on a new plan for the implementation of NSPAW. The analysis was also limited by the availability of sex disaggregated data that can be applied at the national or basin level. Will ensure that Gender is included in the impact indicator and analysis for the next phase.</p> <p>This study is not intended to assess Myanmar’s gender laws.</p> <p>The SEA baseline report is informative only.</p>

#	Comments	Responses
	<p>Myanmar’s legal frameworks in general do often include provisions to prevent discrimination. However, these exist mainly only on paper. There is little resource or capacity to implement them, and there remain substantial gaps</p>	
<p>C8.</p>	<p><u>Section 2.6 and 2.7, P.11-13</u></p> <p>Section 2.6 - The report suggests a lack of nuanced understanding of land policy and land rights issues. The assessment should acknowledge that there is currently no indication of the NLUP being implemented. There are reports that the section on gender is being challenged, in spite of a clearly observable inequality of women's land rights on the ground (e.g. form 7 titles have space for one name only from each HH, a man’s name is nearly always on the title). Amendments to the Farmland Law are under discussion in the Union Parliament, although amendments proposed by government are not related to the NLUP.</p> <p>Section 2.7 - By referring only to the NLUP (which is not implemented) and not the law, this assessment creates a misleading impression. It overlooks the fact that customary rights are not legally recognized, and that no legal breakthrough has been made in this respect. No reference is made to the fact that the recognition of land rights is an issue in the national Political Dialogue.</p> <p>Land policy and law remains unclear in content and is deeply problematic in practice, and legacy issues are largely unresolved. This means that land issues represent an area of great uncertainty and risk for any major</p>	<p>The section here describes a few selected government policies, it is not a detailed assessment and critique of policy and the legislative process.</p> <p>However, we do recognize the points made and will be included in the policy recommendations as part of the Final SEA Report. See for example also in the section on Conflict, e.g., p.7; 12; 14.</p>

#	Comments	Responses
	<p>development, including hydropower developments. Any planned dam project is likely to affect land where farmers and communities are unable to protect their tenure and use rights (e.g. where land is classified as “available” VFV land when in fact it is subject to customary land use and small scale or swidden agricultural practices).</p> <p>There is brief acknowledgement in the Introduction section of the failure to implement the NLUP, but that seems absent from the subsequent sections. This combined with the superficial treatment suggests the sections are not joined up and are of uneven quality and accuracy.</p> <p>No reference is made to the draft Agriculture Development Strategy, which in its current draft version foresees piloting of customary tenure models in the investment plan.</p>	<p>Agriculture is covered extensively in the Economics baseline report, section 3 p. 19-39.</p>
<p>C9.</p>	<p><u>Section 6.1.1, P.32</u></p> <p>The Agriculture section is extremely brief and focuses very narrowly on rice cultivation. The next stage of the assessment should include a much more comprehensive analysis of the shape and role of agriculture - including its social and cultural importance as well as bare data on productivity and economic value created.</p>	<p>Agriculture in a sectoral sense, incl. Agricultural Development Strategy, is dealt with in the Economics baseline report.</p>
<p>C10.</p>	<p><u>Section 6.2, from P.32</u></p> <p>The Poverty section relies heavily on data from the 2010 IHLCA. This is useful in some respects. However, subsequent analysis (including from the World Bank in 2015) shows that poverty rates are significantly higher</p>	<p>The World Bank conducted an analysis of the IHCLA data, which was made available after the SEA Baseline report was drafted. The SEA presents the published and official data that can be applied at the national level.</p>

#	Comments	Responses
	<p>than those shown in the 2010 data. A large number of people also live just above the official poverty line - and are thus highly vulnerable to falling into extreme poverty if there is any shock e.g. to their health, or livelihood.</p> <p>Relying only on the IHLCA risks giving a misleading impression of the levels of poverty. Likewise, for the data on landlessness.</p> <p>Trends analysis on poverty is simplistic - simply stating an assumption of Myanmar's poverty rates converging with other Southeast Asian countries by 2035. This seems far too general to be useful or reliable in planning, given the large risks and uncertainties and regional variations that prevail.</p>	<p>page 37 has a sub-section on Poverty Dynamics that explains the complexities and trends at the national level.</p>
<p>C11.</p>	<p><u>Section 6.2.2, P.43</u></p> <p>Suggest adding that using boat ownership as a proxy indicator underestimates the extent of dependency on rivers and related resources for food and income as there are significant number of non-boat owning households relying on rivers and related resources.</p>	<p>Yes, it is a proxy. See response to B.3. – no. 2</p> <p>The text states, “Detailed information about inland fishers and their locations would be an important indicator for dependency on river water resources for income and food security. In its absence, a proxy indicator for some degree of use and dependence on rivers is the proportion of households that own boats. The ownership to boats data points to the importance of inland rivers, lakes and wetlands for transport and livelihoods in general.”</p>
<p>C12.</p>	<p><u>Section 6.3, P.44-45</u></p> <p>There is no reference to the importance of aquatic resources to food and nutrition security, which are at risk from hydropower projects, particularly for the poorest.</p> <p>Re trend, this needs to be qualified as there will be geographic variability.</p>	<p>See above text fragment, first sentence.</p> <p>This is addressed in the fisheries and aquatic ecology baseline report in relation to both capture fisheries and aquaculture.</p>

#	Comments	Responses
	<p>Of relevance to hydro, related to point above, is the risk that hydropower projects can exacerbate food insecurity in riparian communities through loss of access to resources important for livelihood and food security.</p>	
<p>C13.</p>	<p><u>Section 6.6</u></p> <p>Gender - this section includes helpful data. Again, however, the analysis is very limited. It overlooks many important aspects of gender issues in relation to poverty and work/income. Furthermore, there is lack of analysis on what the data means for the SEA, particularly relating to gender and hydropower.</p>	<p>The relationship between gender and hydropower will be under policy recommendations in the Final SEA Report.</p>

9. CHAPTER 8 - PEACE AND CONFLICT

#	Comments	Responses
B1.	<ol style="list-style-type: none"> 1. One of the most comprehensive and relevant baseline report to hydropower SEA process 2. Covers the key issues related to conflict, while retaining the connection to hydropower development pretty much across the document 3. Seems like chapters 5,6 and 8 are still work in progress. Particularly chapter 8 would be very relevant, while appreciating the element of forecasting when talking about the future, but the past is there to provide useful insight 4. Use of FPIC? 	<p>Chapters concerning sustainability, impact assessment and trend analysis are included in the revised baseline.</p>
B2.	<p>4. Since SEA relies on the 2014 census data, as some ethnic people raise their concern, some ethnic communities have been missed from the data due to conflict and security reason. I think such kind of constraint should be noted. This news link mention such concern: http://www.mmtimes.com/index.php/national-news/11263-census-ethnicity-data-release-delayed-until-after-election.html. Since most of the large proposed hydropower dam projects are in conflict affected areas, this data has implications in terms of population destiny. In addition, like in the case of Mongton dam previously known as Tassang dam, about 10 years ago, as part of the preparation strategy for the Tassang dam, local ethnic people were reportedly forced to flee from the civil war and relocated at towns and villages</p>	<p>The SEA team has not had access to ethnicity data from the census. The social theme does however include data on ethno-linguistic groups as a proxy measure for social vulnerability.</p> <p>The update conflict baseline includes a case study on the Mong Ton dam, as well as a new case study on Myo Gyi.</p> <p>Population displacement has been included as an indicator in the vulnerability analysis, which is introduced in the updated baseline.</p>

#	Comments	Responses
	where there is the military control. I think that conflict dimension and its implications on population destiny should be taken into account.	

#	Comments	Responses
C1.	<p>Overall comments</p> <p>Comment: We commend the inclusion of a specific chapter on conflict within the SEA baseline analysis. We recognize the ways in which the study specifically explores ‘the effects the armed conflicts has on hydropower development’ – this is unique as this topic has not been given official recognition in Myanmar previously. Importantly, the report emphasizes the existence of armed conflicts in proposed hydropower sites and related social and environmental impacts and the significance of legacy issues. The methodology used is also worth commending, with relatively wide-ranging interviews, attempts to seek a diversity of viewpoints, including from key informants outside of Myanmar (Chiang Mai, Mae Sot in Thailand).</p> <p>Comment: The baseline study does not include discussion of the issue of refugees in Thailand, especially those who fled from Central Shan state (along the Salween River) during massive forced relocations between 1996-1999. Over 150,000 people fled to Thailand during this period and many have yet to return to Myanmar, yet hope to do so. These displaced people need to be included in assessments of project-affected people, including in relation to the proposed Mong Ton and Hatgyi dams. Refugees from Karenni state now in Thailand in Mae Hong Son province should also be interviewed during ongoing consultations.</p>	<p>Discussion on population displacement will be included in a new case study on Mong Ton. Population displacement has also been added as an indicator of sub-basin vulnerability, both because of the importance of displacement in its own right as a factor that can complicate hydro development, but also as a proxy indicator of land tenure complications and historical human rights abuses that can fuel conflict.</p> <p>The study has engaged a range of border-based groups in Mae Sot and Chiang Mai that discussed the concerns of related communities.</p>
C2.	<p>Importance of conflict, Part 1.1, p. 1</p> <p>Comment: Conflict is described in the SEA analysis as ‘one of eight key dimensions of hydropower’. This is misleading - depending on the nature of scale of the conflict, for specific</p>	<p>In discussing whether to combine vulnerability scores across the eight themes, it was decided that these themes are indeed not equal in their impacts.</p>

#	Comments	Responses
	projects or areas it may in fact be a critical factor or consideration and should be given overriding emphasis.	Vulnerability and project impact analyses of the SEA may need to find an alternative way of emphasising conflict risks.
C3.	<p><u>Definition of conflict, Part 1.1, p. 1</u></p> <p>Comment: The definition given of conflict focuses primarily on armed conflict. In the context of state-building described in the analysis, this should be should be expanded to include broader aspects of political and other tension and division. For example, the chapter could reference instances of community peaceful opposition and protest specific hydropower and other infrastructure and investment projects, and resulting tensions and instances of use of state force in stopping demonstrations (beyond situations of armed conflict).</p>	The definition of conflict can be expanded to include public opposition.
C4.	<p><u>Methodology, Part 2, p.4</u></p> <p>Comment: While the interviews described are quite extensive, including with key stakeholders in Chiang Mai and Mae Sot, the report notes that conflict was discussed among other issues. Because of both the novelty and importance of a study of this type, more detailed and in-depth consultation is needed to inform the analysis.</p>	Since the initial baseline was released, further consultations have taken place in Chiang Mai, Taunggyi, and Kyauk Kyi. Consultations have included civil society representatives, ethnic armed groups, and project affected communities. Presentations on this theme have been given in Nay Pyi Taw, twice. Consultations on the conflict theme have been in addition to the various consultations conducted by the SEA team.
C5.	<p><u>Peace and conflict policy proposals, Part 2.4, p. 5</u></p> <p>Comment: The report notes the development of peace and conflict policy proposals by ethnic groups, e.g. BEWG, KDNG. How can these be used in the analysis to inform benchmarks and standards used for hydropower development?</p>	As conflict is based on disagreements between state and non-state stakeholders, it is important to consider the policies of both in relation to hydropower and/or natural resources and economic development more broadly. Some policies (e.g. BEWG) are not publicly available, while others are stakeholder-specific or focused on

#	Comments	Responses
		limited geographies. There are various relevant non-state policies and proposals. These can provide recommendations on the conflict theme in the final SEA report.
C6.	<p><u>Limitations, Part 2.6, p. 6</u></p> <p>“Analysis related to the peace and conflict theme is problematic because of different perspectives between stakeholders on which data/issues should be prioritized, and how data should be interpreted, when trying to understand the causes of conflict.</p> <p>“Similarly, the goals and means of achieving sustainable peace accords are yet to be agreed between stakeholders. Though there are numerous analyses and proposals related to the issues in this theme, they must be interpreted with caution to not bias the perspectives of some stakeholders at the expense of others. Every effort has been made to present unbiased views of historical and current issues.”</p> <p>Comment: The observations highlight the very real limitations, gaps and constraints in trying to prepare an assessment that will be meaningful, particularly given the very limited timeframe.</p>	
C7.	<p><u>Displacement, Part 3.2, P.11</u></p> <p>Comment: The report notes the relationship between displacement and conflict in terms of at least 600,000 IDPs currently in the country as of 2014 (note that this figure may be higher due to recent escalation of conflict in some areas). As stated in our overall comments, this does not include displaced and refugee populations currently in Thailand and elsewhere, who need to be included in the assessment of project-affected people.</p>	See previous response regarding the importance of considering displacement.
C8.	<p><u>‘Peaceful areas’, Part 3.2, P.11-12:</u> “Proposed hydropower development in ‘peaceful’ areas are still highly insecure. Figures 3.3 overlays density of landmine contamination with sites of proposed</p>	

#	Comments	Responses
	<p>hydropower projects. Figure 4.1 overlay human displacement with proposed hydropower development ... there are numerous direct and indirect links between hydropower and armed conflict-related challenges.”</p> <p>Comment: We emphasize the importance of acknowledging the highly insecure nature of ‘peaceful areas’, especially given recent escalation of conflict overall and in particular regions.</p>	<p>The vulnerability analysis considers both historical conflict areas as well as recent conflict areas. The assessment also rates as vulnerable areas that are under ceasefires (and currently peaceful), acknowledging that ceasefires can break down. The potential for land mine contamination is now included as an indicator in the impact assessment related to projects.</p>
C9.	<p><u>‘Legacy model’ and legitimacy issues, Part 3.2, p.12:</u> “Existing hydropower projects and concessions of proposed projects were granted by an unelected military regime, with little or no input from effected communities...Concession in some but not all instances were granted to companies with close ties to the military, in arrangement that offer little benefits to local populations.”</p> <p>Comment: The report is strong in its discussion of the ‘legacy model’ in hydropower in Myanmar. Importantly, it points out that the legacy model exists not only in relation to historical issues but embodied in current planned hydropower projects...arrangement for which were largely made with little transparency.” While recognizing this historical reality, the study does not directly discuss the resulting issues and challenges for project legitimacy of the ‘legacy model’.</p>	<p>The revised baseline demonstrates that the legacy model has distinct implications in terms of public opposition, risks of militarisation and armed conflict, and environmental and social damage. The revisions emphasize that these impacts do not necessarily apply to all projects.</p>
C10.	<p><u>Security and governance, Part 4, p.15</u></p> <p>Comment: Note the important point for the purposes of the analysis that “security and governance in a significant minority of Myanmar’s territory is shared, contested, or beyond the reach of the Myanmar government.”</p>	<p>Noted.</p>
C11.	<p><u>NCA Policy dialogue, Part 4, p. 18</u></p> <p>Comment: The report acknowledges that there is little clarity around issues or outcomes from National Ceasefire Agreement (NCA) policy dialogues, which makes decision-making on the basis</p>	<p>Noted.</p>

#	Comments	Responses
	<p>of future pathways very difficult: “Themes are largely not fully developed or public, and changes from the status quo are not assured, possible changes could include devolution of decision-making regarding hydropower development, alternative benefit sharing arrangements between central and state governments, and/or strengthened recognition of indigenous and environmental rights.”</p>	
<p>C12.</p>	<p><u>Recent escalation of conflict, Part 4, P.19:</u> “Armed conflicts has however escalated since 2011, and threatens the country’s political, social and economic progress...Contrary to some perceptions that Myanmar is a post-conflict country, the data sources in this indicate that armed conflicts is at its highest level over the last year than at any time since the late 1980s.”</p> <p>Comment: It is critical to recognize this situation as well as to analyse the drivers for increased conflict and the potential contribution of hydropower development to further escalation of conflict.</p>	<p>The revised baseline references some EAOs refusal to accept the Army’s BGF demands, as well as the desire to control resources and transport corridors to neighbouring countries.</p> <p>The study – both in the baseline and in the final SEA report – will contend that hydropower development per se is not a conflict driver, but hydro development <i>per the legacy model</i> (i.e. military/crony driven, little consultation or benefit for local communities, primarily for export, associated with military clearance of EAOs and local populations, environmentally and socially damaging). Though challenging to realize in the Myanmar context, hydropower does have the potential to support better center-periphery relations if the decision-making regarding hydro can be devolved, and the benefits more equitably shared. This discussion will appear in the final SEA report, rather than in the baseline.</p>
<p>C13.</p>	<p><u>Call for moratorium for peace process, Part 4, p. 21</u></p>	<p>Consultations revealed a variety of views on this topic. While it is true that some groups have called for a moratorium on all hydropower development until a</p>

#	Comments	Responses
	<p>Comment: The point should be highlighted that (underline added): “Ethnic civil society organizations <u>in several if not all</u> states, as well as border-based groups, have called for a moratorium on hydropower development until a comprehensive peace accord is reached, largely because of concerns that these developments will undermine the peace process.”</p>	<p>comprehensive peace accord is reached, it was more common that hydropower development was acceptable under some circumstances (for example with FPIC, or smaller-scale developments), while large projects and ‘mega dams’ were unacceptable. Civil society groups inside the country showed greater flexibility with regard to the types of hydro development that might be possible if the approach was modified from the legacy model. Given this variety of perspectives, it would be misleading to imply that calls for a moratorium are (or are close to) universal.</p>
C14.	<p>Human rights, Part 4, p. 21: “Recognition and respect for human rights has improved in most geographies: The rights claim of ethnic minorities are in part a subject of the peace process. More broadly, Myanmar citizens’ desires for social and environmental justice have gradually improved under successive governments, though instances of arbitrary arrest, human rights abuses, forced displacement and limitations on freedoms of expression and association persist, especially in conflict affected areas.”</p> <p>Comment: The human rights situational analysis is very limited in the baseline report overall. The human rights situation and ongoing challenges, and well as the implications for hydropower development, need to be given greater prominence and discussion throughout, as well as in relation to conflict (where it is critical).</p>	<p>Additional discussion of the human rights situation has been included in the revised baseline.</p>
C15.	<p>Policies and plans related to peace and conflicts, Part 4, p.22: “The peace and conflict implications of hydropower development are largely absent from official policy. The review presented in this baseline is not comprehensive, and will be updated during the SEA process.”</p>	<p>The SEA chapter on conflict is intended to provide more clarity on how one natural resource sector influences the propensities for peace and conflict. These recommendations should contribute to conflict-sensitive</p>

#	Comments	Responses
	<p>Comment: The report reflects the considerable uncertainty and diversity of positions in official policies on peace and conflict issues. Until these are resolved with greater clarity it will difficult to understand and assess implications for hydropower development.</p>	<p>policies on hydropower development, whether on the part of the government or non-state actors.</p>
<p>C16.</p>	<p><u>Preliminary consultation findings, Part 4.1, p. 23</u></p> <p>Comment: While acknowledging the limitations and the need for additional consultation, the preliminary consultation findings are strong and well captured, on legacy issues and recognizing the relationship between hydropower and conflict, e.g. “experience of lack of consultation and compensation, forced displacement of populations, loss of livelihoods, militarization of planned hydropower projects.”</p>	
<p>C17.</p>	<p><u>Opportunities for sustainable hydropower development, Part 4.1, p. 24:</u></p> <p>Comment: With respect to “opportunities for sustainable hydropower development”, the case study of ‘resource sharing between the Karen National Union (KNU) and the government in relation to the Bawgata hydropower project in Karen State’ is referenced as a potentially positive model throughout the chapter. While some of the risks and lack of consensus around this project are noted, presenting the Bawgata project as a positive model is misleading and obscures issues and diverse positions on the project. We strongly recommend that views presented around this case study should be openly debated and information also obtained from local populations and civil society groups.</p>	<p>The case study has been adapted to better reflect the diversity of views following consultations with potentially affected communities at Kyauk Kyi and civil society organizations in Mae Sot.</p>
<p>C18.</p>	<p><u>Sustainability objectives: indigenous peoples’ rights, Part 5, p. 28:</u></p> <p>Comment: The report notes in its discussion of sustainability objectives, the importance of safeguards and need for protections for indigenous rights, and/or possibility of suspension or moratoriums on highly problematic projects. This is a must and cannot be overstated, in ensuring recognition and protection of indigenous people’s rights including the right to free, prior and informed consent (FPIC).</p>	<p>These and other recommendations are to be incorporated in the final SEA report.</p>

#	Comments	Responses
C19.	<p><u>Overall</u></p> <p>Importance of conflict analysis for SEA</p> <p>The SEA is to be congratulated for giving an analysis of conflict in relation to hydropower investment a dedicated chapter and demonstrating serious commitment to considering these dynamics. It is not always the case that such assessments do this and yet these are critical issues for not only hydropower but all areas of large-scale investment in Myanmar. Oxfam offer these comments on the conflict analysis section of the SEA in the spirit of constructive additions to that analysis and urge that commitment to thorough conflict analysis is maintained throughout the SEA process.</p>	
C20.	<p><u>Section 1 and overall</u></p> <p>Exclusion of Rakhine from analysis</p> <p>To say that Rakhine has experienced ‘relatively little’ conflict seems strange and risks exceptionalizing Rakhine’s conflict dynamics when they are in fact driven by many of the same structural grievances over right to / legitimacy of governance and equitable sharing of resources as in other ethnic areas of Myanmar.</p> <p>Present in Rakhine are two ethnic armed groups (Arakan Liberation Party, an NCA signatory, and Arakan Army, not an NCA signatory and in active armed conflict with the Tatmadaw) as well as ‘Arakan Rohingya Salvation Army’, a recently emerged Muslim armed group in the north of Rakhine that has adopted some of the language and rhetoric of other Myanmar ethnic armed groups in relation to ethnic rights and governance.</p> <p>Parallels relevant to hydropower investment can be drawn from ethnic Rakhine opposition to the planned Special Economic Zone at Kyauk Phyu - much of which has revolved around the perception of the benefits of large scale investment accruing only to non-Rakhine and speaks to</p>	<p>The report draws a distinction between conflict typologies – inter-communal versus ethno-political. This analysis maintains that hydropower development is distinctly relevant to ethno-political conflict, and the decades of contestation over governance and territory that underpin it. Ethnic Rakhine have similar ethno-political grievances as other ethnic nationalities.</p> <p>The vulnerability analysis of river sub-basins in Rakhine will consider risks associated with all forms of conflict.</p>

#	Comments	Responses
	<p>similar center-periphery conflicts between Rakhine nationalists and the central-state as exist with other ethnic minority areas. The fact that Rakhine’s recent <i>violence</i> has predominantly been intercommunal in nature does not take away from the presence of deep-seated <i>conflict</i> over these dynamics.</p> <p>At the same time, page 23 rightly highlights the ‘additional legacy findings’ associated with hydropower investments including ‘... the impacts of migrant labor, which were perceived as depriving indigenous communities of employment, while bringing unwanted social disturbances related to alcohol and drug consumption, prostitution and gambling’ and ‘... the clash of a central state view of hydropower development with the customary practices of affected local communities insofar as affected populations... have no recourse to Myanmar law when hydropower developments deprived them of their land and livelihoods’. All these complaints are frequently made by local civil society groups in relation to the Kyauk Phyu SEZ and will be a risk for other large-scale infrastructure such as hydropower in Rakhine.</p> <p>Finally, Rakhine’s intercommunal conflict does need to be looked at in relation to potential hydropower investment given that most Rakhine’s Muslim population are confined to IDP camps and have recourse to very few legal rights and protections - meaning that any potential hydropower investment in Rakhine should look at whether its potential impacts could affect prospects for the return of IDPs or require loss of land they previously held before displacement.</p>	
C21.	<p>Section 4, P.19</p> <p>Myanmar’s conflict status</p> <p>The analysis is right to say ‘... contrary to some perceptions that Myanmar is a post-conflict country... <i>armed conflict is at its highest level over the last year than at any time since the late 1980s</i>’. However, this is an important insight that needs bringing to the fore of the overall</p>	<p>The revised baseline includes an executive summary highlighting this point.</p>

#	Comments	Responses
	<p>analysis and including as a key point in the general SEA introduction as well as the specific conflict chapter.</p> <p>Many actors - especially those outside Myanmar or confined to Yangon and Naypyidaw - perceive the NLD electoral victory in 2015 and signing of the NCA by eight groups in 2016 as meaning that Myanmar is now in a 'post-conflict situation' and operate from an implicit assumption that ceasefires are stable when this is far from true. As the analysis says on page 11 '... history suggests that peace may not be assured in the absence of comprehensive political settlements.'</p> <p>As such, recognition that Myanmar is still very much in the midst of active armed conflict - and that development trends, including hydropower investment, will influence the prospects for sustainable peace (see also 'analysis of ceasefires below') - should be given much higher visibility and priority in the analysis than it currently enjoys (relegated to minor references on page 10 and 19).</p>	
C22.	<p><u>Section 2.4, P.5</u></p> <p>Analysis of ceasefires</p> <p>On page 5, the analysis suggests that the 'regularity, geography and intensity of armed conflict into the future is likely to be affected by which groups do or do not sign the NCA'.</p> <p>Whilst there is of course much truth to this statement it carries two important risks.</p> <p>Firstly, it risks suggesting that the most significant driver of armed conflict in Myanmar is EAG willingness to sign the NCA which overlooks the deep structural problems inherent in the NCA and ignores many EAGs concerns about the NCA process. As such, it is implicitly reinforcing one perspective on conflict in Myanmar, which on page 3, the chapter wisely says it will not do.</p>	<p>The text has been adapted to reflect these comments.</p>

#	Comments	Responses
	<p>Secondly, it overlooks the multiple tensions <i>within</i> the NCA framework and peace process - in particular those related to development and interim arrangements.</p> <p>Myanmar's ceasefires (both bilateral and the NCA) are far from stable and should not be taken as reflective of a 'status quo'. NCA signatories and non- signatories are paying close attention to what happens as a result of the NCA - including in whether it gives signatory groups more control over decision-making and equitable access to / benefit from resources.</p> <p>The strain that contestation over development can put on a ceasefire is picked up in the chapters section on the Kachin ceasefire experience on pages 10 and 25 where the 'irresponsible model of development' pursued in Kachin during the ceasefire period is cited as a key grievance of communities in Kachin and notes that 'construction [sic] of the dam at Myitsone didn't in itself cause the resumption of armed conflict in Kachin state but did exacerbate underlying tensions'.</p> <p>However, this observation is again not given the prominence that it deserves in the analysis nor taken to its logical conclusion that ceasefires are far from stable and the impacts of development activities including large-scale infrastructure such as hydropower can itself undermine them. Given the frequent misperception about Myanmar being a 'post-conflict' country, noted previously, this becomes a key message for the conflict analysis.</p>	<p>Well noted. These points have been highlighted in the executive summary.</p>
C23.	<p><u>Overall and P.27</u></p> <p>NCA Chapter 6 Interim Arrangements</p> <p>Linked to an expanded analysis of ceasefires, the chapter needs to give closer consideration to the issue of Interim Arrangements mandated in the NCA as these currently only get passing</p>	<p>An expanded introduction to interim arrangements is included in the revised baseline. The relevant provision</p>

#	Comments	Responses
	<p>reference on page 27 and yet are not likely to be well understood by potential hydropower investors or other stakeholders.</p> <p>The interim arrangements mandated under the NCA are intended to protect and EAG governance arrangements in territories they control while Myanmar’s political dialogue navigates the longer-term process of political and constitutional reform (which, in principle, would determine the future status of these governance arrangements vis-à-vis their convergence, replacement or concurrence with the state).</p> <p>Interim Arrangements cover a range of specific issues including socio- economic development, environmental conservation, matters regarding peace and stability, and regional development and capacity building projects.</p> <p>Many EAGs are watching what happens to NCA signatories in regards to interim arrangements and how well they protect EAG governance arrangements. If they are bypassed or undermined by the way hydropower development is undertaken then some EAGs may question the value of the interim arrangements and protections under/confidence in the NCA. Current non-signatories may also question the utility of them signing onto the NCA agreement if they see it as failing to protect meaningful governance authority for NCA signatories.</p>	<p>in the NCA (with regards to hydropower) is the requirement that “large development projects” are undertaken in accordance with the Extractive Industries Transparency Initiative (EITI), and in consultation with local communities. As hydropower, has been added to the EITI agenda in Myanmar for 2017, this provision has increased relevance.</p> <p>Some signatories maintain influence in areas slated for development. The final SEA report will respect the importance of interim arrangements with respect to hydropower development.</p>
C24.	<p><u>Overall and P.26</u></p> <p>EAG accountability</p> <p>It should not be assumed that EAGs are necessarily accountable to the people who live in their areas of control, or that those communities share the views of EAGs. This is hinted at on page 26 of the analysis in discussion about differing views on hydropower development between the KNU and local communities.</p>	<p>Agreed, good points.</p>

#	Comments	Responses
	<p>While it is right that hydropower investment carries the potential for vertical trust-building, this will only happen where EAGs are required - and supported - to also demonstrate accountability to local communities and it should not be assumed that their voices speak for everyone.</p> <p>Similarly, while it is crucial to ensure that the decision making around hydropower actively involves EAGs and that the benefits are equitably distributed to ethnic communities, it is also legitimate to ask EAGs what they are willing and able to bring to such projects, either in terms of funding or other non-financial / intangible assets.</p>	
C25.	<p><u>Section 5, P.28-29</u></p> <p>Sustainability indicators</p> <p>Reflecting on the above points, Oxfam believes the sustainability objectives and indicators could be further built on.</p> <p>Firstly, there should be a separate objective and indicators developed (or potentially just new indicators developed for a slightly reworked sustainability objective 1) around supporting the capacity of EAGs and local communities to analyze potential hydropower developments and develop their own position on these. Potentially, government and hydropower investors may think it is an advantage to have ‘weak opponents’ in negotiations around potential investments. However, in the long-term, if the positions and agreements reached are not genuinely satisfactory to EAGs and ethnic communities this will not make the conflict ‘go away’ but simply push it further down the line.</p> <p>Secondly, sustainability objective 2 should include some indicators about the level of EAG accountability and the degree of consultation and canvassing they have done of community opinions in relation to hydropower.</p>	<p>A new section has been developed for sustainability indicators. These rely on the availability of data that can be geographically-linked and disaggregated sub-nationally, while remaining linked to the core issues identified under this theme.</p>

#	Comments	Responses
	<p>Finally, a separate sustainability objective - with related indicators - should be developed that looks at the impact that the process of decision-making and implementation of hydropower investments has on the success of interim arrangements.</p> <p>Sustainability indicators need to include - degree to which EAGs and communities have not only been canvassed but supported to fully explore and develop their positions; accountability of EAGs to communities and the degree to which they can demonstrate commitment consultation; and a separate objective on hydropower developments supporting interim arrangements.</p>	
C26.	<p><u>Section 6, P.30-31</u></p> <p>Future trends and presupposition of hydropower investment</p> <p>There is an implicit presupposition within the analysis that large-scale hydropower is the only option and, as such, a starting point that the function of the conflict analysis is to mitigate as much as possible the negative impacts of something that will in any case go ahead.</p> <p>Instead, the analysis - either in the conflict chapter or elsewhere - should engage with alternatives to large scale hydropower development for meeting Myanmar’s energy needs (such as propositions put forward for extensive micro-hydro projects or other forms of renewable energy generation) and assess the comparative conflict/peace building impacts of these various modalities.</p> <p>This should be reflected as a fourth scenario in the chapter, in addition to the three articulated on page 1.</p>	<p>To clarify the purpose of the baseline and subsequent steps of the SEA: There is not a presupposition that large scale hydropower is the only option, nor any intention to mitigate risks of projects that will go ahead in any case. That would be a significant mis-read of the purpose of the SEA.</p> <p>The intention of the baseline is to take stock of the ‘business as usual’ approach and present the relationships to conflict, which are numerous and with significant impacts.</p> <p>The final SEA report may recommend a sustainable development pathway (including alternative hydro development options) that is radically different than the status quo plan, though that is yet to be determined. The</p>

#	Comments	Responses
		consideration of alternative energy sources is out of scope for a hydropower SEA, however.
C27.	<p>This chapter is informative and is written from a background of strong expertise in social conflict in Myanmar. However, the narrative and interpretation of statistics could be improved by greater clarity on causes of conflict, especially teasing out those cases where hydropower projects are either the root cause of conflict or an accelerant of pre-existing ethnic conflict.</p> <p>Conflict generated other than due to ethno-political reasons around hydropower projects is rather common in other parts of the world. Active civil society groups organize around infrastructure development related issues. Hence, primarily linking conflict around hydropower development to ethno-political causes may risk overlooking other potential causes of conflict related to organized civil society (supported or not by international organizations) that opposes hydropower development due to its social and environmental impacts. We suggest expanding the study to also cover conflict catalyzed by civil society organizations that serve as environmental watchers over hydropower development.</p> <p>Section 3.2 refers to several periods of post-independence state-society conflict. Are any of these related to hydropower development?</p> <p>What were the reasons for opposition to the Myitsone dam, and who were the actors opposing it? This should be documented in the report, even if relatively common knowledge in Myanmar.</p> <p>The report states that proposed hydropower projects in peaceful areas are “still highly insecure.”</p> <p>Are any of these projects opposed and, if so, by whom? For example, proposed projects in portions of the Myitgne River sub-basin have been opposed by local communities and civil society groups.</p>	<p>Direct links between hydropower and conflict are noted in several case studies. The new sections on sustainability analysis proposed quantitative means of understanding conflict causes at a sub-national level.</p> <p>This study focuses on violent armed conflict, which is not closely related to civil society mobilization in Myanmar. Consideration is given to the role of public opposition to hydropower.</p> <p>This information is intended as a background to understand the nature of conflict in Myanmar and how this relates to current contests over governance and territory (which have an impact upon hydropower development).</p> <p>Further clarification on Myitsone has been added.</p>

#	Comments	Responses
	<p>The report includes statistics on displacement of people in Rakhine state, but it is not clear if this is the result of hydropower development or of ethnic conflict. Need to be clear throughout this chapter on the cause of displacement when citing figures to avoid conflating the two issues.</p> <p>Where ethnic conflict is exacerbated by conflict over hydropower projects, this should be documented as well.</p> <p>Another area where this chapter could be improved is to include greater explanation on policy and institutional frameworks that are discussed in the narrative. For example, in section 2.6, the analysis should also include the institutional architecture that implements the regulatory framework. It also should include an evaluation of the effectiveness in the application of these regulations, and needs for reform, if that's the case. In section 3.2, it is important to indicate how ethnic groups are pursuing getting a voice in the political process. And in section 4, page 22, a statement is made that “the peace and conflict implications of hydropower development are largely absent from official policy.” Why is this?</p> <ol style="list-style-type: none"> 1. In the baseline assessment, the voices of local communities especially IDPs, the victims of ethno-political conflict and the affected communities by the dam projects (e.g.: Paung Laung dam and Myo Gyi dam in Shan State), are very crucial. But, in the section of 2.2, Key informant interviews, the grassroots people were not part of target stakeholders and their voices have not been included in the report. <p>Page 17, Section 4: "In 2015 Myanmar conducted free and fair elections and a peaceful transition to a civilian government. The National League for Democracy (NLD) won majorities in both the upper and lower houses of parliament."..."Amendments to the constitution may have implications for hydropower development, for example by modifying the degree to which decision making is decentralized".</p>	<p>Displacement in Myanmar is to a very large extent the consequence of ethno-political conflict or intercommunal violence. To a lesser extent, people have been displaced from their lands for development projects, including hydropower in some instances. Displacement in relation to hydropower is mentioned in two case studies.</p> <p>These points have been reflected in the revised baseline.</p> <p>To our knowledge, detailed conflict assessments of the hydropower sector have never been performed before.</p>

#	Comments	Responses
	<p>2. In relation to that, the report should also emphasize on NLD's 2015 Election Manifesto related to Energy sector "The construction of the large dams required for the production of hydropower causes major environmental harm. For this reason, we will generate electricity from existing hydropower projects, and repair and maintain the existing dams to enable greater efficiency."</p> <p>Page 16, "The peace process offers potential to address ethno-political claims to governance and rights and has multiple implications for hydropower development: Beginning in 2011, the previous government embarked on the nation's most comprehensive ever effort to reach peace agreements with ethnic armed organizations. Various bilateral ceasefire agreements negotiated by the Thein Sein government contain references to natural resource develop. Most notably for the purposes of this study is the agreement between the Myanmar government and the Karenni National Progress Party (KNPP), whose eight-point agreement with the government includes measures for transparency around large projects, specifically naming the Ywathit hydropower project."</p> <p>3. Where is the reference for eight-point agreement and state it in the report?</p> <p>Page 26, "Hydropower strategies to support peace. The Bawgata Hydropower Project (BHP) is linked to the national peace process. For the KNU, the BHP has trustbuilding and political as well as economic goals. 'Horizontally', the BHP is an opportunity to build trust and cooperation between the KNU and the Myanmar government, alongside negotiations of the peace process, which will include negotiations on power and resource sharing towards a possible federal state solution and new constitution. The BHP is, therefore, a means of practicing federalism and exploring the governance reforms and resource sharing prescriptions required to forge wider ranging political agreements with the government."</p>	<p>Since the initial baseline was written, consultations with affected communities of Shwe Gyin have been conducted, and case studies written from Mong Ton and Myo Gyi.</p> <p>Noted. This has been included in the revised baseline.</p>

#	Comments	Responses
	<p>4. Peace doesn't mean the absence of war/conflict, without meaningful participation of grassroots communities/the exclusion of relevant communities are also a mean of lacking peace. Thus, when talking about the successful story of Bawgata Hydropower Project feasibility study, do the community have an active role in it? If yes, quote them in the report.</p> <p>5. The report should also analysis to what extend the hydropower project can complement federal model. Based on Chapter 8: Conflict, it does not reflect what we discussed and presented at the consultation meeting in Taunggyi and Loi Kaw. We clearly stated that we joined the meeting is to give our concerns about not building mega dam. Because Dam leads to conflict and we also highlight conflict zones and significant places on the map. At least, the map should be highlight in the SEA draft. Instead, SEA draft emphasizes that dam could lead to peace by referring Bawgata Hydropower Project (BHP)in Kayin State.</p> <p>Not to bias towards dam is good or bad, the information should be equally presented. If the Bawgata hydropower project is a good example, the massive impacts of Myo Gyi dam and Paung Laung dam should be represented.</p> <p>If SEA is for the development of Myanmar, the wider public participation from CSOs and community in Myanmar is crucial. Thus, at least Burmese version should be available to wider audiences.</p>	<p>This has been added.</p> <p>The updated baseline provides references to community perspectives in relation to this project.</p> <p>The revised baseline includes multiple case studies on projects that have had negative impacts on communities, or proposed projects that are opposed by local communities and civil society groups.</p>