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Sustainability assessment of Cambodia's electricity planning

Using Section 1 of the 2009 Hydropower Sustainability Assessment Protocol



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LIST OF ACRONYMS

ASEAN	Association of the South East Asian Nations
AusAID	Australian Agency for International Development
CDC	Cambodia Development Council
CDM	Clean Development Mechanism
CPWF	Challenge Program on Water and Food
EAC	Electricity Authority of Cambodia
ESIA	Environmental Impact Assessment
GMS	Greater Mekong Sub-region
HSAF	Hydropower Sustainability Assessment Forum
HSAP	Hydropower Sustainability Assessment Protocol
IHA	International Hydropower Association
M-POWER	Mekong Program on Water, Environment, and Resilience
MIME	Ministry of Industry, Mine and Energy
MOWRAM	Ministry of Water Resources and Meteorology
MRC	Mekong River Commission
MSPs	Multi-stakeholder Platforms
SNEC	Supreme National Economic Council
CSOs	Civil Society Organizations
TNC	The Nature Conservancy
WCD	World Commission on Dams
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

The rapid sustainability assessment of Mekong electricity planning in Cambodia using Section I of the 2009 Draft Hydropower Sustainability Assessment Protocol (2009 HSAP) was conducted by a group of Cambodian assessors from March to May 2010. A multi-stakeholder consultation and trialing was conducted in Phnom Penh on April 8, 2010. Preliminary results and experiences in applying Section 1 of 2009 HSAP were also presented at a Regional Informal Dialogue organized by M-POWER and the Challenge Program on Water and Food (CPWF) in Vientiane, Lao PDR, on the eve of the Hydropower Sustainability Assessment Forum (HSAF) meeting on May 2, 2010.

The report consists of two parts, namely the Rapid Sustainability Assessment of Cambodia/Mekong Electricity planning, and our experience with the use of the 2009 Draft Hydropower Sustainability Assessment Protocol (HSAP).

Justification

Due to the growing energy demand – real or perceived, the Mekong region faces challenging questions about what electricity options should be developed during the next 10 to 30 years. These questions have to do with technological choices (e.g., small-scale, large-scale, demand-side, supply-side, or hybrid) as well as environmental and social impacts (Molle et al. 2009).

Strategic assessment of energy and water resources planning is considered as one of the most important sections in the draft Hydropower Sustainability Assessment Protocol (HSAP) (HSAP, 2009) applicable for countries and regions that are planning for significant expansion of energy and hydropower development. It is observed that many disputes over large energy and water projects are mainly related to inadequacy of strategic justification for water and hydropower projects or systems of such projects.

Scope and Context

The assessment methodology and approach used in this assessment is based on the Section 1: Strategic Assessment of the 2009 Draft HSAP (HSAP, 2009). Table 1.2 in the main report presents key aspects, attributes and sub-attributes, and definitions of scores provided in the 2009 Draft HSAP. All relevant attributes for each aspect are scored from level 1 to 5 without specifying a level of acceptability. Level 1 is understood to be the absence of or very poor practice. Level 3 is understood to be basic good practice, with a particular consciousness of what is achievable in countries with minimal resources or capacities typical of developing countries. Level 5 is understood to be proven best practice.

The rapid assessment is implemented in a phased and integrated approach designed to provide a credible study, founded on carefully gathered information and rigorous analysis. This time-bound step-wise analytical framework includes information gathering, rigorous analysis, and a well-planned/facilitated process of key stakeholder consultations, reflection and documentation.

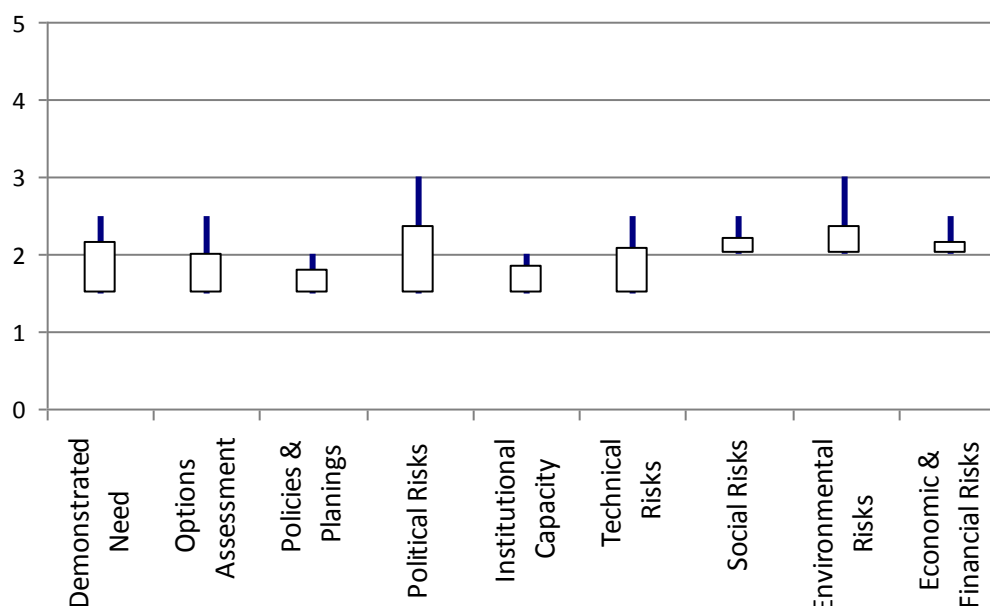
I. Sustainability Assessment of Cambodia/Mekong Water and Electricity planning:

Table 1.1 and Figure 1.1. present the overall outcomes of our rapid assessment. They present both the high and low attribute scores and the total average of each aspect. The graph also shows the majority levels of the attribute scores. In this study, most of the attributes obtain lower scores for both process and performance attributes.

Table 1.1 Summary table of overall outcomes of the assessment

Aspect Name	Process Attribute Scores			Performance Attribute Scores				Lowest Attribute Score	Highest Attribute Score	Average
	Assessment	Management	Consultation	Stake-holder Support	Conformance with Plans	Compliance	Effectiveness			
Demonstrated Need	2.5	2	1.5	2.5	3	2	2.5	1.5	3	2.3
Options Assessment	2	2	1.5	2	2	2	2.5	1.5	2.5	2.0
Policies & Planning	2	1.5	2	2	1.5	1.5	2	1.5	2	1.8
Political Risks	3	3	1.5	3	2	2	2	1.5	3	2.4
Institutional Capacity	2	1.5	1.5	2	2	2	2	1.5	2	1.9
Technical Risks	2.5	2	1.5	2	2	2	2.5	1.5	2.5	2.1
Social Risks	2.5	2.5	2	2	2.5	2	2	2	2.5	2.2
Environmental Risks	3	2	2	2	3	3	2.5	2	3	2.5
Economic & Financial Risks	2	3	2	2	2	3	2.5	2	3	2.4

Figure 1.1 Graph summarizing the overall outcomes of the assessment



The summary of the key facts/evidence based on which the scoring and ranking was carried out is provided as follows:

Regional and National Policies and Plans Aspect

The Cambodian assessment focused on the regional and national plans for energy services, water resources management, biodiversity/conservation, and social and economic development, as well as the relevant policies on resettlement, impact assessment, climate change, and benefit sharing. The 'Regional and National Policies and Plans' aspect scores at level 2 (lower than basic good practice) for all attributes due to a number of critical gaps such as i) an absence of integrated and broad-based participatory planning frameworks, and lack of coherence with broader national policies and plans; ii) provision of little guidance on regulatory requirements for project preparation, approvals, implementation and operation; and, iii) limited capability in preventing, or addressing transboundary implications.

Both in Cambodia and the Mekong region as a whole, the water resources and energy planning and development occur in an environment where governance and coordination remain weak. The planning processes currently in place both at the national and regional levels falls well short of international standards in electricity planning and remain top-down. The effectiveness of the existing energy policy and plans is considered low as they tend to fail to reflect properly the real development needs and objectives and consider all sustainable planning parameters.

The likelihood of project compliance with regional and national policies and plans by the project developers seems to be low, due to the lack of adequate national and trans-national social, environment, technical and operational guidelines and lack of consistency in compliance and enforcement, if any.

Demonstrated Need

The demonstrated need aspect also scores below the basic good practice level (lower than level three) for all attributes. This is due to a number of critical gaps including those in the assessment of need, the consultation process, lack of proper consideration of all key environmental and social needs, especially of those local communities who rely heavily on the natural resources for their daily livelihood, and way of life and culture.

Local, regional, national and international needs and development objectives for energy and water services are still poorly understood and a holistic framework for integrated needs assessment and planning for electricity growth in the most cost-effective manner are still weak. The selection of major power generation projects for prospective development, which consist mostly of medium and large hydropower projects, appears to be driven more by a private company's willingness and policy preference, than careful and strategic selection on the part of the agencies concerned.

The quality of public consultation on needs and risk assessments, and the limited transparency in the decision-making process were also found to be critical issues. It is unlikely that project developers ever consider investing in additional resources to ensure that projects contribute to real development needs and objectives, if government and relevant agencies are not able to put in place and implement a holistic framework for integrated needs assessment.

Options Assessment

The choices available for meeting energy and water needs by realistically and comprehensively comparing hydropower options with other options across a range of economic, technical, environmental and social factors, scores lower than basic good practice (lower than level 3) as well for all attributes due to a number of critical gaps. Firstly the analytical framework for the options assessment is yet to be in place and complied with to consider all relevant parameters and impacts.

Quality of options assessment input data has been a hotly debated discussion point for many years in Cambodia and the Mekong region. The quality of the consultation with respect to determining options for water and energy services by both government agencies and developers is considered to be less than satisfactory. There is an absence of informed discussion in the public space about the pros and cons of proposed development options. This fact also leads to a conclusion that the stakeholder support for options assessment is also low.

Institutional capacity

The capacities of relevant institutions such as governments/regulators, developers, financial institutions, contractors, suppliers, labor force, civil society and affected people scores below the basic good practice. This aspect is important because the development of water and energy services in general, and of a hydropower project in particular, requires a comprehensive and balanced set of capacities amongst these stakeholders.

There are a number of critical gaps in institutional and organizational capacity and effectiveness - shortfalls in law enforcement and compliance, and public sector capacities including the capacity to address: corruption risks, checks and balance mechanisms, judiciary and conflict/grievance management. These need to be able to include civil society groups, the private sector, international institutions, and audit/oversight institutions.

Political Issues and Risk

The political risk aspect focuses on issues such as war and political violence including the complexities of regulatory frameworks and transboundary issues of projects. This aspect is rated as slightly satisfactory (slightly lower than level 3) for most attributes due to a number of factors, such as presence of reactive corrective action.

Political risks in energy and hydropower sector development in Cambodia are still poorly studied by both the government and developers. Cambodia continues to display a high degree of political stability however, potentially serious imbalances and challenges to recent achievements are emerging, and the risks need to be properly assessed and mitigated. In an environment where the rule of law is still very weak, corruption is still high and local protest continues to be stifled, such risks appear smaller to project developers at first sight.

Environmental Issues & Risks Aspect

This aspect does not score well for most attributes due to a number of factors, such as inadequate and ineffective environmental risk assessment, management and consultation processes with some critical gaps in components; lack of periodic review and improvement in environmental risk management; limited engagement with stakeholders; limited support of affected stakeholder groups; and some major non-compliance and non-conformance that requires serious solutions.

The implementation of ESIA in Cambodia is normally commenced only when the major project decisions (including site, design, and construction preparation) have been made already, thereby rendering the ESIA a mere formality (Li, 2008). There is limited capacity within Cambodia to prepare ESIA along with limited capacity of Ministry of Environment staff to manage the review of large ESIA within the 30-day period stipulated by the law. There is also no credible transboundary ESIA generated for Mekong related projects. Public consultation and information disclosure aspects of the ESIA process are particularly weak in the Mekong region and Cambodia. The likelihood of avoidance, mitigation or compensation of a project's environmental issues and risks is also considered very "low".

The absence of an effective conflict resolution mechanism for managing conflicts between local residents and dam builders/operators, and regional guidelines/mechanisms also increase the environmental risks in Cambodia and the Mekong region.

Social Issues and Risks

This social risk aspect scores below basic good practice for most attributes due to a number of factors: In the social risk assessment process there are critical gaps in results; the process itself is less than suitable, adequate and/or effective due to the absence of corrective action to fill the gaps. The planning to manage project social issues and risks is seen to be poor and a systematic risk analysis is sorely missed. The consultation process on the part of the developer to build understanding about projects' social issues and risks is considered to be less than satisfactory. The likelihood of a project delivering social benefits seems to be low as well, due to the absence of effective mechanisms for ensuring distribution of benefits and mitigation of impacts. The risk of avoiding appropriate mitigation and compensation is increased due to critical gaps in the assessment, management and consultation processes. By contrast, projects should be aiming to increase social benefit rather than simply aiming to minimize harm.

Technical Issues and Risks

This aspect is rated as less than satisfactory (below level 3 – basic good practice) for most attributes due to a number of factors, such as inadequate, and ineffective technical design, risk assessment, and management and consultation processes which have critical gaps in components.

Quality of the process leading to an understanding of technical issues and risks relevant to a potential project, and planning to manage a project's technical issues and risks is found to be below par. The lack and poor quality of data leads to a failure to fully understand and correctly evaluate sustainability tests to quantify impacts, the causal mechanisms at work in large dynamic systems, and to consider and integrate multiple risks and degree of vulnerabilities.

Economic & Financial Issues & Risks

This aspect scored between "levels 2 and 3" for most attributes due to a number of factors. These include the quality of the process leading to an understanding of economic and financial issues and risks relevant to a potential project, including cost-benefit analysis, which was found to be constrained by a number of factors. There is an absence of a mechanism for internalizing the environmental and social costs of hydropower development that is clearly critical to assessing the "least cost" options (King et al. 2007).

The likelihood for avoidance, mitigation or compensation of economic and financial loss is low. The chance for a hydropower project delivering economic and financial benefits is also low due to a large number of critical gaps in assessment, management and consultation processes as discussed above.

II. Reflection on 2009 Draft Hydropower Sustainability Assessment Protocol

The report also documents, reflects and assesses the experiences with the trialing of the draft HSAP Section 1, in Cambodia Assessment with both general and specific comments as follows:

General Assessment of Section 1:

The trialing found the 2009 HSAP Section 1 very useful. However, it can be further improved.

The trialing results show the challenge in achieving objectivity and replicability (issues of robustness in arriving at consistent and unbiased results). Moreover, HSAP complexity requires specially trained assessors to be able to conduct the assessment objectively and consistently, and access to evidence and data.

To conduct assessment confidently (ease of use and understandability), the users need to have all necessary expertise and knowledge, and good English skills as well as a very good understanding of the HSAP. The HSAP Section 1 structure is still complicated, and the users have to turn back and forth to different sub-sections and pages of the draft to be able to complete an assessment of a selected aspect.

Table 12 – Definitions of Scores 1- 5, needs to be updated and its “characteristics that may be evident” should be made more consistent and explained with concrete examples of evidence, to minimize the chance for the participants to arrive at different understanding.

As far as the scope and comprehensiveness are concerned, the set of aspects and assessment criteria included in HSAP Section 1, in general, were found to be very well streamlined (with only nine aspects) compared to other Sections in the draft HSAP. However, for assessing the strategic environment and consideration of multiple hydropower projects or systems, the aspects and assessment criteria should incorporate some “high profile and cross-cutting issues” such as livelihood and potential cumulative and spatial aspects of the impacts, and key sub-attributes that HSAP Section 1 currently suggests as “generally not relevant at strategic assessment stage”.

In addition to private financiers, developers, and operators, HSAF/IHA should win over other key players, including governments and civil society, if HSAP is to be eventually endorsed and applied by broader circles of state, private and non-state stakeholders. The adoption of such frameworks in the national system and incentive mechanisms (financial, technical and reputational risk and incentives) are considered important for encouraging wider adherence to and compliance with this framework.

Some sections of the auditing guidance notes and examples need to be further expanded and refined to make them even more helpful in determining what evidence should be collected and analyzed. The participants also found the need for a clearer guideline on how the assessors/auditors are selected, and guidance on the code of conduct, benchmarks/best practices, and quality of evidence/information in order to increase level of objectivity, and credibility of the assessment.

Many trialing participants found the auditor worksheet and HSAF Presentation of Trial Results useful and felt that with more familiarization with HSAP, with additional guidelines and code of conducts, and availability of material evidence, the scoring and presentation of the results using these worksheets and tools will be substantially improved.

Specific Comments of Section 1:

The “Demonstrated Need” and “Options Assessment” aspects were considered to be important for addressing the choices available for meeting energy and water needs in terms of both infrastructure and management approaches and options across a range of economic, technical, environmental and social factors. Proper consideration of all key environmental and social needs, especially with regards to local communities is a must. The suggestion by the

HSAP Section 1 that “management”, “conformance with plans”, and “compliance” sub-attributes are not generally relevant at the strategic assessment stage, was found deplorable.

According to HSAP Section 1, the governance perspective involves only two key aspects, namely i) Regional and National Institutional Capacity; and ii) Political Issues and Risks. The trialing participants and assessment team found that the national and regional policies and plans should be more closely associated with the governance perspective than with the development perspective. The trialing disagreed with the suggestion by the HSAP Section 1 that “consultation”, “stakeholder support”, and “compliance” sub-attributes are not generally relevant at the strategic assessment stage for these aspects.

The trialing disagreed with the 2009 HSAP that suggested these four aspects – technical, social, environmental and economic issues/risks - apply mainly to developers who are considering a particular hydropower project or system of projects. The identification and analysis of the social, environmental, technical and financial issues and risks was equally important for the government’s decision-makers and water resources and energy planners in the strategic assessment stage. In these aspects, it is found necessary to consider as well the compliance, stakeholder support and conformance sub-attributes.

The HSAP should be improved and institutional support be in place to mainstream it into decision making processes by both dam builders, investment banks/guarantors and host countries. The HSAF should do its best to accommodate all relevant comments and critiques to improve the HSAP and to ensure that it will be broadly endorsed and sustained by both key hydropower developers, and partners outside the hydropower industry sector.

1.0 INTRODUCTION AND BACKGROUND

This report comprises two main parts. Section 2.0 summarizes the results of a rapid sustainability assessment of Mekong electricity planning in Cambodia using Section I of the 2009 Draft Hydropower Sustainability Assessment Protocol. Section 3.0 of the report documents, reflects and assesses our experiences during various key stages of the trialing of the Draft Hydropower Sustainable Assessment Protocol (HSAP) Section 1, in a rapid strategic sustainability assessment of Mekong electricity planning in Cambodia.

In 2007, International Hydropower Association (IHA) in collaboration with the World Wide Fund for Nature (WWF) and The Nature Conservancy (TNC) established a "Hydropower Sustainability Assessment Forum" (HSAF). The primary objective of the Forum was to review and recommend enhancements to the existing IHA Sustainability Assessment Protocol (IHA 2006). In August 2009, the Forum released a Draft Hydropower Sustainability Assessment Protocol ("Draft HSAP") (Foran, 2010).

M-POWER (Mekong Program on Water, Environment, and Resilience) is a research collaboration network among research and policy-oriented organizations active in the Mekong region. M-POWER's ultimate goal is for improved livelihood security, human and ecosystem health in the Mekong Region through democratizing water governance. M-POWER's 'Improving Mekong Hydro Investment' project aims are to explore and help improve the governance of decision-making around energy and water resources development in the Mekong region. This project is managed by M-POWER and the Challenge Program on Water and Food with financial support from the Australian Government through AusAID and the Blue Moon Fund.

National consultations were conducted in Mekong countries to introduce the draft HSAP and discuss sustainable hydropower options in the Mekong region. In Cambodia, the project team in collaboration with the Hydropower Sustainability Assessment Forum" (HSAF) organized a consultation meeting with civil society organizations in November 2009 to introduce the protocol and discuss sustainable hydropower options. In February 2010, the project team conducted two more rounds of consultations with key government ministries and academic institutions. The participants of these consultations in Phnom Penh recommended that a more in-depth study should be conducted to clarify relevant strategic issues related to the Mekong region and Cambodia's energy/hydropower strategy and policy (M-POWER, 2010).

The governments in the Mekong region and donor institutions projected a steady growth in energy demand in the Mekong region. The region faces challenging questions about what electricity options should be developed during the next 10 to 30 years. It is clear that large hydropower (and other power stations) has become a development option of choice by many Mekong countries including Cambodia.

This strategic assessment is crucial for Cambodia, and other countries in the Mekong region, since many disputes over large hydropower projects are related to disagreements over the adequacy of strategic justification for a project. Strategic planning may be debated for a number of reasons. For example, does the supply of proposed hydropower projects exceed a region or country's economically efficient demand for electricity? Is hydropower-led development an effective pro-poor strategy for a particular region? These questions have to do with technological choices (e.g., small-scale, large-scale, demand-side, supply-side, hybrid) as well as environmental and social impacts (Molle et al. 2009).

1.1 OBJECTIVES OF ASSESSMENT

This work was conducted by a group of Cambodian assessors with an active participation of relevant stakeholders from key government ministries and agencies, and Civil Society Organizations (CSOs) – universities, NGOs and Community based Organizations - from March to May 2010. The key objectives of this rapid assessment include:

- Assessing the sustainability of Cambodia’s electricity planning - strategic justification of hydropower dams in various long-term energy services plans by using Section I of the draft HSAP;
- Documenting, reflecting, and reporting on experiences during various key stages of the trial: forming a qualified assessment team, obtaining access to data, generating findings, and numerical scoring; and
- Conducting informed multi-stakeholder discussion around proposed development of multiple large hydropower dams in the Mekong region and key findings from the rapid assessment.

1.2 APPROACH AND METHODOLOGY

The assessment methodology and approach used in this assessment was based on ‘Section 1: Strategic Assessment’ of the 2009 Draft Hydropower Sustainability Assessment Protocol (HSAP) (HSAF, 2009). The major phases and key tasks are shown in the centre of Figure 1.2. The information requirements and the proposed segmentation of the information are shown on the left and right of the figure, respectively.

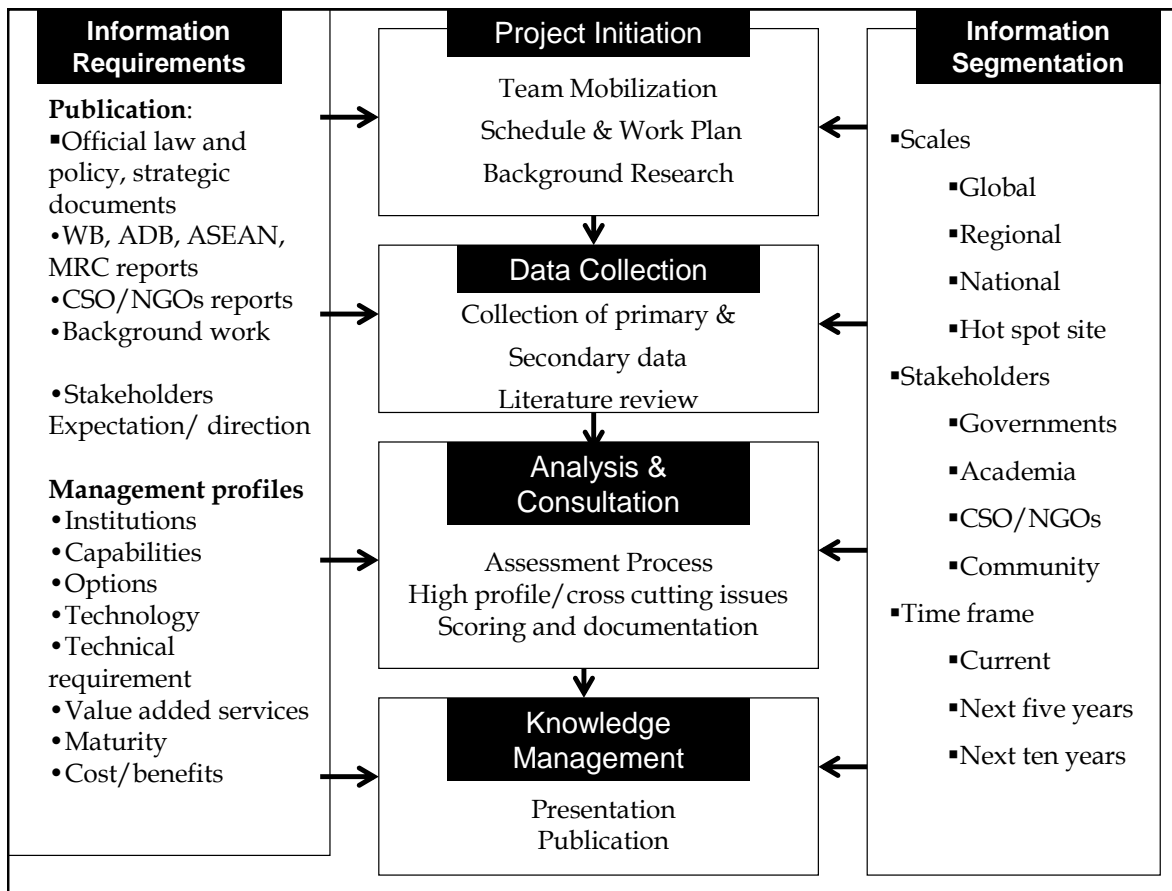
This rapid assessment was implemented in a phased and integrated approach designed to provide a credible study, founded on carefully gathered information and rigorous analysis. This time-bound step-wise analytical framework included information gathering, rigorous analysis, and a well-planned/facilitated process of key stakeholder consultations, reflection and documentation.

Data collection was carried out to ensure that it would provide sufficient information about each attribute, aspect and cross-cutting issue of relevance to the Section 1 Assessment. The Assessment team used a variety of data collection methods, including interviews, observation, and document review. Data were gathered from a diagonal cross-section of the institution through the following channels:

- first hand knowledge from a suitable spectrum of key people in both government agencies, CSOs (NGOs, academic and research institutions, and community based organizations); and
- available documents from relevant government agencies, regional organizations, multilateral funding and development agencies, and CSOs, and through web research.

Throughout the data collection phase, the assessment team did its best to avoid premature judgments, and findings were allowed to emerge and not be evaluated too quickly or forced into preconceived categories.

Figure 1.2 Conceptualized Approach to the Current Study



A multi-stakeholder consultation and trialing was conducted in Phnom Penh on April 8, 2010. Numerous critical comments and feedback were obtained to further refine earlier drafts of this report. The trialing participants' comments on the Section 1 of 2009 HSAP were compiled and documented in a Final Chapter of this report and this was presented at a Regional Informal Dialogue organized by M-POWER and the Challenge Program on Water and Food (CPWF) in Vientiane, Lao PDR, on the eve of the Hydropower Sustainability Assessment Forum (HSAF) meeting on May 2, 2010.

1.3 SCOPE AND CONTEXT OF THE ASSESSMENT

The HSAP (2009¹) is organized around sections, aspects (criteria), attributes (indicators) and sub-attributes. It consists of four sections which reflect different stages of the project life cycle – i) Strategic Assessment; ii) Project Preparation; iii) Project Implementation and, iv) Project Operation. Each section has a set of aspects, reflecting the key sustainability considerations at that stage of the project life cycle. Each aspect can be assessed on up to seven attributes, or scoring components. The four sections were designed to be stand-alone assessment tools that could be applied at particular stages of the project life cycle and have the potential to assist in the formulation of views on key decision points such as whether to commence hydropower

¹ The draft HSAP (2009) underwent significant trialing and consultations and as a result has been revised. The final version will be presented by end of 2010.

project preparation, award construction contracts or to commission the project or not (HSAP, 2009).

This Cambodian assessment focuses on the strategic assessment of electricity planning (Section I of the HSAP). Section I is one of the most important sections in the draft Protocol applicable for countries and regions that are planning for significant future expansion of energy and hydropower development. Table 1.2 presents key aspects, attributes and sub-attributes used in this assessment.

Each aspect of Section 1 was assessed using the scoring instructions in the Draft HSAP (HSAF, 2009). Each attribute receives a score and for some attributes where there are multiple sub-attributes, scores were aggregated to determine the attribute score. All relevant attributes for each aspect were scored from level 1 to 5 without specifying a level of acceptability. Level 1 is understood to be the absence of or very poor practice. Level 3 is understood to be basic good practice, with a particular consciousness of what was achievable in Cambodia with minimal resources or capacities typical for developing countries. Level 5 is understood to be proven best practice.

Table 1.2 Section 1: Strategic Assessment Aspects, Attributes and Sub-Attributes

Perspective and Aspect	Key Attributes	Sub Attributes
I. Development Perspective		
I.1. Demonstrated need	Assessment	4 sub-attributes related to quality of process
	Management	Not relevant to strategic assessment
	Consultation	1 sub-attribute on consultation quality
	Stakeholder support	1 sub-attribute related to stakeholder support
	Conformance with Plans	Not relevant to strategic assessment
	Compliance	Not relevant to strategic assessment
	Effectiveness	1 sub-attribute related to likely contribution to development needs and objectives
I.2. Options Assessment	Like above	Like above
I.3. Regional and National Policies and Plans	Like above	Like above
II. Governance Perspective		
II.1. Institutional capacity	Like above	Like above
II.2. Political risk	Like above	Like above
III. Social Issues Perspective		
III.1. Social issues and risks	Like above	Like above
IV. Environmental Perspective		
IV.1. Environmental Issues and Risk	Like above	Like above
V. Financial and Economic Perspective		
V.1. Economic and Financial Issues and Risks	Like above	Like above

All reference documents used by the team in the assessment are listed and referred to in the report (Section 5.0). The Report provides not only the scores for each aspect, but also the

evidence that led to assessment findings. The report also discussed in as realistic a manner as possible about how the scores were assigned and challenges the team had to overcome. This documentation of evidence and scores allowed the team of assessors and officials, water and energy specialists, researchers and representatives of civil society organizations to review and make constructive critiques on the assessment.

The trialing process as a whole was inclusive and transparent and resulted in two major outputs – i) assessment of water and energy planning in Cambodia using section I of the 2009 draft Hydropower Sustainability Assessment Protocol; and, ii) documentation of our experiences during various key stages of the trialing of the draft Hydropower Sustainable Assessment Protocol (HSAP) Section 1 in Cambodia.

1.4 PARTICIPANTS

The participants in the rapid assessment included:

- Independent assessor team; and
- Invited participants from relevant government agencies and civil society organizations in Cambodia.

1.4.1 Team of Assessors

A team of multi-disciplinary Cambodian specialists was mobilized. The assessment team has proven experience with required qualifications and experiences that cover adequately the key aspects and attributes in the Draft HSAP Section 1. Team members also have sustainability assessment and/or auditing experience in Cambodia and internationally. The team was supported by a Communication and Stakeholder Consultation Planner who helped the assessment team in data collection and planning and organizing the stakeholder consultation.

Table 1.3 Assessment Aspects and Team Expertise/Roles

Aspects	Sokhem Pech	Saing Im Sok	Solieng Mak	Khamkong Ham
Demonstrated needs	Yes	Lead	Yes	
Options Assessment	Yes	Lead	Yes	Yes
Regional/national policies/plans	Lead	Yes	Yes	Yes
Political risks	Lead	Yes	Yes	Yes
Institutional capacity	Lead	Yes		
Technical issues & risk	Yes	Lead		Yes
Social issues & risks	Yes		Lead	Yes
Environmental issues and risks	Yes		Yes	Lead
Economic & financial issues/risks	Yes		Lead	Yes

1.4.2 Multi-stakeholder Consultation Participants

Key participants were the representatives from various Cambodian government agencies, organizations, and CSOs. There were 26 participants present at the technical seminar and consultation workshop in Phnom Penh, Cambodia on April 8, 2010 (List of Participants is provided in *Appendix A1*).

The consultation was designed to achieve the following three objectives:

- To present data/information collected and analyzed during the desk-study and field work;
- To exchange information with relevant Cambodian officials and researchers in conducting a rapid sustainability assessment using Section 1 of HSAP; and
- In group discussion, to provide opportunity to assess selected aspects and attributes, deliberate the evidence for and against their scoring etc., and provide an evaluation and recommendations for improvement.

The consultation was conducted in Khmer language with simultaneous translation.

The participants were grouped into three different groups to work jointly with the assessors to discuss constructively and score each attribute and aspect using an HSAP Auditor Worksheet and Guidance for application of Section 1.

Apart from the trialing, the consultation provided an opportunity for capacity building and networking among the diverse participants present.

Figure 1.3 Multi-stakeholder Consultation/Trialing of Section 1 of HSAP in Cambodia





2.0 RAPID SUSTAINABILITY ASSESSMENT OF MEKONG ELECTRICITY PLANNING IN CAMBODIA

2.1 COUNTRY AND REGIONAL DEVELOPMENT CONTEXT

Cambodia is located in the Mekong region (MR) that incorporates the land and people of the riparian countries of China, Myanmar, Laos, Thailand, and Vietnam. The Mekong Region has a total population of over 330 million (Pech, 2010). The Mekong River Basin (MRB), one of the most important international river basins in the MR, is home to over 70 million people, and this figure is projected to increase rapidly. In 2009, the population of Cambodia was about 14.5 million with an expected annual population growth of about 1.7% (CIA World Fact-book, 2009).

In the region, various scales of hydropower and water projects are currently at different stages of planning and implementation (Molle et al. 2009; MRC, 2010a). The development of the Mekong River for power generation has been an important priority in many Mekong countries, especially in China (Yunnan), Laos, Myanmar and Vietnam. More dams on both the Mekong mainstream and its tributaries are currently being built or in various stages of development.

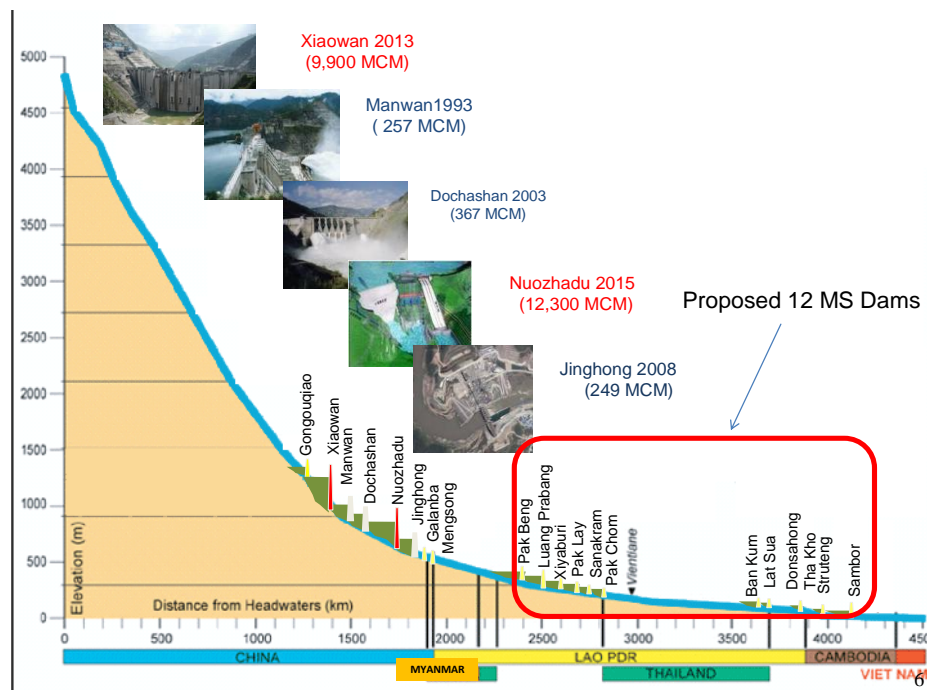
There have been debates on performance, benefits and negative impacts of the large dams culminating in the World Commission on Dams (WCD) Report released in 2000.

The considerable hydropower potential of the Lower Mekong River Basin (LMB) has been discussed over the past 40 years. The estimates of the hydropower potential and demand in the Mekong Basin/ and Cambodia vary, depending on the applied criteria. Moreover, the true potential from technical, economic and ecological points of view are normally much lower if each project is subject to a more careful assessment of the environmental and social impacts, and its economic cost and benefits are more vigorously evaluated (MRC 2001, Dore and Yu, 2004). However, the sudden groundswell of hydropower development by private power producers and private financing, along with the revitalization of the once-abandoned hydropower dam projects along the Mekong Mainstream in the Lower Mekong River Basin starting from 2008, took many observers—including major regional organizations such as the Mekong River Commission (MRC) and other international financing institutions—by surprise (Pech, 2010). A report prepared by the World Bank and Asian Development Bank (ADB) in 2006 did not foresee that such aggressive development of hydropower dams on the

mainstream in parts of the Mekong Basin (other than in China) was feasible from environmental, financial and political standpoints (World Bank and ADB, 2006). Rather, the 2006 report predicted that the countries' rapidly growing needs for power would alternatively be met through cooperation in cross-border hydropower sharing on tributaries, and through other alternatives.

To date, about 3,200 MW or 10% out of an estimated/theoretical potential of 30,000 MW has been put into operation in the LMB. The situation is now changing rapidly with a further 3,200 MW under construction and more than 50 memoranda of understanding signed with private developers to study the feasibility of implementing other projects over the next decade (Bird et al. 2008). This rapid hydropower development is causing serious concern for development banks (e.g. ADB and World Bank), regional river basin organizations (e.g. MRC), and civil society organizations (CSOs) (Bird et al. 2008). Such development generates both positive and negative impacts on ecosystems, and the social and economic opportunities of affected communities, and opportunities, benefit and risks of such interventions have been well documented in past years (Bird et al. 2008). The concern is further compounded by the lack of proper coordination, and poor governance in the Mekong region. In brief, water resources development in the Mekong region occurs in a context where evidence of coordinated, rigorously justified river basin development is not strong (Dore and Lazarus, 2009, World Bank and ADB, 2006, Middleton, 2008).

Figure 2.1 Existing and Planned Hydropower Dams in the Mekong Mainstream



(Source: MRC Initiatives on Sustainable Hydropower, 2010)

Eighty-six percent of Cambodia's territory is within the Mekong catchment and it is one of the most downstream and least developed countries in the Mekong region. The country faces the most difficult dilemma. On the one hand, it needs a strong and functional Mekong River Basin governance structure to help it address transboundary issues that potentially have the most severe impact on Cambodia, especially on its globally important biodiversity site in the Tonle

Sap region and its largest freshwater fisheries. On the other hand, Cambodia needs support to help it address its war legacy, lack of capacity and prevalence of poverty.

Cambodia scores very low on the human development index, a ranking of 129 among all countries (UNDP, 2007). Thirty-four percent of its population lives on less than US\$1 a day. Cambodia's energy sector faces major challenges and a mere 15 percent has access to grid electricity making its electrification rate one of the lowest in Asia (UNDP, 2007, Ministry of Planning, 2007, and World Bank, 2006). Accurate electricity data is not available, but an official report estimates that Cambodia's public and private grid systems have a total installed generating capacity of around 200MW, of which about 65% is in Phnom Penh (Cambodia Renewable energy and Rural Electrification, 2010; Samay, 2004; JAICA, 2007). This figure does not include the large number of stand-by generators installed by most medium to large businesses, and small diesel generators, as well as power imported across the border from neighbouring countries. So the total installed capacity may well be above 300MW. Nonetheless this figure is still low compared to other countries in the region, even on a per-capita basis (Cambodia Renewable energy and Rural Electrification, 2010; Samay, 2004; JAICA, 2007). Despite considerable progress in expanding the capacity and coverage of electricity supply in recent years, electricity costs remain among the highest in the world mainly due to lack of efficient distribution networks, and heavy reliance on low efficiency electric plants and distribution facilities (World Bank, 2006; Samay, 2004; UNDP, 2007).

At the moment, the government is exploring new sources of energy, including hydropower, offshore and onshore oil and gas, and renewable energy. The foundation for the development of Cambodia's power sector was formulated in the Cambodian power sector strategy (CPSS) proposed in 1999, and the national power development plan (PDP) formulated on the basis of least-cost principles in 1998 (World Bank, 2006). In February 2001, the Electricity Law of the Kingdom of Cambodia was disseminated and an independent sector regulator, Electricity Authority of Cambodia (EAC), was created (World Bank, 2006). Installed capacity is projected to reach about 750 MW by 2016, through grid generation expansion (Samay, 2004). The candidate energy sources include hydropower and gas turbines (GT)/combined cycle (CCGT), and diesel and heavy fuel oil (HFO) power plants (Samay, 2004, MIME, 1999). A general observation on the development of Cambodia's energy portfolio is that hydropower is expected to make up the bulk of the new generation additions in the foreseeable future for both domestic consumption and export (King et al. 2007; MIME, 1999; Samay, 2004). Cambodia's theoretical hydropower potential is 10,000 MW, with about 50% of the potential capacity on the Mekong mainstream and 40% on tributary systems (King et al. 2007; MIME, 1999; Samay, 2004). The Ministry of Industry, Mines and Energy leads this effort with plans for 29 small, medium and large hydropower dams planned to be in operation by 2020 (MIME, 1999, JICA, 2007).

Many projects are proceeding as public-private partnerships. Public or regulatory oversight, and adequate mitigation or compensatory measures to help affected people are not adequately functional (Ryder, 2009). The development banks (ADB, 2009; World Bank, 2006) recommended that a coherent updated energy sector strategy was needed and that its formulation should be based on a careful assessment of various energy sources and the policy and institutional framework for their development.

LEGEND

- RIVER
- PROPOSED HYDROPOWER SITES
- HYDROPOWER STATION IN OPERATION
- PROVINCIAL CITY
- CAPITAL, TOWN
- 465 Installed Capacity in MW
- 2800 An Energy Production in GWh

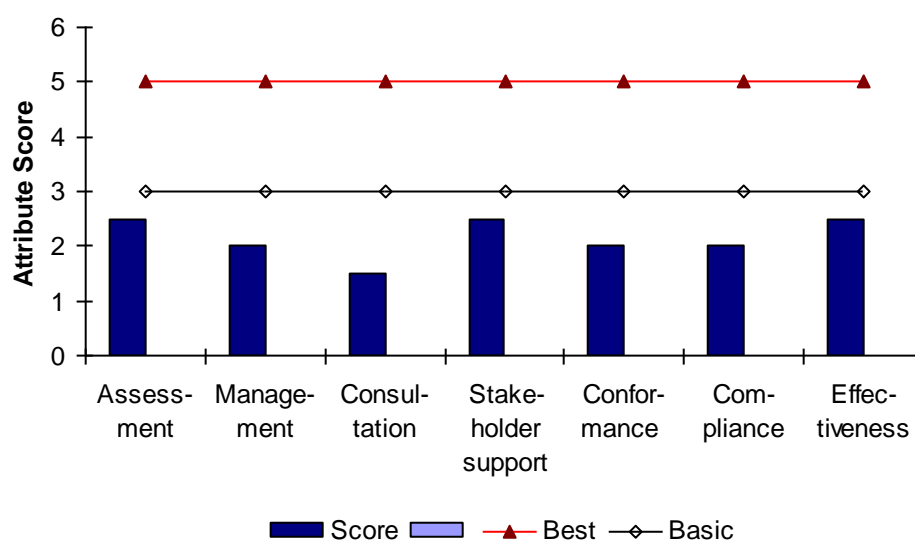
2.2 DISCUSSION OF RESULTS

2.2.1 Development Perspective

2.2.1.1 Regional and National Policies and Plans Aspect

Assessment Report:
Water and Energy Planning in Cambodia

Figure 2.3 Regional and national policies and plan aspect



The assessment quality of the process leading to an understanding of relevant regional and national policies and plans is low. Assessment needs to include policies relating to energy services, water resources management, biodiversity conservation, and social and economic development. In addition it must consider relevant policies on human rights, resettlement, strategic environmental assessment, environmental impact assessment, climate change, and benefit sharing. There is both official and academic literature available which cites the challenges to policies and planning in Cambodia and the Mekong region, and points to a deterioration in the baseline condition due to delay or difficulties in addressing impacts from national and regional energy and hydropower development plans (Bird et al. 2008; HSAP, 2009; MRC, 2010b). The 2010 Draft Report by the MRC Strategic Environment Assessment documented that the nature of the current development of hydropower in Cambodia and other Mekong countries involves soliciting private sector investment, as a potential developer negotiates directly with the licensing or regulating authority on the available sites (MRC, 2010). Such hydropower development in this context did not necessarily follow a prescribed plan of river basin optimization and strict economic, social and environmental merit. “Rather it moves in response to the interest expressed by developers through initial MOUs that are a form of proxies to formal development licenses” (MRC, 2010).

Three key regional players - MRC, GMS and WWF - acknowledge that even though there is already a relatively advanced policy framework for assessing economic, environmental and social aspects of such developments in the countries of the Mekong, an integrated framework that focuses explicitly on sustainability issues was still lacking (Bird et al. 2008; Ryder, 2009).

The quality of the process leading to an understanding of gaps, shortfalls or complexities in regional and national policies and plans is considered to be low. The Mekong researchers in hydropower planning (see e.g. Molle et al., 2009; Middleton et al., 2009), pointed to an urgent need for a more uniform approach to planning hydropower development in Cambodia and other Mekong countries, which incorporates broad-based stakeholder participation and moves the consideration of sustainability issues (three key sustainable imperatives/bottom-lines – social, environment and economic) into energy master planning, water resources planning, and economic development planning. The planning processes currently in place both at the

national and regional levels are very much top-down - electricity planning on behalf of society, not by society (Middleton et al., 2009).

The MRC Initial Impact Assessment Report (MRC, 2010a) preliminary results suggested an imbalance between costs and benefits. From the analysis of the significant opportunities and risks resulting from existing and planned hydropower dams in the Mekong, Cambodia will be affected the most (MRC, 2010a and 2010b). While Laos and Vietnam will potentially receive most of the benefits both in terms of net present value and employment from the hydropower development, Cambodia would experience a major loss. The economic and social impacts on fisheries in Cambodia would be of particular significance. Cambodia has a greater proportion of fishery-dependant population with more than 1 million people likely to be affected by the loss of fisheries. Fisheries are an important contributor to GDP, accounting for between 8% - 16% of GDP (MRC, 2010b). Another MRC Strategic Environmental Assessment Report (MRC, 2010b) also concluded that the two mainstream hydropower dams in Cambodia (Stung Treng and Sambor) are the less feasible from environmental, social and financial points of view. The serious challenge remains as to how these findings can be presented to, and accepted by, the decision-makers, planners and developers in Cambodia and other Mekong countries so that proper mechanisms for benefit and cost sharing, and related risk mitigation, can be put in place.

Internally, there is also no evidence of coordinated planning to manage gaps, shortfalls or complexities in the regional and national policies and plans. The World Bank (2006) pointed to gaps such as: i) lack of careful assessment and alignment of the national power development plan and policies with regional power trade and alternative development frameworks, ii) private participation is not transparent, competitive and consistent with international practices; and iii) lack of national environmental and social safeguard policies and procedures, and capacity building that is in line with international good practice.

The quality of relevant planning and coordination to address transboundary issues also scores low. This aspect is very critical for Cambodia, because more than 86% of Cambodia is within the Mekong Basin, and it is one of the most downstream countries (Pech, 2010). The concern is compounded by the fact that each Mekong country tends to take an independent course of action, ignoring off-site and indirect effects. This is made worse by the absence of a functional Mekong-wide institution for negotiating cooperative development, a commonly accepted knowledge base and tools for impact assessment and monitoring (Bird et al., 2008; Pech and Sunada, 2006b). GMS (2008) documented experiences from the Nam Theun 2 project in which cross-border environmental externalities have not been properly integrated in the planning and design of large hydropower projects, and resettlement and sustainable livelihood plans remain a major concern, even though, the World Bank Laos often claims that it is a best practice project which is following high standards of social and environmental safeguards (Lawrence, 2009).

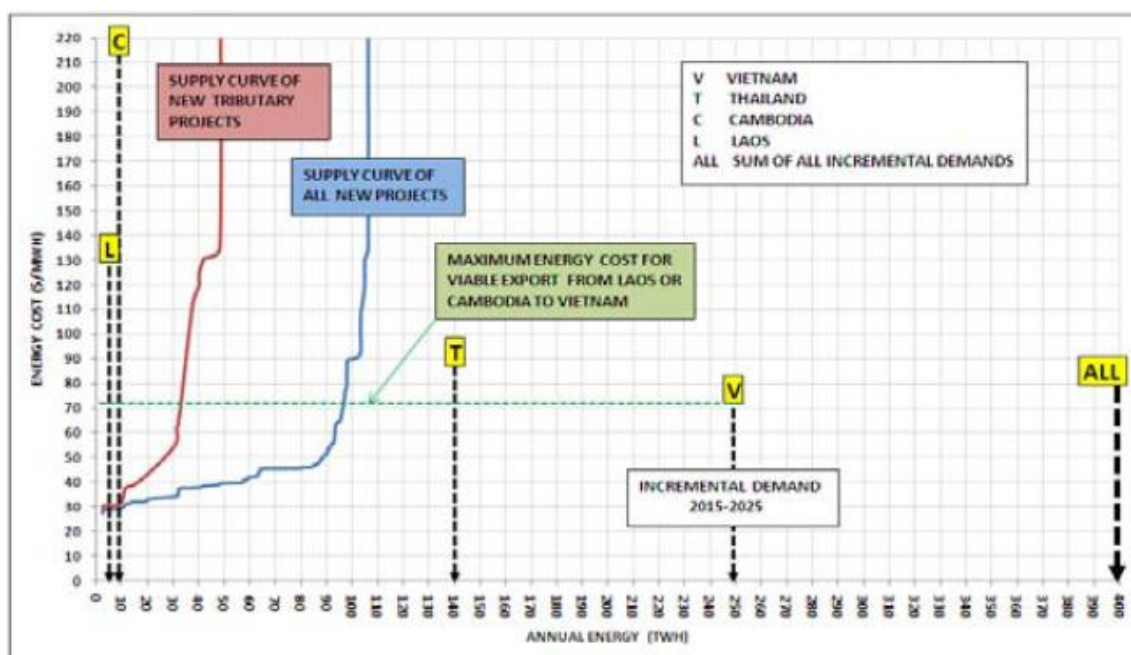
Numbers of development projects are increasing, but evidence shows that there has been no credible cumulative and strategic assessment ever properly conducted or disseminated both in Cambodia and Mekong region (Bird et al. 2008). The 2010 draft MRC Strategic Environmental Assessment for Hydropower on the Mekong Mainstream Impacts Assessment, regardless of some critical limitations, can be considered as a first step in that direction. However, its policy influence and acceptability in the Mekong region and Cambodia is still limited (MRC, 2010b). Another challenge for existing regional mechanisms is inclusivity. So far, several regional

organizations such as the GMS and MRC are predominantly centred on rather small political elites and bureaucrats of the Mekong riparian states (Dosch et al., 2005).

The level of conformance with plans to address gaps, shortfalls or complexities in regional and national policies and plans, including transboundary issues, also scores lower than the basic good practice. The Government's Rectangular Strategy and the National Strategic Development Plan (NSDP) provide a broad roadmap toward improving people's well-being, achieving "shared prosperity and securing longer-term peace and stability" (Ministry of Planning, 2007; Naron, 2009). The Ministry of Planning (2007) and the World Bank (2004) observed that non-conformance resulted from practices where national policies, laws and sub-decrees are practically drafted by the 'resource management agency' with limited synergy or cross-sectoral integration. Such single ministry approaches can potentially lead to a lack of attention to tradeoffs, monitoring and evaluation and dispute management and agencies may be subject to 'capture' by commercial interests in the sector (World Bank, 2004; King et al., 2007; MRC, 2010b). UNDP (2007) in its assessment of energy and poverty linkages in Cambodia reached a similar conclusion that inadequate funds, deficient capacities and limited synergy in the planning and implementation of various programmes were the key factors impeding conformance of energy development with broader national development strategies. Some policies and programmes are often formulated through separate and uncoordinated technical projects with bilateral and multilateral agencies (UNDP, 2007).

The effectiveness of existing energy policy and plans is considered low. ADB (2009) suggested that Cambodia has to overcome the hurdles of high capital investment requirements (for generating and distributing electricity) and lower availability of energy in times of drought that make energy production costs in Cambodia higher than its neighbours. The potential for Cambodia to become a net exporter of electricity is not realistic, considering the potentially high economic, environmental and social costs of hydropower development in Cambodia (Middleton, 2009; MRC, 2010b). These findings have been confirmed by a more in-depth Strategic Environment Assessment by the MRC (MRC, 2010b). Figure 2.4 shows the supply curves for hydroelectric projects in the Lower Mekong Basin including Cambodia. The horizontal axis corresponds to annual energy (supply or demand) expressed in terawatt-hours, and the vertical axis corresponds to energy costs expressed in US dollars per MW/h (MRC, 2010). The analysis shows that Cambodia's hydropower projects planned for the Mekong mainstream would produce the highest energy costs making it unviable for export to Viet Nam or Thailand.

Figure 2.4 Hydropower economic supply curves and their relationship to energy demand and alternative energy supply cost in Cambodia and other Mekong Countries



(Source: MRC, 2010b)

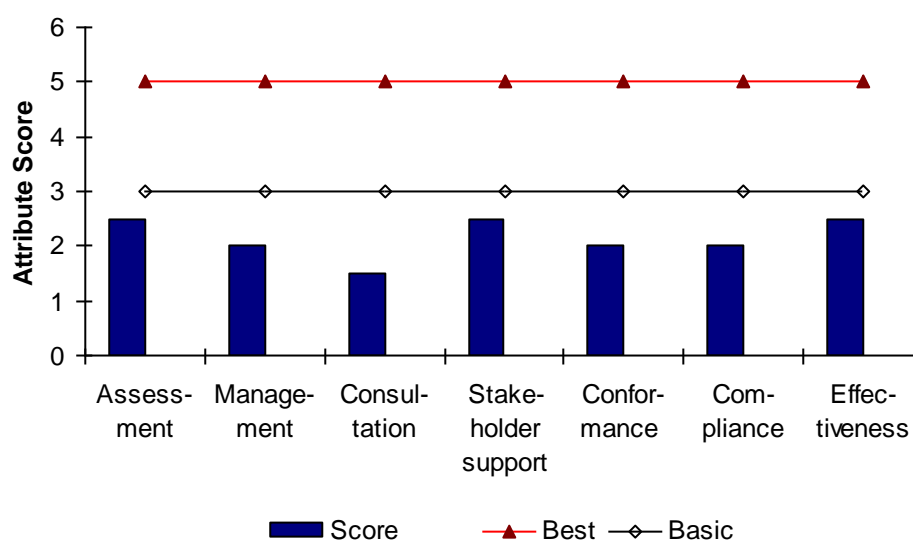
The likelihood of project compliance with regional and national policies and plans by the project developers is extremely low. Growing enthusiasm for hydropower is increasingly driven and exploited by private companies, financiers and government elites (Molle et al., 2009). Many of the new hydropower developers (including Chinese developers in Cambodia), reportedly consider the ADB and World Bank's environmental and social safeguards as burdensome, time consuming and costly (Middleton et al., 2009). Due to the weak governance framework in Cambodia, developers still externalize costs, and concerned authorities are not fully capable or able to systematically screen and rank projects according to economic, environmental and social criteria. Furthermore, planners continue to think mostly in terms of supply-side, not demand-side alternatives (Molle et al., 2009).

2.2.1.2 Demonstrated Need

This aspect addresses the needs that justify management and infrastructure investments in water and energy services. It also encompasses the needs of natural systems, social and economic sectors, and the presence of viable markets for water and energy services. This aspect is important in order to support sustainable development objectives at the local, regional, national and transboundary levels; and avoid over-or under-investment in energy and water services.

As shown in Figure 2.5, this aspect scores lower than the basic good practice typical for developing countries. This is due to a number of critical gaps found in the assessment, and consultation processes, as well as critical lack of proper consideration of all key environmental and social needs, especially with regards to local communities who rely heavily on the natural resources for their daily livelihoods.

Figure 2.5 Demonstrated Need



The quality of the process leading to an understanding of local, regional, national and international needs and development objectives for water and energy services is still relatively lower than the basic good practice (ADB, 2009; Middleton et al., 2009), and an integrated analysis of likely future water and energy requirements still has a lot of room for improvement (ADB, 2009; World Bank, 2006; MRC, 2010b). The World Bank's Review of the Cambodian Energy Sector (2006) stated that a holistic framework for integrated needs assessment and planning for electricity growth remains weak. This framework would contribute to the orderly development of the power sector, with the overarching objective of increasing electricity supplies to enhance the country's economic and social development, in the most cost-effective manner. The selection of major power generation projects for prospective development, which consists mostly of large hydropower projects, appears to be driven more by a private company's willingness to invest in the projects and politicians policy agenda/preference, than careful and strategic selection on the part of the agencies concerned (Middleton, 2008; MRC, 2010b). Endorsements by senior Cambodian politicians for hydropower projects might have signaled to government officials and leaders concerned with these projects to push them through (Middleton, 2008; MRC, 2010b).

Projected electricity demand and oil price hikes were seen as one of the most critical elements in the justification analysis of hydropower development in the Mekong region, including Cambodia (Dore and Yu, 2004; ADB, 2009). But there is no consensus on how much it will grow in the coming years (World Bank, 1999; ADB, 2009). For example, the ADB's Regional Energy Outlooks (2009) projected that primary energy demand in Asia and the Pacific increase only at an annual rate of 2.4% - slower compared with the historical annual growth rate of 3.5% observed between 1990 and 2005 and lower than the current world average per capita energy demand of 1.79 tonne of energy (TOE) in 2005. The ADB (2009) projected the Southeast Asia's electricity demand to increase at an annual rate of 4.8% (ADB, 2009) while the Ministry of Industry, Mines and Energy, Cambodia, projects that the electricity supply requirements increase by an average 12.1% per year, and the peak load is expected to reach 1,216 MW in 2020 (Cambodian Renewable Energy and Rural Electrification, 2010). However, many regional researchers considered this projection unrealistically high given the suppressed nature of

energy and electricity demand and supply in Cambodia and other factors (ADB, 2009; Middleton et al., 2009, MRC, 2010a; Dore and Yu, 2004; MRC, 2010b). Civil society groups and the most recent MRC Strategic Environment Assessment report (MRC, 2010b) have indicated an over-estimation of the total future energy demand in Cambodia and other Mekong countries. They also indicate that the role of energy efficiency measures and other energy sources and decentralized energy options have not been adequately explored (Middleton et al. 2009; MRC; 2010a; Dore and Yu, 2004; MRC, 2010b).

For both government and developers, the quality of the consultation and stakeholder support for the determination of development needs is found to be relatively low. Regional researchers (Dore and Lazarus, 2009 in Molle et al., 2009) stated that in Cambodia and other Mekong countries, deliberation, debate and discussion aimed at producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants has been in short supply.

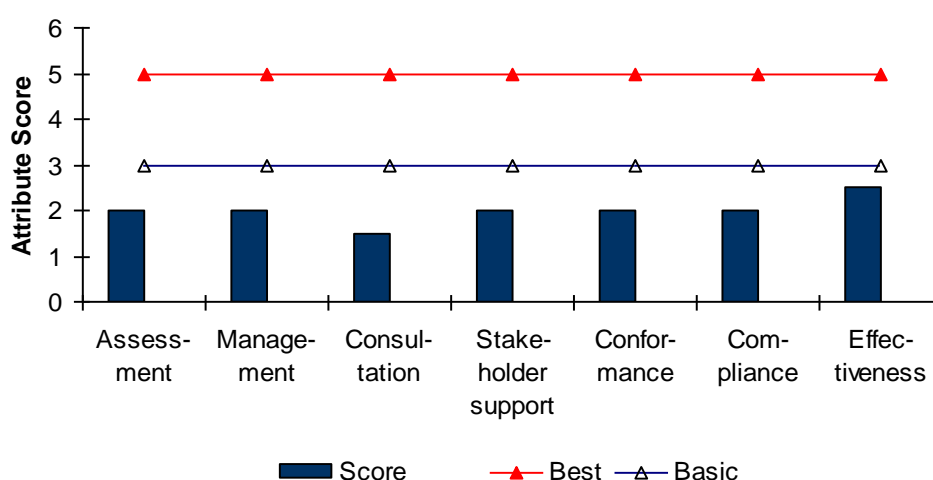
Hydropower development in Cambodia seems to have proceeded in the absence of meaningful public consultation on needs and risk assessments, and an overall lack of transparency in the decision-making process (Middleton, 2008). Given limited synergy and enforcement capacity, it is unlikely that project developers ever consider investing additional resources for ensuring that the project would contribute to real development needs and objectives, for example to contribute to poverty reduction.

2.2.1.3 Options Assessment

This aspect addresses the choices available for meeting energy and water needs in terms of both infrastructure and management approaches by realistically and comprehensively comparing hydropower options with other options across a range of economic, technical, environmental and social factors.

As shown in Figure 2.6, this aspect scores as less than satisfactory for all attributes due to a number of critical gaps in assessing the full range of planning approaches (policy, institutional, social, environmental and technical), inadequate consideration of energy efficiency measures, and exploration of other alternatives.

Figure 2.6 Options assessment



The degree to which water and energy options assessments should have covered the full range of planning approaches to meet demonstrated needs does not score high due in part due to a low score in the assessment of demonstrated needs aspect. These two aspects – demonstrated needs and option assessments were found to be closely related.

Energy options that would include energy efficiency measures, increased efficiency in generation, the full range of types of energy and the option of development have not been systematically considered (World Bank, 2006; ADB, 2009; MRC, 2010b). The analytical framework for options assessment is not yet in place or complied with to consider all relevant parameters, such as i) social, environmental, economic, financial, and technical; ii) alignment with the regional and national policies and plans; iii) climate change issues and risks; iv) transboundary issues; and v) cumulative and legacy impacts (MRC, 2010b). ADB (2009) points to the need to avoid placing too much emphasis on hydropower development without exploring other local resources that Cambodia could tap for the generation of electricity.

The assessment of breadth in the range of project options by developers is found to be based primarily on self-interest (corporate or personal) and belief in hydropower as the most “cost-effective and clean” energy source (MRC, 2010b).

There was no evidence that all important sustainability considerations for prioritization of options, such as increasing effectiveness of existing infrastructure; siting of the project sites; avoidance of impact, followed by minimization and mitigation; avoidance of high value biodiversity areas; and resettlement – have been properly considered both by concerned government institutions and developers (UNDP, 2007; World Bank, 2006; Ministry of Planning, 2007; Ryder, 2009; MRC, 2010b). Government researchers point to the need for energy/hydropower planners, developers and decision-makers in Cambodia and the Mekong region to pay adequate attention to vulnerable groups that have often been “by-passed” in the development decision-making process even though there are “specific government strategies and policies to protect vulnerable groups” (Naron, 2009; Ministry of Planning, 2007; MRC, 2010b). The community’s needs and livelihoods, and benefit-sharing and risk distribution/mitigation issues in the decision-making process were not considered properly in most cases (Naron, 2009).

The quality of options assessment input data has been a hotly debated discussion point for many years in Cambodia and within the Mekong region. Implementation of assessment is often too late and has been depicted as an exercise in rationalizing predetermined outcomes, rather than a means for providing independent and rigorous analysis upon which sound decisions are based (Li, 2008). Decisions tended to be made without adequately taking into account comprehensive options assessment examining political, social, economic and ecological impacts – and drawing upon scientific evidence, situated local knowledge, and appreciating complexity and uncertainty (Dore and Lazarus, 2009; MRC, 2010b).

The quality of consultation with respect to determining options for water and energy services by both government agencies and developers is considered to be low. The World Bank (2004 and 2006) stated that Cambodia still has general institutional weaknesses and lacks clearly defined and transparent procedures for identifying resources, addressing social and environmental issues, implementing a transparent bidding process, ensuring monitoring and reporting of the technical and financial performance, as well as disseminating information. Local civil society organizations observe an absence of informed discussion in the public space about the pros and cons of proposed development options that have re-emerged on the

agendas of national governments and transnational capital providers and developers (Ryder, 2009; Dore and Lazarus, 2009). This fact also leads to a conclusion that stakeholder support for the process and results of options assessment carried out by the government agencies or developers is also low, since the stakeholders feel that they have not been involved and their legitimate interests have not been adequately considered.

2.2.2 Governance Perspective

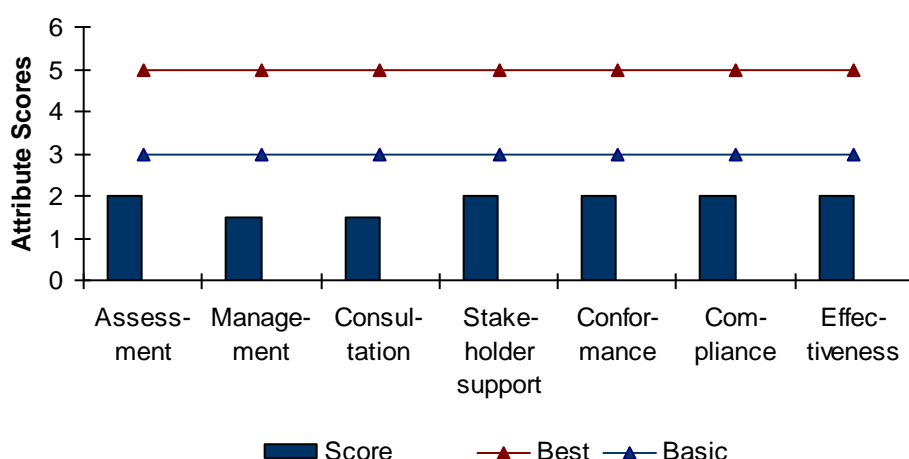
The process of aligning of interests – often referred to as ‘governance’ - among those who manage key government agencies and with the interests of the people who are the ultimate stakeholders of national interest is of strategic importance to the success or performance of any modern organization (Pech, 2010). According to HSAP (Section 1), the governance perspective involves only two key aspects, namely i) Regional and National Institutional Capacity; and ii) Political Issues and Risks.

2.2.2.1 Institutional capacity

This aspect addresses the capacities of institutions at relevant levels that have a role in the development and operation of hydropower projects. This aspect is important because the development of water and energy services in general, and of a hydropower project in particular, requires a comprehensive and balanced set of capacities amongst a range of stakeholders, namely governments/regulators, developers, financial institutions, contractors, suppliers, labour force, civil society and affected people (HSAP, 2009).

As shown in Figure 2.7, this aspect scores as less than satisfactory (level 2) for all attributes due to a number of critical gaps in institutional and organization capacity and effectiveness from the points of view of strengths, weaknesses and plans to compensate for shortfalls in legislature, law enforcement and compliance. There are also shortfalls in public sector capacities including the capacity to address corruption risks, check and balance mechanisms, judiciary and grievance conflict management mechanisms.

Figure 2.7 Institutional Capacity Aspect.



The quality of legal, judicial and institutional capacity remains challenging in Cambodia and the Mekong region. Many Mekong independent observers begin to wonder whether the current regional institutions and organizations are simply not well equipped enough to solve or

ameliorate transboundary problems (Nilsson and Segnestam, 2001; Hirsh et al., 2006; Pech and Sunada, 2006; World Bank and ADB, 2006; Dore and Yu, 2004; Dore and Lazarus, 2009).

With a growing enthusiasm for hydropower increasingly driven and exploited by private companies, financiers and government elites, the traditional regional and international players such as the MRC, ADB or the World Bank are struggling to justify their relevance (Molle et al. 2009; MRC, 2010b). Existing regional frameworks have not helped Cambodia much in protecting its interests and its people’s livelihoods from transboundary impacts of uncoordinated and unsustainable hydropower projects in the Mekong Region (Pech, 2010). To better understand why this system fails, Cambodia’s internal institutional dynamics were more closely examined.

Figure 2.8 Schematic illustration of a triad situation in MRC and GMS relationships at the national and local levels in Cambodia.

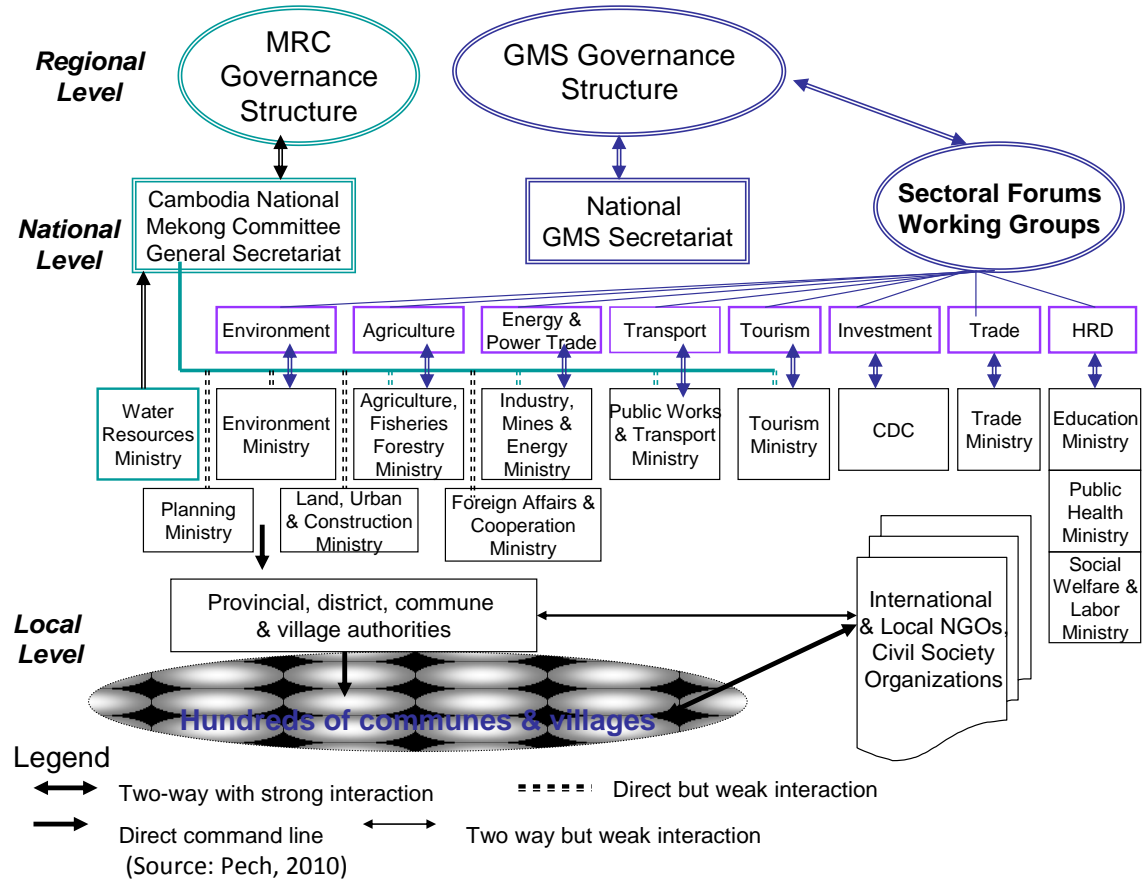


Figure 2.8 illustrates Cambodia’s focal relationship on all levels. Detailed analysis reveals several problems inherent in Cambodia’s institutional dynamics. The national institutional arrangement for the management of the Mekong Basin is complex and highly compartmentalized, and feedback and coordination among many key Ministries and Committees is less than effective. A similar situation is believed to prevail in most MR countries (Pech, 2010). Integrated approaches through IWRM principles, which has been claimed by the MRC Strategy (MRC, 2009) has not been demonstrated by the four riparian states due to lack of proper mechanisms for integrating sectoral and national interests, and commitments.

Limited horizontal and vertical coordination has resulted in dispersed sector-specific policy orientations and accompanying difficulties in harmonizing diverse national, sectoral, and local interests (ADB, 2002; Pech, 2010). At the horizontal level, coordination problems arise when the 'national vision' reflected in the negotiations by country representatives in the GMS, MRC, and ASEAN contradict one another, potentially resulting in conflict between international commitments and sectoral policies and strategies, and community social and environmental concerns (Pech, 2010). A lack of coordination has also affected the national efforts for decentralization and increasing the involvement of local governments and communities in local natural resource planning and management, as national ministries still retain control over policy formulation and natural resource management in a top-down manner (World Bank, 2004; Pech, 2010).

The analysis also shows that the power relations of the MRC, ASEAN and GMS are not in favor of "weaker" nations like Cambodia, as key issues, 'common values', and development directions are often driven by more powerful nations (inside and outside of the Mekong region) and the development and financing institutions (Pech, 2010).

The Cambodian Human Development Report 2007 (Ministry of Planning, 2007) also acknowledges that Cambodia faces problems in its democratic functioning and in upholding rights to property and investment, due to a number of factors:

- Lack of effective implementation of the rule of law and levels of corruption;
- Top-heavy decision-making despite a multi-tiered governance system; the decision-making process is slow, arduous and not always efficient;
- Ambiguity exists in decision-making where more than one authority makes decisions on the same matter (land, water, energy etc.);
- Low State revenues and civil service salaries. This leads to poor motivation, 'brain drainage' and continuance of low skills levels, which are likely to underlie poor service delivery, particularly in rural areas; and
- Lack of appropriate regulation and infrastructure, leading to limited access to market and other basic social and health care services (Ministry of Planning, 2007).

The World Bank (2004) and DFID and AusAID (2007) stated that perception based data shows some improvement in all governance indicators between 1996 and 2006, except for two areas, namely the control of corruption and the rule of law. Cambodia ranked among the bottom quartile of performers among all countries.

The UNDP (2007) and regional civil society organizations (Middleton, 2008; Ryder, 2009) also found that the policy and regulatory framework in Cambodia was underdeveloped, with many laws still in the process of being drafted or awaiting approval, and most of the existing law and regulations still poorly enforced. Whilst Cambodia has a number of laws that should help promote the environment protection and protect affected communities, in practice their effectiveness is limited due to inadequate resources and, on occasion, institutional disincentive (Middleton, 2008).

A report prepared for the Ministry of Environment stated that the institutional structure and arrangements in Cambodia are highly compartmentalized and they lack mechanisms for coordination and feedback among key agencies dealing with numerous water and energy resources management activities (Chamreoun, 2006). In addition, there is no clear definition of the regulatory and development functions, hence making checks and balances on democratic functioning difficult (Chamreoun, 2006; Pech, 2010). The Ministry of Industry, Mines and Energy (MIME) acts as primary point of contact for hydropower developers interested in investing in the sector, the Ministry of Water Resources and Meteorology (MOWRAM) is charged with managing Cambodia's water resources and is responsible for issuing hydropower project licenses, and managing multi-purpose dams. The Ministry of Environment is responsible for evaluating Environmental Impact Assessments (ESIA) for major projects and monitoring implementation. The Electricity Authority of Cambodia (EAC) functions as an independent regulator and issues licences to independent power producers (Middleton, 2008; Ryder, 2009). The World Bank's Issues Paper (2006) observed the involvement of MIME in almost all of EAC's activities continues to blur the distinction between its roles as policymaker and policy implementer.

The World Bank (2004 and 2006) pointed to inadequacy of the current legal and regulatory framework governing Private Provision of Infrastructure (PPI), as there is inadequate planning and policy work that guides the development of infrastructure, and few clearly defined procedures for processing unsolicited applications for PPI, and this results in total lack of transparency at all project stages.

The government and developers' planning to address public sector capacity shortfalls is not well documented or evaluated. In spite of a number of institutional reform measures that have been launched by the government, the progress in improving the institutional and organizational capacity in the public sectors is slow. UNDP and SNEC's Cambodia Country Competitiveness report (2009) shows that Cambodia's rankings for competitiveness has moved up by only one place to 109 from 2008 to 2009. "The institutional and resource capacity of the Cambodian government to address well-known challenges remains limited. Cambodia performs poorly on sub-indices such as education, technology and infrastructure, yet these are key fundamentals for competitiveness" (UNDP and SNEC 2009). Resource management agencies have increased their technical capacity to implement laws and regulations, but their staff suffered from poor incentives and limited capacity to resolve issues (Ministry of Planning, 2007; UNDP 2007).

At present, most planning, policy formulation and implementation in the energy sector is executed with international technical assistance, and may not be sustained once the assistance is phased out (Ministry of Planning, 2007; UNDP, 2007). Moreover, capacity enhancement activities are largely concentrated at the central level, with most based in Phnom Penh. This does not help provincial stakeholders as they struggle to manage their water and energy issues. The weakness in monitoring and evaluation frameworks is also well documented (World Bank, 2004 and 2006; Ministry of Planning, 2007).

The conformance with plans to address public sector capacity shortfalls and the degree to which they can be mitigated or managed is relatively lower than the basic good practice. The World Bank's 2004 report pointed out numerous problems with the concession system in the past, mainly due to a complete lack of transparency in the contracting process and monitoring of investor performance. Due to the lack of information on these development projects, it is

difficult to assess whether the public is getting adequate value in return for concessions of public assets such as land or public ownership rights (Ministry of Planning, 2007; UNDP 2007).

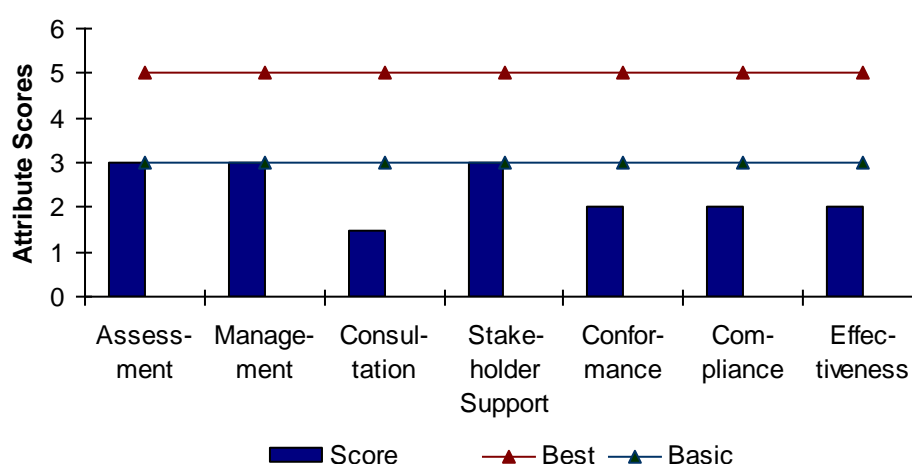
In spite of the recent emergence or strengthening of CSOs (NGOs, academic and community-based organizations), they are still relatively inexperienced and weak and the cost of organizing to protect common interests can be high (World Bank, 2004; Molle et al. 2009). As such, power asymmetries are so visible in the region and country, there is an urgent need to set up a mechanism that can enable the key actors - government and non-government groups, policy makers and other stakeholders, to understand and interpret what indeed are the real needs of the Mekong Basin's community, and to help organize/empower the local community to represent their legitimate interests and rights (IUCN et al., 2006).

2.2.2.2 Political Issues and Risk

This aspect addresses political risks including war and political violence; currency inconvertibility, transfer restrictions and depreciation; expropriation of a company; and political interference in institutional and regulatory functions (HSAP, 2009). This aspect also addresses political risks specific to hydropower development, including the complexities of the regulatory framework as well as complexities of projects that cross national borders. The intent is that political risks influencing development and management of water and energy services are understood well in advance.

As shown in Figure 2.9, this aspect is slightly below level 3 for many attributes due to a number of factors, such as presence of reactive (instead of proactive) corrective action, heavy reliance on project (externally driven) to manage all aspects, insufficient funding for the year, and low quality in the risk assessment/management, stakeholder engagement, and disclosure of information.

Figure 2.9 Political issues and risks



The process leading to an understanding of political risks in the water and energy/ hydropower sector development in Cambodia is still poorly studied (DFID and AusAID, 2007; Ministry of Planning, 2007). Despite a series of political crises (1994, 1997, 1998, 2003 and 2005/6 post election stalemate or political violence) Cambodia continues to display a high degree of political stability due in large part to strong economic growth, some improvement in human

development indicators and the maintenance of peace which has enhanced regime legitimacy (DFID and AusAID, 2007). However, in analyzing the dynamics of the system, a number of pressures and tensions are observable (Ministry of Planning, 2007).

The Ministry of Planning (2007) indicated that further beneath the surface of double-digit growth rates, potentially serious imbalances and challenges to recent achievements are emerging. Their report recommended that urgent action must be undertaken to better secure longer term social/political and economic stability. Challenges include resentment over land and natural resources management issue, pressures arising from demographic change and employment issues faced by new graduates, changes in political culture possibly emerging from decentralization and de-concentration of power, and the impact of revenue distribution from natural resources exploitation - oil and gas, fish, logging concession etc. (Ministry of Planning, 2007; World Bank, 2004). Increasing mobilization around land disputes, forestry disputes, and fishing lot disputes suggests that the issue of natural resources is potentially explosive, as these are in some cases regarded as the ancestral rights of the people. However, there is unlikely to be a spontaneous 'farmers' revolution (World Bank, 2004; DFID and AusAID, 2007).

In the context of weak regional and national governance and institutions, the distribution of benefits of growth presents the most serious challenge. While the number of people living below the poverty line has been gradually reduced, many non-poor households remain highly vulnerable as a range of potential shocks at various levels e.g. illness (household), landlessness (community) and poor crops, oil price increases (national)) could easily push many households back into poverty (DFID and AusAID, 2007; Naron, 2009).

The discovery of oil reserves can produce a significant stream of revenue for governments that can be used to ensure fuel security nationally, or to invest in a range of projects that can help to stimulate broad-based growth and reduce poverty. There are risks involved with this: revenue from oil is uncertain as the price of oil fluctuates and increases in revenue from oil could be offset by reductions in international aid. Without proper capacities, large flows of energy revenue may potentially lead to waste, corruption, increased inequality, political instability and divided loyalties (DFID and AusAID, 2007).

The fiduciary risk to public funds is high because of relative weaknesses in some dimensions of public financial management: budget formulation, execution and reporting (World Bank, 2004). A malfunctioning justice sector greatly increases uncertainty and risk, particularly from arbitrary state or an elite group's actions. Corruption increases the cost of starting and doing business in Cambodia to a point where it is threatening the country's relative competitiveness (Ministry of Planning, 2007; UNDP and SNEC, 2009).

As far as the quality of the government's plan to address political risks is concerned, there are continuing administrative, financial and technical reforms, but these do not link together to form any critical mass impelling change at this stage (DFID and AusAID, 2007). The media will continue to be dominated by the political party, and the legislature and judiciary will be limited in their capability to effectively check executive power, and the civil society space will only be slightly improved (DFID and AusAID, 2007).

In an environment where the rule of law is only emerging, corruption is high or local protests are stifled, such risks appear smaller to project developers; therefore, they have less impetus to implement best practices of precautionary measures or standards (Middleton et al., 2009).

However, by ignoring internationally accepted standards and practices for addressing issues of concern to wider society through eliminating or minimizing externalities and sharing project benefits, will tend to maximize the project developer risk. For example, this could be caused by protests or legal measures that could delay project construction or add unforeseen additional cost. Past dam projects elsewhere, unfortunately, show that all the compensation schemes and other concessions from dam builders and governments have been secured only after substantial mobilization or protest (Middleton et al., 2009).

For Chinese, South Korean and Vietnamese project developers, there seems to be no reason for them to consider any planning to manage political risks with respect to their potential project in Cambodia. These investors/developers' political risks are de facto guaranteed through a strong political relationship (Pech, 2010; MRC, 2010b).

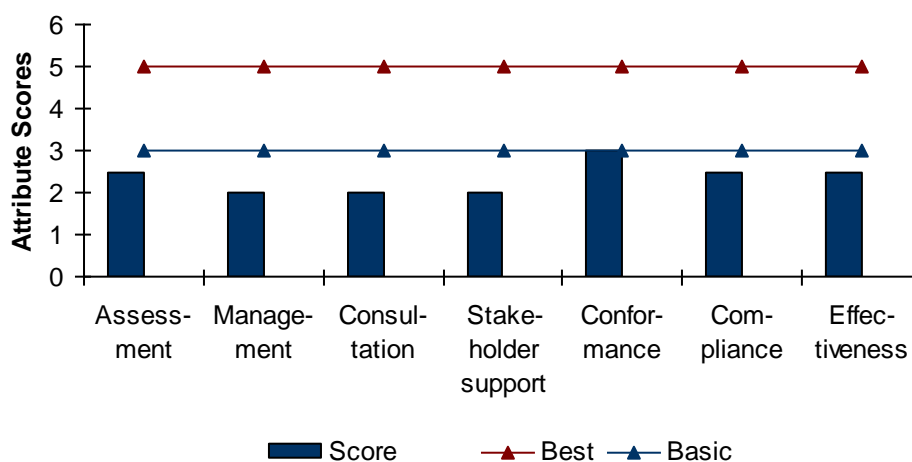
2.2.3 ENVIRONMENTAL ISSUE PERSPECTIVE

2.2.3.1 Environmental Issue & Risk Aspect

The HSAP suggests this aspect applies mainly to developers who are considering a particular hydropower project or system of projects to identify and analyze social issues and risks that may influence decisions to invest in preparation of hydropower project or system of projects. However, the Cambodian Assessment Team is confident that the identification and analysis of environmental issues and risks is equally important for the decision-makers in the strategic assessment stage. The intent is that environmental issues and risks are well understood at a very early stage of the decision process on energy, hydropower and water resources planning and project investment (HSAP, 2009).

As shown in Figure 2.10, this aspect scores slightly below the basic good practice (< level 3) for most attributes due to a number of factors. These include: Ineffective environmental risk assessment, management and consultation processes with some critical gaps in components; lack of periodic review and improvement; limited support of a majority of directly affected stakeholder groups; and some non-compliances and non-conformances that requires major remedy.

Figure 2.10 Environmental issues and risks.



The process leading to an understanding of environmental issues and risks relevant to a potential water/energy project and plan in Cambodia still has room for improvement. The ESIA tends to be the only environmental management instrument in Cambodia.

Environmental assessments at the project level are by far the principal means for assessing the potential environmental and social impacts of projects in Cambodia. Cambodia needs to adopt modern environmental planning by moving beyond the use of ESIA alone:

- Comparatively well-established tools now include Cumulative Impact Assessments for hydropower cascades within a river basin and Strategic Impact Assessments for evaluating environmental impact scenarios at the sector-level; and
- In addition to the ESIA reports, where communities are displaced or otherwise affected by a hydropower project, Resettlement Action Plans (RAPs) and Livelihood Restoration Plans (LRPs) are also needed to mitigate social impacts (Middleton, 2008).

There are also well-documented findings with regards to limitations in the implementation of ESIA in Cambodia. The ESIA is governed by the 1996 Law on Environmental Protection and Natural Resources Management (Chapter 3 – ESIA) and ESIA Process Sub-decree of 1999. The law and its sub-decrees have been in force for over a decade, but its enforcement and compliance is far from optimal. A Sub-decree on Public Participation and Access to Information is not yet in place (Li, 2008).

In addition to performing ESIA on proposed new projects, ESIA are also theoretically required for existing activities whose impacts have never been assessed; and, the project screening for ESIA is intended to be based on project type and project size. An Initial ESIA report has to be submitted by project proponents for approval by the Ministry of Environment, before the proponents can apply for investment approval from the Council for Development of Cambodia (CDC) and/or the project's approval by the government. In this sense, the existing Cambodian ESIA process covers only the project preparation phase and places strong emphasis primarily on environmental impacts. Social implications are secondary (M-POWER, 2010).

Screening requirements specifying projects requiring either an initial environmental examination or full-scale assessment are contained as an Annex to the 1999 Sub-Decree. Thresholds (i.e., only projects exceeding a certain size - such as a proposed hydropower projects > 1 MW or power plants >5 MW etc. are subject to scrutiny) are established for a wide range of project and activity types. At present, however, there is no clear guidance on the criteria by which a full ESIA is deemed necessary. Due to staff capacity, facility limitations and lack of proper incentives, most projects are only required to submit an Initial ESIA (Li, 2008; Middleton, 2008).

The constraints on the development and implementation of ESIA in Cambodia include:

- Lack of an adequate legislative framework;
- Insufficient personnel skilled in impact assessment or other technical areas;
- Lack of political will to effectively ensure that ESIA are carried out and implemented by developers;

- Lack of sufficient scientific data and information; and
- Insufficient financial resources.

A challenge faced by Cambodia in the development and use of ESIA is in achieving good cooperation among the many government agencies concerned (Middleton, 2008; Li, 2008). The environmental authority overseeing the ESIA frequently is under or politically inferior to and/or financially dependent upon other government institutions or private proponents of the project. Furthermore, ESIA might be regarded by key decision makers at various levels of government as a disincentive to potential investors (Li, 2008).

Implementation of ESIA in Cambodia is still often too late, commencing when the major project decisions (including site, design, and construction preparation) already have been made, thereby rendering the ESIA a mere formality (Li, 2008).

Limited capacity within Cambodia to prepare ESIA and the hiring of international consultants to conduct this work can be considered an additional burden by the investing company. The Department of ESIA Review within the Ministry of Environment, is constrained both by its staff capacity and size to manage the review of large ESIA within the 30-day period stipulated in the sub-decree; and some decision-makers view the need for a project's compliance with the ESIA process to be secondary to the need for rapid economic development in Cambodia (Middleton, 2008; Li, 2008). Another challenge will be to broaden ESIA procedures to increasingly include assessment of the social aspects of environmental decisions, as well as cumulative and regional impacts (SEA, CIA, SIA etc.).

To date, there is no credible transboundary ESIA generated for Mekong related projects. This fact reflects not only the same weaknesses of the ESIA in the region but also highlights the complexity of regional political dynamics, and the vulnerability of Cambodia (Li, 2008; MRC, 2010b).

The quality of planning to manage project environmental issues and risks is considered "low" due to critical gaps in the review and improvement of processes. For example, the government, with the technical and financial assistance of the World Bank, developed the 1998 to 2002 National Environmental Action Plan (NEAP) for guiding the creation and implementation of the country's environmental protection strategy. NEAP, coupled with existing ESIA regulations, should have done much to provide for sustainable management and the long-term protection of Cambodia's natural resources and livelihood of the people who depend on these resources (Ministry of Environment, 1998). But, to-date, the constraints identified above still persist (Li, 2008).

The quality of the consultation process on the part of the developer in building understanding of project environmental issues and risks is considered low. Local civil society organizations and some government agencies have complained about the lack of meaningful participation and consultation on impact assessments, and lack of access to the results of Environmental and Social Impact Assessment (ESIA) of the hydropower dam projects. Proposed hydropower projects in the Cardamom Mountains catchment are a case in point. Field findings indicated that most of the affected residents were unaware about ESIA results and uncertain about compensation and social mitigation plans (Kimkong, 2007; McCallum, 2008).

Public consultation and information disclosure aspects of the ESIA process are particularly weak in the Mekong region and Cambodia despite the fact that the principles behind them are well expressed in legal stipulations (Li, 2008). Main developers from China, such as the China Export-Import Bank, China Development Bank, and Chinese commercial banks have environmental and social policies that are substantially weaker than the already less-than-admirable standards of Western bilateral donors and Export Credit Agencies that typically sponsor major infrastructure projects (Middleton, 2008; McCallum, 2008).

The likelihood of avoidance and mitigation of, or compensation for, project environmental issues and risks is also considered “low”. The environmental assessments at the project level are by far the principal means for assessing the potential environmental and social impacts of projects in Cambodia. Few countries in the region (China, and to a lesser extent, Vietnam) apply strategic environmental assessments (SEAs)—assessments that go beyond the project level—and they have begun applying them only recently (Li, 2008). Moreover, current ESIA practices in Cambodia shy away from “best case performance”.

A case study conducted by the Royal University of Phnom Penh (Kimkong, 2007) recommended that the ESIA should not be conducted just before the start of the project. ESIA and environmental mitigation management plans should also be made public at the early stages of project planning and design, and communities likely to be affected by the project must be informed (Kimkong, 2007). They also recommended that the financial arrangements to implement these plans, together with the role and responsibility of implementing agencies should also be detailed. The study also pointed to the absence of conflict resolution mechanisms for managing the conflicts between local residents and dam builders/operators, and regional guidelines and mechanisms should be created in order to deal with transboundary issues/conflicts and compensation.

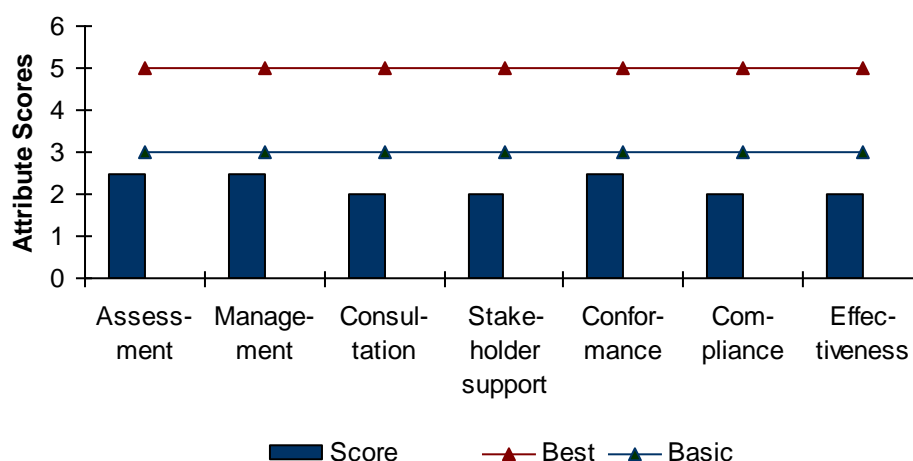
2.2.4 SOCIAL ISSUES PERSPECTIVE

2.2.4.1 Social Issues and Risks

The HSAP suggested this aspect applies mainly to assist developers who are considering a particular hydropower project or system of projects to identify and analyze social issues and risks that may influence decisions to invest. However, the Cambodian Assessment Team is confident that the identification and analysis of the social issues and risks is equally important for the decision-makers in the strategic assessment stage as well. The intent is that social issues and risks are well understood at very early stages of the decision process on energy, hydropower and water resources planning and project investment (HSAP, 2009).

As shown in Figure 2.11, this aspect scores below basic good practice for most attributes due to a number of factors, such as insufficient corrective action, lack of strategic and cross-sectoral focus perspective with gaps on social and environmental issues, limited funding, gaps in social risk assessments and management, poor stakeholder engagement, and limited disclosure of information.

Figure 2.11 Social issues and risks.



The process leading to an understanding of social issues and risks relevant to a potential project in Cambodia requires a lot of improvement. In Cambodia, there is a strong dependence between rural communities and natural resources, such as fisheries and non-timber forest products that are commonly negatively impacted by hydropower development. Resettlement Action Plans (RAPs) and Livelihood Restoration Plans (LRPs) should be prepared with the full participation of the affected community. RAPs and LRPs should be released to the affected community and the wider public before project construction commences. It is widely accepted amongst development practitioners that sustainable livelihoods programs are more appropriate than cash compensation arrangements for affected communities (MRC, 2010b).

The performance in planning to manage project social issues and risks is sub-optimal, as a systematic risk analysis is rarely conducted. Lack of an early recognition of linkages to social dimensions of a project can significantly increase subsequent areas of conflict and risks of social unrest (King et al., 2007). Resettlement issues are not the only area that needs to be addressed, but also direct linkages between loss of ecosystem services, particularly aquatic ecosystems, and peoples' livelihoods (King et al., 2007). The study by the Royal University of Phnom Penh (Kimkong, 2007) pointed to the urgent need for improving the plan and actions in generating sustainable livelihood alternatives and income generation opportunities in order for local communities to benefit from the dam construction. The case study of the Lower Sesan 2 project indicated that the communities were worried by the need to adapt their nature dependency-oriented (subsistence) livelihood to a more income earning-oriented one and associated risks, due to the lack of adequate and continuous support/compensation from the government and developers (Mak, 2009).

The risk assessment should focus not only on voluntary risk-taking, the normal course of business decisions by companies, but also on involuntary risk-bearing for example, people displaced by a new reservoir, or those whose water entitlement is reduced as the result of a reallocation (WCD, 2000; Dore and Lazarus, 2009). The analysis should address key questions such as: For different options, what are the possible risks? Who are the voluntary risk takers?

Who are the involuntary risk bearers? How might risk be equitably shared and, especially, how might involuntary risk be reduced? (Dore and Lazarus, 2009).

The consultation process on the part of the developer in building understanding about the project's social issues and risks is considered to be below the average. Even though Article 1 of the Sub-decree on ESIA Process (1999) encourages public participation and seeks to take into account conceptual input and suggestions for alternatives prior to the implementation of any project, it is hard to obtain any credible evidence of an actual meaningful consultation on the impacts (positive and negative) and risks associated with hydropower projects.

A report prepared for the Ministry of Environment (Chamroeun, 2006) listed some critical reasons for the failure to achieve meaningful consultation. They noted a i) lack of clear guidelines and procedures on the nature, format and process of the public participation; ii) lack of a culture and capacity for public participation in the decision-making process (top-down); and iii) reluctance on the part of both bureaucrats and local communities to meaningfully engage.

It is only natural to assume that the likelihood of stakeholder support for the project is diminished by the lack of proper consultation and exercises to build trust and confidence. If all stakeholders who would benefit and/or be affected by the project have opportunities for proper consultation and feel that their legitimate concern and rights are properly addressed, they would understand the risks, issues and challenges related to the livelihoods and measures to cope and mitigate the risks. Hence, it could potentially lead to an increase in confidence and trust and especially support for projects. Normally, developers do not create this opportunity because they are afraid of being confronted from the early stages of a project by concerned communities and they anticipate potentially "protracted consultation" resulting in higher investment costs (Mak, 2010).

Best practices to address issues of concern to wider society through eliminating or minimizing externalities and sharing project benefits have not always been the case in Cambodia (Middleton et al., 2009; Ryder, 2009). Past dam projects in the Mekong region and Cambodia, unfortunately, confirm that all the compensation schemes and other concessions from dam builders and governments have been secured only after substantial mobilization or protest (Middleton et al., 2009).

Mitigating a project's social issues and risks and protecting the impacted communities is crucial for any development project during the whole project cycle (planning, design, implementation, and operation).

The likelihood of the project delivering social benefits seems to be low as well, due to the absence of effective mechanisms for ensuring distribution of benefits and mitigation of impacts (McCallum, 2008; Dore and Lazarus, 2009). Firstly, without substantial improvement in the development and enforcement of the social and environment responsibilities by the concerned government agencies and developers, the likelihood of avoidance and mitigation of, or compensation for project social issues and risks seem to be slim. Secondly, social benefits from hydropower projects take a long time to materialize. The end users of the electricity generated by the hydropower plan are mostly the urban and sub-urban population, and the local communities (upstream and downstream of the sites) are often the affected parties (Mak, 2010).

Social benefits are normally presented in the project document in a format that is understood only by selected officials and agencies, and developers, but not by the communities. Introduction to “expected benefits” is often made in a brief presentation without clear provision of evidence and justification of assumptions (Mak, 2010). The communities, particularly the ethnic minorities, often cannot grasp the meaning of it and the potentially affected communities may not be convinced about the social benefits they are expected to reap in five or ten years time (Mak, 2010). The Se San local communities point to the negative impacts (Mak, 2010) from the Yali Falls Dam that are currently left unresolved.

The improvement in delivery of promised resettlement, compensation and livelihood support should become more evident in order to increase trust with local communities. Physical rural infrastructure such as roads, health care centers, schools and possibility of free electricity for local residents should be made available as promised in a timely manner. In many cases, local villagers need to become more organized to better represent and protect their legitimate interests and rights through obtaining constructive advocacy support on how to negotiate with the dam’s owners and the authorities (McCallum, 2008).

The avoidance and mitigation of or compensation for project social issues and risks and the likelihood of the project delivering social benefits needs to be improved by addressing all critical gaps in assessment management and consultation processes as discussed above.

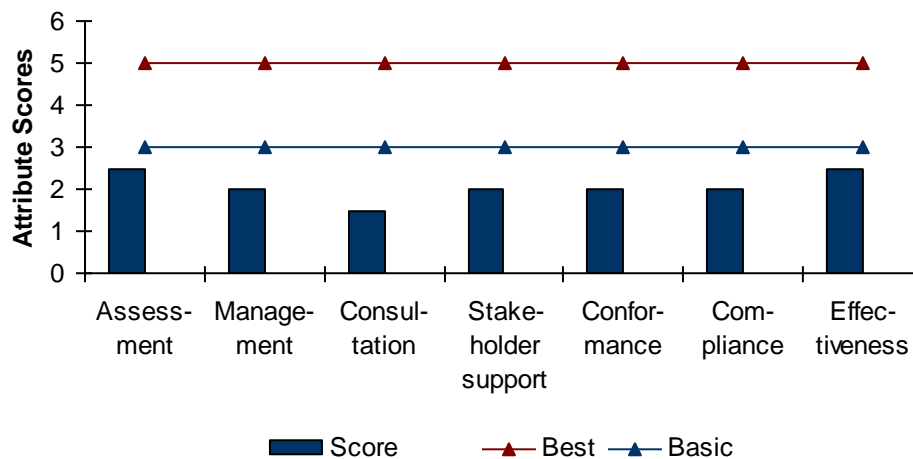
2.2.5 TECHNICAL ISSUES PERSPECTIVE

2.2.5.1 Technical Issues and Risks

The HSAP suggested this aspect applies mainly to developers who are considering a particular hydropower project or system of projects to identify and analyze technical issues and risks that may influence decisions to invest in preparation of the hydropower project or system of projects. However, the Cambodian Assessment Team is confident that the identification and analysis of the technical issues and risks is equally important for the decision-makers in the strategic assessment stage. The intent is that technical issues and risks are well understood at a very early stage of decisions on energy, hydropower and water resources planning and project investment (HSAP, 2009).

As shown in Figure 2.12, this aspect is scored lower than basic good practice for all attributes due to a number of factors, such inadequate, and ineffective technical design and assessment, management and consultation processes with some critical gaps in components; and some major non-compliances and non-conformances that require some serious improvements.

Figure 2.12 Technical issues and risk.



The quality of the process leading to an understanding of technical issues and risks relevant to a potential project, and planning to manage project technical issues and risks is found to be ‘poor’. The lack of good quality data leads to a failure to fully understand and correctly evaluate sustainability tests to quantify impacts, the causal mechanisms at work in large, dynamic systems, and to consider and integrate multiple risks and degree of vulnerabilities. Both “pro-dam” and “anti-dam” groups admitted that there are no reliable and independent assessments of the potential costs and benefits of proposed projects (Bird et al., 2008).

Some hydropower facilities that have been built have not achieved their full generating capacity due to environmental and social constraints imposed after construction. Had such constraints been identified earlier, more cost effective designs may have been possible (Bird et al., 2008). There are circumstances where hydropower projects are planned or developed in Cambodia and other countries in the Mekong region without adequately taking into consideration the level of dependence of the local community on aquatic and related ecosystems and the impacts to the community’s livelihood (King et al., 2007).

Most of these dams may not have been designed to take into consideration major natural disasters such as earthquakes or floods. The seismic safety of these dams is a concern and it is expected that many of them will need repair and strengthening. In recent years a number of earthquakes have taken place across Asia resulting in impacts to numerous dams (Mongabay.com, 2008; Brewer, 2008; Vijay and Ramesh, 2005; Hough and Martin, 2001). For example, the 12 May 2008 earthquake in Sichuan province of China (7.9 magnitude) seriously damaged hydroelectric dams and caused serious social and economic losses. The Ministry of Water Resources declared that in Sichuan Province alone, 69 dams were in danger of collapse, 310 were at “high risk,” and 1,424 posed a “moderate risk” (Brewer, 2008). Another Chinese government study released in January 2008, said that 37,000 of the country’s 87,000 old dams were “dangerously unstable” and in urgent need of repair (Mongabay.com, 2008; Brewer, 2008). China said it would spend more than \$1.3 billion per year fixing vulnerable dams, many of which were poorly constructed in the 1950s, 1960s, and 1970s (Mongabay.com, 2008; Brewer, 2008).

The case in India shows that after the January 26, 2001, Bhuj earthquake (7.6 magnitude) in Gujarat province, , some 240 dams were damaged and required large amounts of financial, technical and human resources to repair or strengthen them (Vijay and Ramesh, 2005; Hough and Martin, 2001). This fact highlights the need for careful technical risk assessment and design that have been adequately considered in Cambodia's and Mekong hydropower dam development.

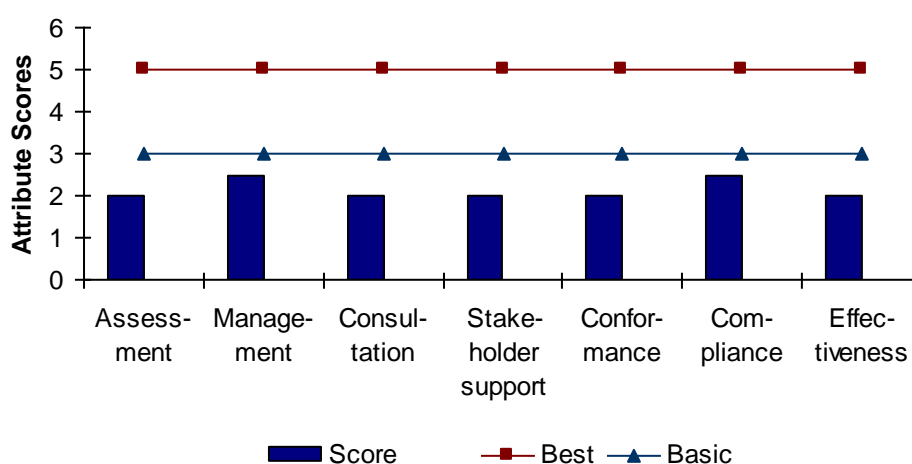
2.2.6 FINANCIAL & ECONOMIC ISSUES PERSPECTIVE

2.2.6.1 Economic & Financial Issues & Risks

The HSAP suggested this aspect applies mainly to developers who are considering a particular hydropower project or system of projects to identify and analyze economic and financial issues and risks that may influence decisions to invest in preparation of a hydropower project or system of projects. However, the Cambodian Assessment Team is confident that the identification and analysis of the economic and financial issues and risks is equally important for the decision-makers in the strategic assessment stage. The intent is that economic and financial issues and risks are well understood at a very early stage of the decision process on energy, hydropower and water resources planning and project investment.

As shown in Figure 2.13, this aspect is scored as between “levels 2 and 3” for most attributes due to a number of factors discussed below.

Figure 2.13 Economic and Financial Issues and Risk



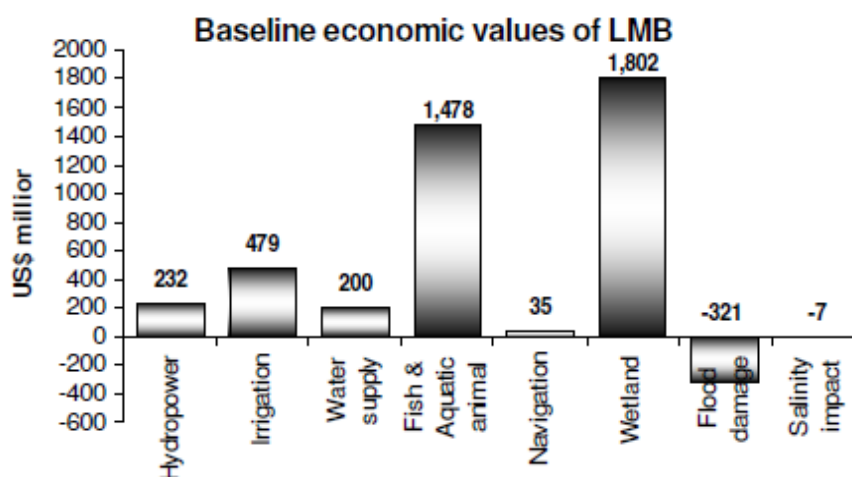
The quality of the process leading to an understanding of economic and financial issues and risks relevant to a potential project including cost-benefit analysis is found to be constrained by a number of factors. Flood control, surplus flow for navigation and water diversion for irrigation, and power generation, and stimulation of economic prosperity due to multiple cropping, rural electrification and the expansion of physical and social infrastructure are often cited as project benefits. However, hydropower proponents tend to forget to consider adverse impacts of dams, such as debt burden, cost overruns, displacement and impoverishment of affected people, impacts on water quality, division and destruction of important ecosystems, impacts on fishery resources, and inequitable sharing of benefits (Australian Mekong Resource Centre, 2002; Pech and Sunada, 2006b).

The current perception about hydropower as the least cost source of energy is misguided (MRC, 2010b). Hydropower developments require significant initial outlays for project planning. For instance, the typical cost of preparing a large hydropower project is \$10 to 20 million over 8 to 14 years (Bird et al. 2008; Ryder, 2009). A World Bank review of 66 hydropower projects found an average cost overrun of 27%. Social and environmental issues were often a significant part of this.

A study by the NGO Forum on Cambodia and Probe International (Ryder, 2009) shows that commercial investors hesitate to invest in building big hydropower dams without huge subsidies and monopoly protection from governments, international development banks and donor agencies. This is because after nuclear, large hydro dams are the most capital-intensive and time-consuming of all conventional generating technologies, if hydropower producers were required to pay for all quantifiable social and environmental costs associated with their projects. They tend to externalize that cost to the community and consumers (Ryder 2009). In practice, such costs are borne not by the developers but disproportionately by governments and dam-affected communities (Ryder 2009).

Another key problem facing the cost-benefit analysis of the hydropower project is the lack of proper consideration of fisheries and wetlands values from an economic and social perspective (Pech and Sunada, 2006C). A large number of recent studies underline the high potential of different scales of fishing activities for economic development (both at local and national levels) but systematically highlight how poorly the true (economic) value of this sector is reflected in official statistics and discussions of food security and livelihoods (MRC, 2010b). Fishery officials and researchers found that very often the fisheries' values were not properly appreciated and included in the assessment of hydropower development in Cambodia and Mekong Region (Friend et al., 2009).

Figure 2.14 Fishery and other Resources Economic Values



(Pech and Sunada, 2006C)

As shown in Figure 2.14, the economic values (first sale values at US\$1/kg) of freshwater fish and aquatic products are estimated ranging from US\$ 1 billion (MRC, 2006), 1.5 billion (MRC, 2002; Baran, 2005; Navy et al., 2006), and US\$6 billion annually (MRC, 2010b; Hirsh, 2010)). Baran (2005) and Hirsh (2010) maintain that if all multiplier effects are included, the fishery is worth several times more than this figure and its replacement value is far higher. It is acknowledged by the researchers and river basin organizations that most water related

developments – and dams in particular – concentrate primary benefits in the more advantaged sectors (MRC, 2010b, see and compared with MRC, 2010a) while the losses tend to affect the most vulnerable. The consideration of the social distribution of benefits, and compensatory and mitigatory measures at project, national and transboundary level has been very poor (Hirsh, 2010).

The planning to manage project economic and financial issues and risks is considered “poor”. There is an absence of a mechanism for internalizing the environment and social costs of hydropower development is clearly critical to assessing the “least cost” options (King et al. 2007). After the decision about what energy options to finance, perhaps the next most important hydropower-environment concern is how ecosystem mitigation and management components, which are an integral part of a sustainable hydropower project, are to be financed (King et al., 2007).

The potential for Cambodia to become a net exporter of electricity is not seen as being realistic, considering the potentially high economic, environmental and social costs of hydropower development in Cambodia (Middleton, 2008; ADB, 2009; and MRC, 2010b). The economics of regional power integration plans for Cambodia remain essentially unproven and therefore it is difficult to justify this model of development (ADB, 2009; World Bank, 2006; UNDP, 2007) (See Figure 2.4).

A senior energy ministry official was quoted in 2009 as saying the government had agreed to a long-term purchase agreement to buy electricity from hydropower dams (DPA, 2010). The International Monetary Fund (IMF) found that taking open-ended financial commitments, particularly in the power-generation sector, could burden the country with significant ongoing liabilities and greater transparency was required to monitor the potential risk of contingent liabilities (DPA 2010).

Given the recent discovery of significant oil and natural gas reserves in Cambodia, the development of power stations fueled by natural gas may leave Cambodia’s hydropower plants as stranded investments. The long-term power purchase agreements from rashly developed hydropower projects will strongly affect businesses and domestic consumers and could act as a drag on Cambodia’s economic growth (Middleton, 2008). Cambodia, due to short supply of capital, lack of experience in hydroelectric development or operation, relies heavily on foreign partnerships, which can only be attracted by mainstream projects enabled by power exports. However, choosing less capital-intensive technologies that can be easily financed by the private sector and quickly installed makes more economic sense than big hydro dams (NGO Forum, 2009; MRC, 2010b).

The quality of the consultation process, on the part of the government agencies and developers, in building understanding of project economic and financial issues and risks is also hotly debated. A harmonized set of environmental criteria would reduce the transaction costs of developers that currently have to satisfy a wide range of environmental safeguard procedures of the individual investment and development banks and credit guarantee agencies (Bird et al. 2008, HSAF, 2009).

The potential for avoidance, mitigation or compensation of economic and financial risks, and likelihood of the project delivering economic and financial benefits are low due to a large number of critical gaps in assessment, management and consultation processes as discussed above.

3.0 EXPERIENCE WITH APPLICATION OF 2009 DRAFT HYDROPOWER SUSTAINABILITY ASSESSMENT PROTOCOL

This Section documents, reflects and assesses our experiences with the trialing of the draft Hydropower Sustainable Assessment Protocol (HSAP) Section 1, which focuses on the Strategic Assessment in a rapid sustainability assessment of Mekong electricity planning (Cambodia Assessment). It provides both general and specific comments.

3.1 GENERAL ASSESSMENT OF SECTION 1 (CAMBODIA CASE STUDY)

This sub-section provides general observations of Section 1 – Strategic Assessment (HSAP, 2009) on the following criteria: i) objectivity and replicability; ii) understandability; iii) scope and comprehensiveness; iv) ease of use; v) impact and effectiveness; vi) adequacy of implementation guidance; and, vii) presentation of results.

3.1.1 OBJECTIVITY AND REPLICABILITY

How robust is the Draft Protocol in terms of assessment teams/trialing participants arriving at consistent and unbiased results?

There were discrepancies between the preliminary assessment results by the assessment team and by one of the three trialing groups at the 8 April 2010 Consultation. During the group discussion and plenary sessions, the assessment team also observed differences among the group members in scoring the same attributes using almost the same evidence. Some discussion groups and members tended to have diverse viewpoints with regards to attributes and aspects depending on personal preference, education background and especially their institutional affiliation.

Scoring was one of the most hotly debated points during the trialing. The participants from the electricity planning and regulatory agencies argued that the scores for most of Cambodia's energy planning below 3 were too low and insisted on scoring most of the aspects between 3 and 5, even though it was clear that level 5 "best practice" is far from achievable in a country such as Cambodia which has minimal resources, capacities and experience. Other participants scored most of the aspects between 2 and 3.

This lack of consistency may be explained by the following key issues:

- The existing Section 1 still allows an aptitude for subjective judgement and personal/professional bias; and
- Due to the complexity of the HSAP, it requires specially trained assessors to be able to conduct the assessment objectively and consistently, with limited access to evidence and data.

The guidance notes in HSAP Section 1 need to be refined and simplified in plain English language for non-native speakers. Translation into national language should be seriously considered, and special training courses for HSAP assessors/auditors should be organized.

More guidance on scoring is required with more examples of good and best practices from different scopes and scales.

3.1.2 UNDERSTANDABILITY

Which parts of the Draft Protocol did the assessment team find hard to understand?

All trialing participants found HSAP Section 1 (HSAP, 2009) very useful, but hard to understand how to apply it confidently. To be able to provide assessment of each aspect, users need to not only have all necessary expertise and knowledge, but also have a command of good English skills as well as a very good understanding of the HSAP. In its current form, HSAP Section 1 can be understood only by those with intensive training and good familiarization with HSAP.

The way in which HSAP Section 1 is structured, the users have to turn back and forth to different sub-sections and pages of the draft to be able to complete an assessment of a selected aspect. For example, scoring can be found on page 7; auditing guidance notes on pages 11-16, definitions of scores on page 17, and aspect and attribution relevance guide on pages 23 -33 making the process very trying and confusing.

The auditing guidance notes, scoring, and the definitions of scores 1-5 should be presented in a more systematic manner rather than spread in different parts of the HSAP Section 1. Participants recommended that the structure should be consolidated further to make its intended voluntary application by different groups of users more realistic and appealing.

The participants in the trailing also had different understanding of the “definitions” and “characteristics that may be evident” in Table 12 – Definitions of Scores 1- 5. For example, the participants from the hydropower and energy planning and regulatory agencies pointed to an extensive use of the World Bank, UNDP and Japanese funded technical assistance, as evidence of “use of external expertise where needed”. Other participants from CSOs understood “use of external expertise where needed” as the “use of independent or third party verification and review” with active participation of concerned CSOs both in the country and internationally. The Cambodian trialing participants recommended that Table 12 be updated and its “characteristics that may be evident” should be made more consistent and explained with concrete examples of evidence.

The participants emphasized the need for clearer instructions on how to apply the assessment tool with a comprehensive view of all relevant evidence and factors and measures for minimizing subjectivity and bias by those who are responsible for conducting assessments.

3.1.3 SCOPE AND COMPREHENSIVENESS

Does the Draft Protocol Sections include the right aspects? Which issues are not covered or duplicated unnecessarily?

The set of aspects and assessment criteria included in HSAP Section 1, in general, were found to be very well streamlined (with only nine aspects) compared to other Sections in the draft HSAP. Understanding the dual function of Section 1, the trialing participants requested that for assessing the strategic environment from which a hydropower project might emerge, the present set of aspects and assessment criteria should be improved slightly by incorporating some selected “high profile and cross-cutting issues” such as livelihood and other social issues,

and potential cumulative, geographic/spatial perspectives as well. As far as the second function of HSAP Section 1 – fitting of a potential hydropower project or system of projects within the strategic environment – is concerned, the trialing participants found it essential to include some key sub-attributes that HSAP Section 1 currently suggests as “generally not relevant at strategic assessment stage”. Specific comments are provided in Section 3.3 of this Report.

3.1.4 EASE OF USE

How practical is the Draft Protocol as an assessment tool?

The trialing participants regarded initiatives such as the HSAP, including its Section 1, as important practices. When implemented in a participatory and integrated manner, it could improve decision-making around water, energy and hydropower futures; given large hydropower (and other power stations) has become a development option of choice by many Mekong countries including Cambodia.

The application of Section 1 may bring a better understanding among different players – state, private and non-states, before limited time, efforts and resources are spent on development of much less optimal and cost-effective projects or systems of projects.

The participants underlined the need for water and energy planners, and project developers and other interested groups to assess the sustainability of hydropower development, in an objective manner, using internationally accepted assessment tools and frameworks.

The participants found that to restrict HSAP to be merely a set of practical guidelines to allow hydropower projects - existing and planned - to be audited in a timeframe by private financiers, developers, and operators, will prove to be significant loss of opportunity. The HSAP should try to win over other key players, including civil society, if HSAP is to be eventually endorsed and applied by broader circles of state, private and non-state stakeholders.

The participants expressed concern that the HSAP may share the same fate as the World Commission on Dams (WCD) Framework. The WCD has not been adopted widely enough, especially from development banks and the hydropower industry. Participants hoped that the HSAF, by learning from that WCD lessons, would do its best to accommodate all relevant comments and critiques to improve the HSAP and to ensure that it will be broadly endorsed and sustained by both key hydropower developers and partners outside the hydropower industry sector.

The adoption of such frameworks in their respective law and regulations by Mekong countries where dams are being planned, built or operated will help improve hydropower and water governance and sustainable livelihoods in the Mekong region.

The participants also discussed about what incentives HSAP (given its voluntary nature) will provide to encourage more systematic and widespread adherence to this assessment tool and process. The participants suggested that incentive mechanism (financial, technical and reputational risk and incentives) must be in place and implemented to encourage adherence to and compliance of internationally accepted assessment frameworks. They also pointed out the need for a trust fund and programme for supporting HSAP implementation to encourage least developed countries and concerned developers to apply HSAP.

Burden of applying the Draft HSAP

In a country where data and knowledge management are poorly developed, it is extremely challenging to access information required to apply in the assessment. The trialing participants and the assessment team understood that it would be even more challenging to collect information for assessing other Sections of the HSAP, given the high number of aspects involved.

The participants found the auditing guidance notes and examples of evidence useful in determining what evidence should be collected and analyzed. These parts need to be further expanded and refined. In some aspects (for example, “options assessment” (pp. 24-25) and “Regional and National Policies and Plans” (pp. 26-27), there are some detailed lists of important considerations for analytical frameworks and parameters, and a long list of examples of evidence. In other aspects, for instance “Environmental Issues and Risk” and “Economic and Financial Issues and Risks”, the auditing guidance notes and examples of evidence are thin, hence less helpful.

3.1.5 IMPACT AND EFFECTIVENESS

To what extent did the assessment team find the application of the HSAP Section 1, a useful exercise in terms of identifying weaknesses/opportunities, encouraging dialogue, and encouraging improvement of performance?

Section 1 of the HSAP has the potential to inform public policy decisions at strategic and planning levels; to be a useful exercise in terms of identifying weaknesses and opportunities; encouraging dialogue; and encouraging improvement of performance, if it is used properly and in a participatory manner.

The Draft HSAP as a whole needs to discuss the governance of an assessment in detail to make it more realistic in securing all interested actors to collaborate in the production of a single, consistent and unbiased assessment.

In any case, large, controversial energy and water planning and strategies, projects and systems of projects deserve rigorous independent assessments covering a wide range of criteria and expertise in multiple disciplines in order to produce a credible assessment.

3.1.6 APPLICABILITY TO A RANGE OF SCALES AND REGIONS

Is the Draft Protocol widely applicable in relation to project scale, region, developed versus developing economy, type of project, etc.? How did the assessment teams make their scoping decisions with respect to aspect relevance, and considerations relevant to project context or scale?

No comments.

3.1.7 ADEQUACY OF IMPLEMENTATION GUIDANCE

How were the introductory section and the auditing guidance notes perceived? Where would additional implementation guidance be helpful?

The trialing participants discussed the complexity of the assessment tool, aspects (criteria) and attributes (indicators). Serious efforts should be made by the HSAF and IHA to ensure that the HSAP will be improved and institutional support will be in place to mainstream it into decision making processes by dam builders, investment banks/guarantors, and host countries.

The participants also found the need for a clearer guideline on how the assessors/auditors are selected, and guidance on the code of conduct, benchmarks/best practices, and quality of evidence/information in order to increase level of objectivity, and credibility of the assessment. They stated that the assessment team (multi-disciplinary) should be selected by concerned parties from a roster of qualified auditors/assessors accepted by both the hydropower industry and other concerned parties.

3.2 PRESENTATION OF RESULTS

How useful did you find the auditor worksheet and the suggestions for summary presentation of results provided in the Introduction?

Many trialing participants found the Auditor Worksheet and HSAP Presentation of Trial Results useful. However, their ability to make good use of them was constrained by the lack of tangible evidence or by selective tendency toward selection and interpretation of the evidence. They felt that with more familiarization with HSAP, with additional guidelines and codes of conduct, and availability of material evidence, the scoring and presentation of the results using these worksheets and tools will be substantially improved.

3.3 SPECIFIC ASSESSMENT OF SECTION 1 TRIAL (CAMBODIA ASSESSMENT)

The following are specific comments and suggestions for each aspect for the strategic assessment of HSAP Section 1.

3.3.1 DEMONSTRATED NEEDS AND OPTION ASSESSMENT ASPECTS

These two aspects were important in order to support sustainable development objectives at the local, regional, national and transboundary levels. They were also important for addressing the choices available for meeting energy and water needs in terms of both infrastructure and management approaches by realistically and comprehensively comparing hydropower options with other options across a range of economic, technical, environmental and social factors.

The trialing participants identified a lack of proper consideration of all key environmental and social needs, especially with regards to local communities who rely heavily on the natural resources for their daily livelihoods. They also disagreed with the suggestion by the HSAP Section 1 that “management”, “conformance with plans”, and “compliance” sub-attributes are not generally relevant at the strategic assessment stage, due to the following reasons:

- Considering “management” as irrelevant may discourage concerned authorities and developers from integrating the assessment process as the basis for developing effective strategies and action plans for risk and change management, and for corrective/preventive actions and any necessary plan/strategy revision;

- Conforming to ‘broader’ regional and national development strategies and plans is important. The case of Cambodia’s energy and water planning showed that each of the plans and strategies tended to be sectoral with a lack of proper synergy, and consistency with the broader National Social and Economic Development Plan; and
- Compliance has been identified as the weakest link in the whole strategy development cycle, and special emphasis should be placed on the evidence of compliance with relevant laws, policies, standards and plans.

3.3.2 POLICIES AND PLANS, POLITICAL RISKS, AND INSTITUTIONAL CAPACITY ASPECTS

According to HASP Section 1, the governance perspective involves only two key aspects, namely i) Regional and National Institutional Capacity; and ii) Political Issues and Risks. The trialing participants and assessment team found that the national and regional policies and plans should be more closely associated with the governance perspective than with the development perspective (Table 1, Section1, HSAP, 2009).

They also disagreed with the suggestion by the HSAP Section 1 that “consultation”, “stakeholder support”, and “compliance” sub-attributes are not generally relevant at the strategic assessment stage for these aspects, due to the following reasons:

- The quality of the process leading to an understanding of gaps, shortfalls or complexities in regional and national policies and plans was considered to be low. One of the main reasons was the lack of proper consultation, and as a result, a lack of stakeholder support, especially support from the local community for the national (or regional) water or energy planning. Institutionally shaped interests and practices, combined with an aura of technical complexity, leads to relatively closed ‘state-knows-best’ planning processes.
- The likelihood of project compliance (by the project developers) with regional and national policies and plans is extremely low. The growing enthusiasm for hydropower is increasingly driven and exploited by private companies, financiers and government elites who potentially bypass the traditional regional and international players with complex impacts upon hydropower and water governance in the region. Many of the new hydropower developers (including Chinese developers in Cambodia), reportedly considered the ADB and World Bank’s environmental and social safeguards as burdensome, time consuming and costly, even though these frameworks could reduce the risk of developing poorly conceived projects (Middleton *et al.*, 2009). In this weak governance state, a strong emphasis on demonstrating compliance with available best standards and policies is essential.

3.3.3 TECHNICAL, SOCIAL, ENVIRONMENTAL AND ECONOMIC ISSUES AND RISKS ASPECTS

The HSAP suggested these four aspects apply mainly to developers who are considering a particular hydropower project or system of projects to identify and analyze social, technical, environmental and economic issues and risks that may influence decisions to invest in preparation of hydropower projects or systems of projects (HSAP, 2009). However, the

assessment team and trialing participants found that the identification and analysis of the social, environmental, technical and financial issues and risks was equally important for the government's decision-makers and water resources and energy planners in the strategic assessment stage.

For reasons highlighted in previous sub-sections 3.3.1 and 3.3.2, the participants found that it was necessary to consider as well the compliance, stakeholder support and conformance sub-attributes.

While stressing the importance of stakeholder support and consultation, they also pointed out the need to define stakeholders - their identification and participation – at different stages of the assessment. They found that at the strategic assessment stage, the involvement of key national agencies and relevant CSOs representing the community is critical.

4.0 CONCLUSION

4.1 SUSTAINABILITY ASSESSMENT OF CAMBODIA/MEKONG WATER AND ELECTRICITY PLANNING

The Strategic assessment of energy and water resources planning is considered to be one of the most important sections in the draft HSAP applicable for countries and regions that are planning for significant expansion of energy and hydropower development.

The result of the Cambodia Assessment shows that most of the attributes obtained lower scores for both process and performance attributes. The graphs also show the majority levels of the attribute and sub-attribute scores are generally below the average typical for countries with limited resources and levels of development. It also shows the areas that need substantial improvement.

A number of constructive critiques and recommendations on how to enhance the water and energy governance waterscapes in Cambodia and the Mekong region are provided. A coherent updated energy sector strategy is needed in Cambodia and the Mekong region and its formulation should be based on a careful assessment of various energy sources and the policy and institutional framework for their development. The Assessment Report (MRC, 2010a) suggested an imbalance between costs and benefits, and from an analysis of the significant opportunities and risks resulting from existing and planned hydropower dams in the Mekong, Cambodia will be most affected (MRC, 2010a and 2010b). Most Cambodian government officials concerned with these issues do not seem ready to consider or take appropriate measures to mobilize support for preventing or mitigating impacts.

There is an urgent need for a more uniform approach to planning hydropower development in Cambodia and other Mekong countries, which incorporates broad-based stakeholder participation and consideration of sustainability issues. There is a need to carefully address the gaps in assessment and alignment of the national and regional power development plan and improvement of national environmental and social safeguard policies and procedures, and capacity building consistent with international practices.

Non-conformance still results from practices where national policies, laws and sub-decrees are practically drafted by the 'resource management agency' with limited synergy or cross-sectoral integration, potentially leading to a lack of attention to tradeoffs, monitoring and evaluation and dispute management.

The likelihood of project compliance with regional and national policies and plans by the project developers is a must. Developers should not be allowed to continue to externalize costs to the local community or end-users, and authorities concerned should be more capable or able to systematically screen and rank projects according to economic, environmental and social criteria, as well as in terms of demand-side or efficiency alternatives.

The quality of the consultation and stakeholder support should be addressed. A meaningful deliberation - debate and discussion aimed at producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants - and transparency in the decision-making process, should be cultivated and enforced.

The analytical framework for taking into account comprehensive options assessment which examines political, social, economic and ecological impacts is needed. This assessment needs to draw upon scientific evidence, local knowledge, and an appreciation of complexity and uncertainty. There is a need to address the critical gaps in institutional and organizational capacity and effectiveness and plans to compensate for shortfalls in legislature, law enforcement and compliance, public sector capacities (including the capacity to address corruption risks, check and balance mechanisms, judiciary, grievance and conflict management mechanisms). These processes must include local and regional government, civil society, private sector, international institutions and audit/oversight institutions.

The process leading to an understanding of environmental issues and risks relevant to a potential water/energy project and plan in Cambodia still has room for improvement. Cambodia needs to adopt modern environmental planning by moving beyond the use of ESIA's alone, such as cumulative impact assessments or SEA, Resettlement Action Plans (RAPs) and Livelihood Restoration Plans (LRPs) etc. Their implementation should be started well before the major project decisions and made public at the early stages of project planning and design. The financial arrangements and conflict resolution mechanisms for managing the conflicts between local residents and dam builders/operators, and regional guidelines and mechanisms should be created in order to deal with transboundary issues/conflicts and compensation.

The process leading to an understanding of social issues and risks relevant to a potential project in Cambodia requires a lot of improvement, since there is a strong dependence between rural communities and natural resources, such as fisheries and non-timber forest products that are commonly negatively impacted by hydropower development.

In recent years a number of natural and man-made disasters, such as earthquakes have taken place across Asia resulting in impacts to numerous dams that require millions of dollar for repairs. This fact highlights the need for careful technical risk assessment and design that has not been adequately considered in Cambodia's and Mekong hydropower dam development.

The quality of the process leading to an understanding of economic and financial issues and risks relevant to a potential project, including cost-benefit analysis, should consider adverse impacts of dams, such as debt burden, cost overruns, displacement and impoverishment of affected people, impacts on water quality, division and destruction of important ecosystems, impacts on fishery resources, and inequitable sharing of benefits. The current perception about hydropower as the least cost source of energy needs to be carefully assessed. A World Bank review of 66 hydropower projects found an average cost overrun of 27%. Social and environmental issues were often a significant part of this.

The mechanism for internalizing the environment and social costs of hydropower development and decisions about what energy options to finance, and ecosystem mitigation and management components should be an integral part of a sustainable hydropower project.

4.2 EXPERIENCES WITH APPLICATION OF 2009 DRAFT HYDROPOWER SUSTAINABILITY ASSESSMENT PROTOCOL

The trialing participants found that the robustness of the HSAP Section 1 needs to be further strengthened to allow the intended users (assessment teams) to arrive at consistent and unbiased results. There were discrepancies between the preliminary assessment results by the assessment team and three trialing groups in scoring the same attributes using almost the same evidence. Diverse viewpoints with regards to attributes and aspects depend on personal preference, education, background and especially institutional affiliation. The existing Section 1 still allows an aptitude for subjective judgement and personal/professional bias. The complexity of the HSAP requires specially trained assessors to be able to conduct the assessment objectively and consistently.

Scoring was one of the most hotly debated points during the trialing. The participants from the electricity planning and regulatory agencies insisted on scoring most of the aspects between 3 and 5, even though it was clear that level 5 “best practice” is far from achievable in countries such as Cambodia.

The best practices, auditing guidance and other relevant guidance need to be refined and simplified into less technical English language for non-native speakers, and special training courses for HSAP assessors/auditors are required. Translation of the HSAP into national languages should be considered to improve usability and appeal. The structure, contents and format of the HASP should be improved further to make its intended voluntary application by different groups of users more realistic. The “definitions” and “characteristics that may be evident” in Table 12 – Definitions of Scores 1- 5, and evidence of best practices found in different sub-section of Section 1 can be consolidated. The aspects and assessment criteria should incorporate key “high profile and cross-cutting issues” and key sub-attributes that HSAP Section 1 currently suggests as “generally not relevant at strategic assessment stage”.

The demonstrated needs and option assessment aspects were found to be closely related, since the water and energy options assessments should cover the full range of planning approaches to meet demonstrated needs. The quality of demonstrated needs assessment has a strong bearing on the assessment and selection of options for meeting the need.

Proper consideration of all key environmental and social needs, especially with regard to local communities, is a must. The suggestion by the HSAP Section 1 that “management”, “conformance with plans”, and “compliance” sub-attributes are not generally relevant at the strategic assessment stage, was found deplorable. Considering “management” as irrelevant may discourage concerned authorities and developers from integrating and developing effective strategies and plans for risk/change management, or making any necessary plan/strategy revision. Conforming to ‘broader’ regional and national development strategies and plans and compliance are critical, since they are often the weakest link in the whole strategy development cycle, and special emphasis should be placed on the evidence of compliance and conformity with relevant laws, policies, standards and plans.

The governance perspective should involve not only the regional and national institutional capacity, and political issues and risks, but also national and regional policies and plans. The “national and regional policies and plan attribute” should be part of the governance

perspective rather than in the “development perspective” in the HSAP. From the governance perspective, the “consultation”, “stakeholder support”, and “compliance” sub-attributes should be considered relevant at the strategic assessment stage as well. The low quality of the process leading to an understanding of gaps, shortfalls or complexities in regional and national policies and plans is mainly due to the lack of proper consultation, and as a result, a lack of stakeholder support for national and regional water and energy strategy and planning. For improved water governance, a strong emphasis on demonstrating compliance with available best standards and policies is essential.

The concern was expressed that the HSAP may share the same fate as the World Commission on Dams (WCD) Framework if it fails to be adopted widely enough from development banks and the hydropower industry, as well as state and non state key players. The HSAF should do its best to accommodate all relevant comments and critiques to improve the HSAP and to ensure that it will be broadly endorsed and sustained by both key hydropower developers, and partners outside the hydropower industry sector. Serious efforts should be made by the HSAF and IHA to ensure that the HSAP will be improved and institutional support will be in place to mainstream it into decision making processes by dam builders, investment banks/guarantors and host countries.

The trialing was found to be a very useful exercise in raising awareness of the key Cambodian stakeholders about the need for a strategic assessment of water and energy planning in Cambodia and the Mekong region.

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