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# Sustainability assessment of Thailand's electricity planning

Using Section 1 of the 2009 Hydropower Sustainability Assessment Protocol



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Left to right: Khao Sod newspaper; Rune Kippervik; Kim Geheb, CPWF Mekong

# Table of Contents

|   |    |
|---|----|
| Contents.....   | 1  |
| List of Figures, Tables and Text Boxes.....                                   | 3  |
| Abstract.....   | 4  |
| 1 Introduction .....  | 4  |
| Hydropower decision making in the region.....                                 | 6  |
| Thai Power Development Plan - a case study with regional implications .....   | 6  |
| 2 Design and Methods .....  | 7  |
| Rapid assessment.....   | 8  |
| Choices made by the study team.....   | 9  |
| Assessment method.....  | 10 |
| 3 Thai PDP process: electricity demand forecasting & options assessment ..... | 13 |
| Background .....  | 13 |
| Demand forecasting (Aspect 1).....  | 15 |
| Quality of assessment process (Aspect 1.1) .....                              | 15 |
| Quality of management process (Aspect 1.2).....                               | 16 |
| Quality of consultation process (Aspect 1.3) .....                            | 17 |
| Level of stakeholder support (Aspect 1.4) .....                               | 18 |
| Effectiveness (Aspect 1.7) .....  | 19 |
| Options assessment (Aspect 2).....  | 20 |
| Quality of assessment process (Aspect 2.1) .....                              | 20 |
| Quality of management process (Aspect 2.2).....                               | 23 |
| Quality of consultation process (Aspect 2.3) .....                            | 24 |
| Level of stakeholder support (Aspect 2.4) .....                               | 24 |
| Effectiveness (Aspect 2.7) .....  | 25 |
| 4 Economic & financial issues (Aspect 9).....                                 | 25 |
| Quality of assessment process (Aspect 9.1) .....                              | 25 |
| Quality of management process (Aspect 9.2).....                               | 26 |
| Quality of consultation process (Aspect 9.3) .....                            | 26 |

|  |    |
|--|----|
| Level of stakeholder support (Aspect 9.4) .....                                    | 26 |
| Level of Effectiveness (Aspect 9.7) .....  | 26 |
| 5 Environmental, social & political issues .....                                   | 27 |
| Political issues and risks (Aspect 4) .....  | 27 |
| Quality of assessment process (Aspect 4.1) .....                                   | 28 |
| Quality of management process (Aspect 4.2) .....                                   | 30 |
| Conformance (Aspect 4.6) .....   | 31 |
| Effectiveness (Aspect 4.7) .....   | 31 |
| Social Issues and Risks (Aspect 7) .....   | 32 |
| Quality of Assessment (Aspect 7.1) .....   | 33 |
| Quality of Management (Aspect 7.2) .....   | 36 |
| Quality of Consultation (Aspect 7.3) .....   | 37 |
| Stakeholder Support (Aspect 7.4) .....   | 38 |
| Effectiveness (Aspect 7.7) .....   | 38 |
| Environmental issues and risks (Aspect 8) .....                                    | 39 |
| Quality of assessment process (Aspect 8.1) .....                                   | 39 |
| Quality of management / planning to address environmental risks (Aspect 8.2) ..... | 41 |
| Quality of stakeholder consultation processes (Aspect 8.3) .....                   | 42 |
| Level of stakeholder support (Aspect 8.4) .....                                    | 43 |
| Effectiveness (Aspect 8.7) .....   | 44 |
| 6 Regional planning influences on Thai hydropower planning (Aspect 3) .....        | 44 |
| Quality of assessment process (Aspect 3.1) .....                                   | 45 |
| Quality of management / planning (Aspect 3.2) .....                                | 49 |
| Governments' level of conformance with regional initiatives (Aspect 3.6) .....     | 50 |
| Effectiveness (Aspect 3.7) .....   | 51 |
| 7 Synthesis: Agenda setting & decision making within the Thai state .....          | 52 |
| 8 Conclusion .....   | 55 |
| References .....   | 58 |

## List of Figures, Tables and Text Boxes

|  |    |
|--|----|
| Text box: Lao hydropower development.....  | 7  |
| Figure 1 Structure of 2009 draft Protocol showing Aspects and Attributes assessed..... | 13 |
| Table 1 Ministry of Energy events related to the PDP 2010.....                         | 14 |
| Figure 2 Fuel mix in 2010 draft PDP.....   | 23 |
| Figure 3 Conceptual framework for political risk.....                                  | 27 |
| Text box: Project finance .....  | 30 |
| Text box: Nam Theun 2 .....  | 33 |
| Text box: Theun-Hinboun Project.....   | 35 |
| Text box: MRC Strategic Environment Assessment project.....                            | 46 |
| Figure 4 Summary of scores given by assessment team .....                              | 56 |

## Selected List of Abbreviations Used by Authors

|      |   |
|------|---|
| ADB  | Asian Development Bank                              |
| CIA  | cumulative impact assessment                        |
| DSM  | demand-side management                              |
| EfE  | Energy for Environment Foundation (Thailand)        |
| EGAT | Electricity Generating Authority of Thailand        |
| EPPO | Greater Mekong Sub-region                           |
| ERC  | Energy Regulatory Commission (Thailand)             |
| GoL  | Government of Lao PDR                               |
| GWh  | gigawatt hour                                       |
| HSAF | Hydropower Sustainability Assessment Forum          |
| MIGA | Multilateral Investment Guarantee Agency            |
| MoE  | Ministry of Energy Thailand                         |
| NMC  | National Mekong Committee                           |
| PDP  | power development plan                              |
| RETA | regional technical assistance [programs of the ADB] |
| SEA  | strategic environmental assessment                  |

## Abstract

We conducted a rapid assessment of the sustainability performance of the Thai power development plan and a number of related planning processes, focusing on the Thai plan's implications for development of hydropower in the Mekong region. We used the August 2009 draft Hydropower Sustainability Assessment Protocol (HSAP), which is a qualitative multi-criteria audit tool designed to be used by a wide range of interested parties.

We applied the HSAP from a public interest perspective: We assumed that aquatic ecosystems in the Mekong region are critically important for less privileged people, and that Thailand's electricity planners can and should consider the distributional and ecological consequences of planning choices on a Mekong regional scale.

Two sets of readers may find the report of interest. Those who seek insight into sustainability challenges posed, when a middle-income Asian country turns to hydropower imports from poorer neighbors, will find a contextualized and empirically rich discussion. Readers interested in the practice of integrated sustainability assessment will find a detailed application of the August 2009 draft Hydropower Sustainability Assessment Protocol (HSAP) – a tool which has been somewhat controversial to date (Bosshard 2010; Foran 2010; Locher, et al. 2010).

Does rapid assessment improve our understanding of sustainability challenges? We found a number of significant gaps or weaknesses in the Thai power development plan (PDP). Combined with political instability faced by the Thai government in 2009-10, these challenges resulted in generally low levels of sustainability performance of the 2010 PDP. The Thai Ministry of Energy however appears genuinely willing to cooperate with civil society organizations in ongoing work that may improve the next PDP.

The 2009 HSAP was not an easy tool to use. Many indicators required careful re-interpretation. The assessment was time consuming: partly because multiple processes deserved to be assessed in order to derive an adequate picture of multi-level planning processes.

Sustainable development needs early-stage planning tools, which allow options to be rethought. Despite its practical difficulties, the 2009 HSAP compresses a range of important issues into one emerging framework. Although the Thai PDP is ultimately a bureaucratic planning process, its sustainability can – and must – be influenced by civil society and regional-level actors. Though careful interpretation of the HSAP is required, this finding is adequately captured by the use of the Protocol.

## 1 Introduction

This report provides a rapid assessment of the sustainability performance of the Thai power development plan (PDP) and a number of related planning processes, such as that of the Mekong River Commission (MRC) and of the Asian Development Bank's Greater Mekong Sub-region (GMS) energy strategy.

We focus on the implications (imported) hydropower plays in the Thai power plan. We used the August 2009 draft Hydropower Sustainability Assessment Protocol (HSAP), which is a qualitative multi-criteria audit tool designed to be used by a wide range of interested parties.

Our assessment begins with a brief contextualization. Section 2 introduces the concepts of sustainability assessment and rapid assessment. It also discusses a number of key methodological choices the study team was required to make, so as to render the 2009 HSAP 'operational' for use in assessing the Thai

power plan. Sections 3 – 6 present detailed results of our assessment. In a context where the agenda typically revolves around the reliability and price of hydropower, as opposed to social and ecological risk, Section 7 discusses the challenges of integrating environmental and social issues into Thai energy planning. Section 8 concludes with brief reflections on the Thai PDP as well as the HSAP tool itself.

The Mekong region has entered a phase of large-scale hydropower resource exploitation. The region's recent embrace of large hydropower is driven by both push and pull factors. The 'pull' firstly consists of strong demand for electricity in the economies of Thailand, China, and Vietnam, as forecast using a particular set of energy forecasting methods. Indeed, Southeast Asian electricity demand growth rates have been among the highest in the world (USAID 2007). In Thailand and Vietnam, rates of electricity demand are linked to, but higher than, rates of GDP growth (Asia Pacific Energy Research Center 2009).

Another set of factors supporting hydropower development includes state policy. For instance, the Government of Laos has declared its goal to expand its GDP growth so as to achieve middle income country status by 2020, and hydropower exports (to major consumers such as Thailand and Vietnam) play an important role in that strategy.

Large dams and associated infrastructure projects can have profound impacts on people's livelihoods and ecosystems for decades. Hydropower development in the region is however considered problematic, often for reasons that relate to weak governance regimes which fail to ensure equitable distribution of benefits and protection of the natural environment (Foran and Manorum 2009; Lawrence 2009; Magee and Kelley 2009; Middleton, et al. 2009).

The Mekong basin is noted for its inland fisheries, which rank among the world's largest. Driven by the flood pulse of the annual monsoon, those fisheries are an important source of nutritional security. They contribute to market and non-market based livelihood strategies of small farmers and other rural people, and in places such as the Tonle Sap of Cambodia, are the basis of important commercial fisheries.

In the Mekong Basin, almost 90% of species are migratory. Several assessments have drawn attention to the fact that dams would have serious negative impact on fisheries by disturbing migration, and creating bodies of still water to which most species could not adapt (Friend and Blake 2009).

The harvest from wild fisheries in Laos amounts roughly to 64,600 tons or just under 80% of Laos' total fish production (Baran, et al. 2007). For Don Sahong, a controversial dam proposed on the mainstream Mekong in Southern Laos, more than two dozen scientific studies show the dam serves as a bottleneck for fish migration in the basin (Baran and Ratner 2007). Concern has therefore been growing that the impacts, especially on capture fisheries, from dams across the Lower Mekong Basin could be on such huge and wide scale that mitigation would not be possible, forcing policy makers to confront difficult trade-offs between benefits to power exporters vs. the possibility of aquatic ecosystem collapse, with significant livelihood losses to rural people (ibid).<sup>1</sup>

Hydropower development in the region thus brings with it complexity and uncertainty. Comprehensive options assessment, feasibility studies, and on-going sustainability evaluation processes are critical.

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<sup>1</sup> Another sector that would be impacted by large-scale hydropower development is navigation (International Centre for Environmental Management [ICEM] 2010).

## Hydropower decision making in the region

In best-practice project development, strategic planning (e.g. electricity options assessment, various national and regional development plans) takes place in a transparent, objective, and participatory manner. Strategic planning occurs regularly, and precedes various project-level studies. The structure of sustainability guidelines issued by the World Commission on Dams (WCD) and the International Hydropower Association (IHA) reflect this planning ideal. Actual practice in the Mekong region, however, is far from this ideal. For instance, planners at electricity utilities do not include energy efficiency projects (as investment options in their long-term power development plans) in comparison to, and without bias against, more conventional supply-side options such as new hydropower or coal plants (Foran 2006b). In hydropower-rich countries (such as Laos), screening studies exist, but seldom guide prioritization of hydropower sites in a transparent, participatory manner. Hydropower projects instead are developed according to an entrepreneurial and highly exclusive process. The process typically begins with developers bidding with government for exclusive rights to investigate sites. Developers then proceed to generate more refined (but not necessarily comprehensive) knowledge of certain impacts, costs, and returns. This knowledge supports a number of agreements negotiated with governments and buyers. The agreements become increasingly complex. Later, the public begins to learn about a project's details and may sometimes participate in consultations. By this time, the sponsors' flexibility to revise environmental and social performance in response to public input has unfortunately decreased (Foran 2010).

## Thai Power Development Plan - a case study with regional implications

In August 2009 the Hydropower Sustainability Assessment Forum (HSAF), a cross-stakeholder collaboration released a Draft Hydropower Sustainability Assessment Protocol (HSAP) (Hydropower Sustainability Assessment Forum 2009). The HSAP is a multi-criteria evaluation method, in which a number of qualitatively different criteria are scored. These criteria are not weighted to emphasise one more than another.

Many disputes over hydropower projects are disputes over the adequacy of strategic justification for a project. Strategic planning may be debated for a number of reasons. Point of debate could range from demonstrated need (e.g. Does the supply of proposed hydro projects exceed a region's economically efficient demand for electricity?), to disputes about what constitutes appropriate economic development (e.g. Is hydropower-led development an effective pro-poor strategy for a particular region?).

Section 1 of the draft HSAP is designed to help address these questions. From a public interest, high-level sustainability perspective, Section 1 is highly relevant for countries and regions planning significant future expansion of hydropower.

The Thailand case study presented here complements two concurrent case studies of electricity planning in the Mekong region, one focused on Vietnam and the other on Cambodia. All case studies were conducted from January–June 2010 and used Section 1 of the HSAP.

Although focused on Thailand, the PDP has regional implications as well: The Thai power system is the largest in the region. Thailand has been importing power from Lao PDR since 1971. In 2003, Thailand signed a Memorandum of Understanding (MOU) for purchase of up to 3000 MW of power from existing hydropower plants such as the Theun Hinboun (187 MW) and Huay Ho (126 MW). In 2006, the level of power under the MOU was raised to 7000 MW by 2015. Thailand began importing power from Nam

Theun 2 in early 2010. According to the PDP 2010, it will import power from Nam Ngum 2 in 2011; Hongsa lignite power station in 2015–16, Mae-Kok coal station in 2016, and Nam Ngum 3 in 2017 (all Lao exports except Myanmar's Mae-Kok). From 2018–2030 Thailand also plans to import significant amounts of power: 450 MW in 2018 and 600 MW per year thereafter. Although the 2018–2030 imports are not specified by country or technology, it is possible that several could be hydropower from Laos. For example, Nam Theun 1 is in advanced planning, and has Thailand's Electricity Generating Company (EGCO), a subsidiary of EGAT, as a sponsor. Xayaboury Dam on the Mekong mainstream in northern Laos is developed by a Thai construction company, and the Lao government is expected to notify the Mekong River Commission (MRC) in mid-2010 of its intent to proceed. Large hydropower, mainly for export to Thailand and Vietnam<sup>2</sup>, is an important component of Lao PDR's economic development strategy.

### **Text box: Lao hydropower development**

#### *Lao hydropower development*

The Government of Lao PDR (GoL) has 11 operational dams, seven under construction, and 16 in advanced planning (two of which are Mekong mainstream proposals). It has signed preliminary MOU agreements with developers for another 45 hydropower projects (Department of Energy Promotion and Development 2010). Six of the 45 projects are Mekong mainstream proposals.

In the early 2000s, The World Bank commissioned an assessment of environmental and social issues around 21 prospective tributary hydropower projects in Lao PDR (Norplan A/S 2004). Twelve out of the 21 projects will probably resettle 15,000 people, likely to be a minimum figure.

Twelve dams have been proposed on the mainstream of the Mekong: two are in Cambodia, the remaining ten are in Laos or on the Lao-Thai border. Mainstream dams will affect many areas and ecosystems, and communities will be affected by relocations and changes in livelihoods. The number of people potentially experiencing "direct" impacts from twelve proposed Mekong mainstream dams has been estimated at approximately 107,000, 74% of whom are in Lao or the Lao-Thai border region (ICEM 2010) (p188). The approximate number requiring resettlement is approximately 63,000, 53% of whom are in Lao or Thailand.

## **2 Design and Methods**

Our assessment had the following objectives. First, we wanted to use Section 1 of the 2009 draft Protocol to assess the sustainability of Thai energy services planning, with a focus on strategic justification of major hydropower dams called for in the Thai PDP. Second, we wanted to document, reflect, and report on experiences during various stages of the trial. Third, we wanted to facilitate informed multi-stakeholder discussion around development of multiple large hydropower dams in the Mekong region, which are proposed to produce power for Thailand, as well as alternative options to meeting rising electricity demand in Thailand.

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<sup>2</sup> Lao also plans exports to Cambodia (e.g. proposed Don Sahong project on the mainstream Mekong).

We also approached the study with two research questions, both about method:

- Does rapid assessment improve our understanding of sustainability challenges, and if so, how?
- Is the draft HSAP (Hydropower Sustainability Assessment Forum 2009) a good tool for rapid sustainability assessment?

This section begins with a general discussion of ‘rapid assessment.’ This is followed by a discussion of critical methodological choices made by the study team - readers interested mainly in our experience using the HSAP should refer to that section.

## **Rapid assessment**

Rapid assessments are part of a family of research methodologies which pursue action (or change) conducted by small multidisciplinary teams using semi-structured interviews to collect information. Usually the entire process can be completed in one to six weeks. One of the strengths of these approaches has always been their flexibility. They have continued to evolve and the terms associated with them have been used in different ways, to describe a wide range of activities. Weaknesses of these approaches have been the lack of methodological rigor and narrow focus on specific research techniques. It is useful and meaningful if rapid assessments are used in this situation in which issues are not yet well-defined. Over time, these assessments have developed to share the following features: Intensive, team-based qualitative inquiry using triangulation, iterative data analysis and additional data collection to quickly develop a preliminary understanding of a situation from the insider's perspective (Beebe 2001).

In the development field, the pitfalls of the top-down approach to development, the difficulty of making correct appraisals, and the need for a method of enlisting people's participation led to RRA (rapid rural appraisal). There was a lot of disillusionment and discomfort with questionnaire surveys, which was predominantly how rural research was conducted. Many practitioners felt they were cumbersome and tiring. Development professionals were on the lookout for something that could be administered easily and less labor-intensively (Kumar 2002). The variants of rapid rural appraisals and more inclusive participatory rural assessments evolved from these concerns.

Rapid sustainability assessments, for their part, belong to the same genre of rapid appraisals. Gibson noted that rapid sustainability assessments were prompted by the 1987 report of the World Commission on Environment and Development (Gibson 2007). Sustainability as a concept has evolved from one being centered on the interdependence of social, ecological and economic concerns, to one that attends to the multiplicity of intertwined factors in complex socio-ecological systems, accepts uncertainty, favors participative openness and is concerned from the immediate to the long term (2007: 14).

Despite the wide variation, the common characteristics of sustainability assessment are as follows:

- positive contribution to sustainability as the basic criterion for evaluations and decisions;
- scope that is comprehensive of all requirements for progress towards sustainability, and their interrelations;
- focus on net gains as well as avoidance of significant (especially, permanent) losses;

- focus on identifying the best option, achieved in part by comparative consideration of possibly reasonable alternatives,
- attention to the full set of global and regional as well as local sustainability concerns;
- sensitivity to the particular context (ecological, cultural, socio-economic, etc.), achieved in part through direct engagement of stakeholders;
- explicit attention to, and open rationales for, trade-offs among the recognized objectives;
- better decisions that result, achieved in part through incorporating open participative approaches, respecting different interests, and integrating different kinds of knowledge;
- treatment of assessment as an approach to decision making (in the conceptualization, planning, design, evaluation, approval, implementation and monitoring and eventual decommissioning of undertakings), not just a review at a particular stage.

(Gibson 2007: 15-16)

Scholars argue that scale problems plague such rapid assessment methodologies: facilitators tended to ignore or underplay the impact and diversity of national and global power structures, discourses and practices (Parpart 2002). This is relevant especially in the Mekong Region where power structures, development trajectories and discourses on hydropower development may often be contested, oftentimes contradictory than complementary. Other downsides to rapid assessments were the depth of coverage since these were conducted within a limited time frame, thus casting doubt on whether these assessments are able to capture the socially and ecologically embedded nature of projects. Additionally, there are no explicit norms for appropriate levels of public participation, disaggregation of different stakeholder groups and individuals who serve as respondents to these assessments (Mikkelsen 2005). Who gets included as respondents and researchers in rapid assessments may be a product of arbitrary decision-making due to expediency and less rigorous methodological planning.

### Choices made by the study team

We used the August 2009 HSAP, the version available at the time we began our case study in early 2010. We found that several concepts and indicators in the 2009 draft were not clearly specified, requiring careful interpretation before they could be used.<sup>3</sup> This section details a number of interpretative choices we were required to make.

*System, not project focus* – Our case study was an academic (civil society) -led assessment of electricity *planning and governance*, as opposed to an early-stage strategic assessment of one or more *projects* led by a hydropower developer.

*Public interest perspective* – The study is based on our notion of what the ‘public interest’ agenda should be regarding Mekong hydropower development. What constitutes the ‘public interest’ is of course a

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<sup>3</sup> Before we began our assessment, the first author reviewed the 2009 draft Protocol and wrote a discussion paper on its potential and limitations (Foran 2010). We also reviewed reports of the Forum’s second 2009 stakeholder consultation (ARUP 2010), and of trial assessments elsewhere (Hydropower Sustainability Assessment Forum 2010).

matter for interpretation and discussion. Our public interest perspective pays particular attention to social justice (e.g. fair distribution of risks and opportunities). We regard Thai society, although highly unequal, as more prosperous in material terms than its hydropower exporting neighbors. Embedded in modern production and consumption systems, the majority of Thai electricity is consumed by sectors such as industry, commercial buildings, and consumer appliances – in other words, by relatively privileged segments of society. Our public interest perspective directs us to focus on the impact hydropower and electricity planning has on less privileged segments. Those segments include people affected by the project, as well as a range of small farmers distributed across the region who rely on 'common property' Mekong ecosystems such as migratory wild capture fisheries, and other wetland resources (Molle, et al. 2009).

Using the draft Protocol from a public interest perspective required a number of choices. First, the study team considered the sustainability of planning around social, environmental, economic, and political issues (Aspects 7, 8, 9, 4) to all be highly relevant (cf. HSAP, where they are proposed relevant only to developers). By contrast, because of time and capacity limitations, we decided to exclude an assessment of Aspect 6, "Technical Issues and Risks," which covers issues ranging from hydrological variability to seismic stability.

*Importance of regional regime* – Next, we recognized that the Thai PDP process, although relatively autonomous, is situated in an emerging policy framework for sustainable development at the regional level. Thus we also assessed the sustainability of processes led by other actors such as the MRC through its Strategic Environment Assessment (SEA) and the Asian Development Bank's (ADB) Greater Mekong Subregion Energy Strategy.

*Stakeholders* – In line with the public interest perspective, the team found that the HSAP's concept of "directly affected" stakeholder was ambiguous, and in any case too narrow (Foran 2010b) [p. 15-16], and replaced it with more inclusive definitions. For example, we consider that various societies can be considered 'affected' by the PDP options assessment.

*Disclosure* – The quality of access to evidence is not explicitly recognized in the HSAP as an indicator of sustainable planning practice. It is relevant to both the "stakeholder consultation" and the "quality of assessment" attributes. The team chose to classify it under the latter, recognizing that technical credibility is a function of peer review: no disclosure means no peer review, which means no scientific credibility.

We reflect on additional methodological issues as we present each Aspect below.

## **Assessment method**

### **Identification of processes and actors**

The timeframe of assessment is the status quo as of 2010, and (where relevant) changes in planning practice that have taken place since 2005.

Our assessment focuses on the sustainability of the Thai PDP, which is a bureaucratic process administered at the national government level. It was necessary however to also assess other processes relevant to the Thai PDP, most notably regional level processes of the MRC.

The identification of relevant processes and actors – that is, answering the question 'which processes do we need to assess?' – was not a trivial step. First, no guidance is given in the 2009 HSAP on what

institutions and processes are critical to assess. Second, some prior understanding of Thai and regional planning processes was required.

### **Diagnostic questions**

Each sustainability topic ("Aspect") is divided into seven sustainability indicators ("Attributes"), for which a score of 1–5 is to be given, ranging from the lowest to highest levels of sustainability performance. Definitions of those levels appear in the draft Protocol (HSAF 2009: 19)<sup>4</sup>.

We assessed that performance according to a set of diagnostic or screening questions. We derived those questions from guidance notes provided in the draft Protocol, and grouped the seven indicators into five sets as follows:

#### **(a) Quality of an assessment (or management) process**

- *Does process show any logical / intellectual gaps OR areas of non-compliance OR non-conformance? If so, how many gaps? Are these gaps (etc.) "critical" or "non-critical"?*
- *Does the process show high levels of integration (e.g. integration between agencies, integration of diverse sources of knowledge, integration of diverse stakeholders, integration of complexity & uncertainty)?*
- *Does it leverage opportunities OR is it pro-active OR is it adaptive?*
- *Is it reviewed with intent to improve, and if so what kind of gaps exist if any in that review process?*

(adapted from HSAF 2009: 11-12, 17)

"Quality of management process," one of the seven standard indicators, is not precisely defined by HSAP. We interpret it to mean strategic planning, goal-setting, decision making, and implementation processes which are *not* covered by "assessment" and "consultation."

#### **(b) Quality of a consultation process**

In addition to (a), we asked:

- *Is stakeholder mapping and engagement guided by the consideration of rights, risks and responsibilities, and to what extent?*
- *What gaps if any exist in access and transparency of stakeholder engagement processes? Access & transparency issues include freedom to participate, assistance to stakeholders, timing, location, accessibility of information, and feedback procedures.*
- *Are these gaps "critical" or "non-critical"?*
- *How are issues raised in the consultation considered in the decision-making?*
- *Do grievance and dispute resolution processes exist?*
- *Is the level of resource allocation adequate?*

(adapted from HSAF 2009: 13, 17)

#### **(c) Level of stakeholder support**

In its guidance note HSAP (2009: 14) defines this attribute in three ways:

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<sup>4</sup> See Foran (2010) for introduction to the 2009 HSAP.

- support for outcomes
- support for assessment, management and consultation processes around the issue
- extent to which major disputes are resolved

In the first two definitions, the indicator chosen by the HSAP is the *proportion* (ratio) of directly affected stakeholder groups which support or oppose the above outcomes or process. The indicator is thus based on a utilitarian approach to welfare: the larger the proportion in support, the higher the score.

In the third definition, the *intensity* of support or opposition of particular groups also matters, not only the number of affected groups. The third definition is therefore important from the standpoint of recognizing minority positions on an issue.

In this rapid assessment, we did not count the number of stakeholder groups and their support for particular issues. Instead, our assessment reviews how particular dimensions related to electricity planning have been contested, and to the degree to which contested issues have been resolved. In other words, we took an analytical and qualitative approach to the third definition.

**(d) Level of conformance (or compliance)** – The team followed HSAP (2009: 15).

**(e) Level of effectiveness**

The Team noted that the phrase "likelihood of avoidance, mitigation, or compensation" is incoherent, because it creates a heterogeneous set. A more coherent wording is: "likelihood that the relevant process/es will lead to decisions that first avoid, then mitigate, then compensate for a particular issue or risk."

**Scoring**

We assigned scores based on discussion and consensus-seeking. A range of scores (e.g. 2–3) was considered acceptable. Note however that the range 2–3 crosses categories from "Poor" to "Good" which is of course ambiguous. One way to interpret such a score is that indicates divergence in performance: some detectable elements of international good practice mixed with a larger number of significant gaps in performance.

**Aspects and Attributes assessed**

Figure 1 below shows the structure of Section 1 of the 2009 HSAP. Each numerical code refers to a combination of Aspect and Attribute. For example "1.4" refers to level of stakeholder support for the results of the Demonstrated Need process. Grey cells in the table refer to Aspect and Attribute combinations which the draft Protocol regarded as "generally not relevant" for assessment. However, in at least three cases (1.2, 2.2, 9.4), we disagreed that an Aspect-Attribute combination was "generally not relevant." For example we consider that quality of management matters for options assessment, and that level of stakeholder support is relevant to economic and financial issues.

We interpreted Aspect 3 as referring to the supra-national (as opposed to sub-national) region. We considered it worthwhile to rapidly assess the work of 3 groups of actors: the MRC, the ADB, and Thai state agencies. Because a binding legal regime does not exist, *compliance* is less relevant to the Thai state than *conformance* (nor is legal compliance relevant to MRC or ADB). For parsimony, we assessed how MRC and ADB policies and plans "conform" to each other under 3.7, "effectiveness."

**Figure 1 Structure of 2009 draft Protocol showing Aspects and Attributes assessed**

| Section I/ Aspect:                                     | Attribute          |                |                  |                         |                            |                |                   |
|--|--------------------|----------------|------------------|-------------------------|----------------------------|----------------|-------------------|
|  | Quality of Process |                |                  | Level of Performance    |                            |                |                   |
|  | 0.1 Assessment     | 0.2 Management | 0.3 Consultation | 0.4 Stakeholder support | 0.5 Conformance with plans | 0.6 Compliance | 0.7 Effectiveness |
| <b>1. Demonstrated need</b>                            | 1.1                | 1.2            | 1.3              | 1.4                     |                            |                | 1.7               |
| <b>2. Options assessment</b>                           | 2.1                | 2.2            | 2.3              | 2.4                     |                            |                | 2.7               |
| <b>3. Regional &amp; national policies &amp; plans</b> |                    |                |                  |                         |                            |                |                   |
| MRC  | 3.1                | 3.2            |                  |                         | not selected               | not selected   | 3.7               |
| ADB  | 3.1                | 3.2            |                  |                         | selected                   |                | 3.7               |
| Thai state agencies                                    | 3.1                | 3.2            |                  |                         | 3.5                        |                | 3.7               |
| <b>4. Political risks</b>                              | 4.1                | 4.2            |                  |                         | 4.5                        |                | 4.7               |
| <b>5. Institutional capacity</b>                       | 5.1                | 5.2            |                  |                         | 5.5                        |                | 5.7               |
| <b>6. Technical issues &amp; risks (not chosen)</b>    |                    |                |                  |                         |                            |                |                   |
| <b>7. Social issues &amp; risks</b>                    | 7.1                | 7.2            | 7.3              | 7.4                     |                            |                | 7.7               |
| <b>8. Environmental issues &amp; risks</b>             | 8.1                | 8.2            | 8.3              | 8.4                     |                            |                | 8.7               |
| <b>9. Economic &amp; financial issues &amp; risks</b>  | 9.1                | 9.2            | see 2.3          | see 2.4                 |                            |                | 9.7               |

Source: Authors, based on HSAF (2009).

### Presentation of results

To tell our story in a coherent and contextualized manner, we found it useful to depart from the topic sequence of the draft Protocol (Aspects 1, 2, 3 . . . 9). After discussing the core elements of national electricity planning in Aspects 1 and 2, we turn to economic and financial issues (Aspect 9). They are more explicitly considered by Thai electricity planners than the political, environmental and social issues which follow (Aspects 4, 7, 8). Our discussion then moves to consider regional-level policy influences on Thai state (Aspect 3). We use Aspect 5 to help synthesize the findings.

## 3 Thai PDP process: electricity demand forecasting & options assessment

### Background

Thailand's long-term Power Development Plan (PDP) has been the subject of debate and occasional dispute since the late 1990s (Foran 2006a; Greacen and Palettu 2007). The PDP is a traditional supply-side cost optimization study, prepared by Electricity Generating Authority of Thailand (EGAT), the nation's generation and transmission utility, and the single buyer of power produced by independent

power producers. Specific hydropower, coal- and natural-gas-fired power stations proposed as part of the PDP have sparked resistance among organizations representing affected people.

Until 2007 there were no public hearings at all on the PDP. Draft PDPs were reviewed by government agencies, notably Energy Policy and Planning Office (EPPO), now part of the Ministry of Energy (MoE). In 1998, after the Thai financial crisis led to falling demand for electricity, demand forecasting became a target of criticism by Thai civil society. Criticism of options assessment has emerged more recently, at seminars mainly organized by NGOs, academia, and independent agencies (Foran 2006b).

The PDP 2010 included, for the first time, one independent, civil society analyst (from Healthy Public Policy Foundation) in the MoE's PDP subcommittee as well as the working group to review assumptions of the PDP.

Table 1 below shows a number of public and internal MoE events related to the PDP 2010 formulation and approval process.

**Table 1 Ministry of Energy events related to the PDP 2010**

| Date                  | Event  | Type of event |
|-----------------------|--|---------------|
| 7 October 2009        | First meeting of the PDP Sub-Committee   | Internal      |
| 23 November 2009      | First meeting of the Working Group on PDP Assumptions  | Internal      |
| 7 January 2010        | Second meeting of the PDP Sub-Committee  | Internal      |
| 15 January 2010       | Second meeting of the Working Group on PDP Assumptions   | Internal      |
| 26 January 2010       | Third meeting of the Working Group on PDP Assumptions  | Internal      |
| 4 February 2010       | Third meeting of the PDP Sub-Committee   | Internal      |
| 12 February 2010 (am) | Expert meeting on preliminary results of new engineering end-use model   | Expert        |
| 12 February 2010 (pm) | Expert seminar on assumptions underlying the PDP   | Expert        |
| 15 February 2010      | Forth meeting of the PDP Sub-Committee   | Internal      |
| 17 February 2010      | Public seminar on assumptions underlying the PDP   | Public        |
| 3 March 2010          | Fifth meeting of the PDP Sub-Committee   | Internal      |
| 4 March 2010 (am)     | Public seminar hosted by a Senate sub-committee on good governance and the PDP (chaired by Senator Rosana Tositrakul) on load forecast | Public        |
| 4 March 2010 (pm)     | Expert meeting on preliminary results of NIDA's research on GDP forecast   | Expert        |

| Date          | Event  | Type of event |
|---------------|--|---------------|
| 8 March 2010  | Public seminar on the PDP  | Public        |
| 11 March 2010 | Public seminar on draft PDP hosted by Senate sub-committee on Good Governance and the PDP (chaired by Senator Rosana Tositrakul) | Public        |
| 12 March 2010 | PDP draft approved by the National Energy Policy Committee   | Internal      |

Source: Assessment team

## Demand forecasting (Aspect 1)

### Methodological Note

The draft Protocol defines "demonstrated need" quite broadly:

Water and energy services encompass the needs of natural systems/environmental, social and economic sectors (e.g. aquatic habitats, riparian livelihoods, energy production, respectively). . . . This aspect is important in order to support sustainable development objectives at the local, regional, national and transboundary levels. . . . It is also important as it seeks a balanced approach between water management and needs and energy management and needs (HSAF 2009: 23).

Other trials of the HSAP however noted an overlap between Aspects 1 and 3 (Hydropower Sustainability Assessment Forum 2010). We decided to address other development "needs" under Aspect 3, which includes regional policies and plans, and to focus Aspect 1 on electricity demand forecasting.

### Quality of assessment process (Aspect 1.1)

#### Methodological Note

The team found that quality of process "bullet points" (sub-attributes) were less specific – and thus less helpful – than those in Aspect 2 (Options Assessment). We thus used sub-attributes from Aspect 2, with slight modification.

#### Quality of analytical framework and input data

To forecast demand, Thailand's three utilities use econometric, energy intensity, end-use (commercial floor space), and direct survey methods (Vernstrom 2005). Vernstrom notes that all of the above methods are directly or indirectly, sensitive to the assumed rate of GDP growth (2005: 14). Long-term GDP forecasts have until recently been prepared by the National Economic and Social Development Board (NESDB) and the Thailand Development Research Institute (TDRI).

In March 2009 EPPO contracted another independent institute, the National Institute of Development Administration (NIDA), to review GDP forecasting methodology, and also to recommend revisions to various aspects of the process. NIDA provided initial results of its long-term GDP model in December 2009. During the initial expert and public hearing forums on PDP assumptions, conducted in mid

February 2010, the PDP sub-committee proposed to use the “High” GDP estimates from NIDA’s initial results as the basis for load forecast. The proposal faced strong criticisms from civil society representatives. Afterwards, the sub-committee decided to revise this assumption. The PDP draft presented for the final public hearing forum on 8 March adopted NIDA’s “Base” GDP case as the basis of the forecast instead. (The High case assumed GDP growth averaging 4.53% per year for the years 2011-2024. The average rate for the Base case was 4.20% for the same period.)

The U.S. Northwest Power and Conservation Council's long-term demand forecast could be considered an example of best practice. The Council's engineering end-use modeling approach is more complex than econometric models, but apparently a superior method because of its greater reliance on “on-the-ground” information of consumption patterns of different consumer groups. Thus it is less sensitive to the overall GDP estimate. The Council's Sixth Power Plan (2010–2030) includes end-use demand forecasts for residential, commercial, and industrial sectors. These are modeled separately, using parameters such as annual % growth in population, residences, appliance ownership, commercial floor space, and manufacturing output (Northwest Power and Conservation Council 2009).

EPPO has commissioned Thailand's Energy for Environment foundation (EfE), a non-profit organization, to develop an end-use model. The 2010 load forecast did not use the new model as only initial results are available. When finished, model and results could be applied in the future.

*Quality of input data* -End use modeling requires ongoing surveys. Systematic surveys organized by the power utilities were discontinued after the 1997 Thai financial crisis.

#### **Score for Aspect 1.1 – Poor to Good**

The willingness to use a lower GDP value (the output of the NIDA model) is a conservative decision from a sustainability standpoint.

On the other hand, a number of significant gaps still exist, including limited treatment of uncertainty and lack of a fully parameterized and up-to-date end-use model, more than 10 years after the 1997 crisis.

#### **Quality of management process (Aspect 1.2)**

##### **Methodological Note**

This criterion was coded as not relevant by HSAP but is regarded as relevant by the team.

*Initial policy and plan* – Initially, the MoE and the PDP sub-committee have shown a clear intention to improve the PDP process significantly, both in terms of participation and transparency of the process as well as the quality of the analysis underlying the process.

The inclusion of independent analysts who have voiced critical comments on the PDP process in the past into the PDP sub-committee, as well as the approval of the “Policy on the Revision of the Power Development Plan of Thailand” (EPPO 2010b) in the very first sub-committee meeting, signaled a good intention to encourage transparency and public participation. The policy document stated that the PDP process will

put emphasis on the participation of civil society, transparency and verifiability of the process as well as information sharing with the public. All stakeholders should be able to participate in the process. There will be a small group forum on the PDP assumption as well as another public hearing after the new PDP draft is approved by the PDP sub-committee, before the submission for approval by the Nation Energy Policy Committee.

(EPPO 2010b) [authors' translation]

On the other hand, in terms of improving the quality of the process, EPPO has contracted two research projects: (1) on long-term GDP forecast, conducted by NIDA and (2) on end-use demand forecast model, conducted by EfE. These two studies were expected to be completed in early 2010. If the PDP process was conducted according to the original plan, inclusion of these research results would have increased the quality as well as reliability of the load forecast analysis.

*Political decision to expedite process* – It is unfortunate, however, that around the end of 2009 and the beginning of January 2010, there was an attempt by the Ministry of Energy to expedite the PDP 2010 process. The PDP sub-committee was informed that the target was to have the new PDP 2010 released by January. Maintaining this dateline would have forced the sub-committee to abandon some of its initially agreed participatory policies, as well as to completely omit the results of the above two studies. In the end, the January dateline was not kept and the PDP 2010 process was conducted with a fair level of public participation. However, this only happened after strong pressure from civil society members of the Ministry's PDP sub-committee, and the Senate's sub-committee on the PDP. An official we interviewed regarded the Minister's decision to expedite the process (rather than extend it until April or May 2010) as less than ideal. But he explained that this is not surprising given the instability of the Abhisit government in early 2010 in Thailand.

*Management of changes in demand* - One energy official we interviewed stated that the difference between the high and low load forecast was less important if forecasts can be regularly updated. This underscores the importance of re-initiating the surveys on end-use and regularly updating the end-use model. Another official explained that if demand was less than forecasted, in the past EGAT would honor power purchase agreements signed with the private sector, and defer building its own plants (Interviews A and C, 26/4/10).

### **Score for Aspect 1.2**

Based on the above discussion, the assessment team feels that the appropriate score for this sub-attribute is between “Poor” to “Good”. It should also be noted that if the PDP process had been carried out according to the policy and schedule set forth in the first PDP sub-committee meeting, with the results of both research projects incorporated into the load forecast process, it would have been likely that the scoring for this sub-attribute could be in the range of “Very Good” or “Excellent”.

### **Quality of consultation process (Aspect 1.3)**

Meetings of the MoE sub-committee and working group to review the PDP were organized with such short notice that the designated representative from Healthy Public Policy Foundation could not attend, and was forced to send a representative (Interview I, 10/4/09).

Table 1 above shows the official consultation process around the PDP 2010. In total, the PDP sub-committee has conducted one half-day expert hearing (on PDP assumptions, on 12 February) and two half-day public hearings (on PDP assumptions, 17 February; on the draft PDP, 8 March) during the

course of the PDP 2010 process. For these events, there were frequent comments from NGO representatives on the late notification about the hearing forums as well as the late publication of the documents for the hearing. In one case, the consultation materials were not available until the hearing started. Such delays significantly limit the capacity of the stakeholders to effectively participate in the hearing process. Moreover, these events were dominated by speaker presentations with insufficient time allocated to public comment.

*Lack of neutral space and facilitation?* – Organization of the event in plenary in a large formal hotel ballroom may have intimidated some stakeholders.

The moderator, an academic from Thammasat University, is apparently a proponent of nuclear power. During the 17 February 2010 event we observed that he signaled his approval to comments from an audience member in support of nuclear development.

*Consultation process and the final plan* - Although the hearing process itself had some shortcomings, in the end, after the first two hearings, the PDP sub-committee decided to use the “Base” GDP case from NIDA’s study as the basis of the load forecast used in the PDP 2010. This decision corresponds to suggestions made by NGO representatives at the hearings. We could not determine the extent to which such comments informed the sub-committee’s decision. However, the sequence and outcome suggest the consultation process made a difference from a sustainability perspective.

### **Score for Aspect 1.3**

Based on the above review of evidence, the team gave a score between "Poor/Minimal" and “Good” to the consultation process.

### **Level of stakeholder support (Aspect 1.4)**

Civil society organizations have long complained that the load forecast is biased high (Greacen and Palettu 2007). They argue that GDP is biased high for a number of reasons: first, state planning agencies such as the NESDB have an incentive to frame the economy as growing strongly. Second, they point to a conflict of interest in which over-forecasting facilitates over-investment. This occurs in a rate-based ("cost-plus") regulatory environment with limited independent regulation.

As evidence of over-investment these analysts have pointed to the "reserve margin," which has often risen significantly above the 15% standard set by MoE.

NGOs have offered alternative forecasts of GDP. These however have been rejected by MoE as inadequate because they underestimated actual load growth.

Other stakeholders such as the World Bank (a sponsor of Nam Theun 2) have commissioned independent analysis generally supportive of Thailand's load forecasting process (Vernstrom 2005).

In terms of the current PDP process, the attempt from the Ministry of Energy to expedite the PDP process without any clear explanation has induced even stronger skepticism among the civil society sector. The decision of the PDP sub-committee to switch the GDP growth data used in the process from NIDA’s “High” case to “Base” case may have partially alleviated the concern. But there are still a number of issues that have not been resolved. Examples of these issues are:

- (1) Some stakeholders feel that the end-use model is a much better methodology in estimating future demand. Thus, the results of Efe's research should be incorporated into the process, not only NIDA's GDP results.
- (2) No consideration was given to the issue of alternative scenarios for the country's overall economic development, including the relationship between electricity demand and the population or social structures.
- (3) Government can and should impose policy measures to lower the GDP/electricity elasticity and the impact of such measures should be incorporated in the forecast.

#### **Score for Aspect 1.4**

Based on the above review of evidence, the team gave a score of "Poor" for this attribute.

#### **Effectiveness (Aspect 1.7)**

##### **Methodological Note**

"Effectiveness" needs to be redefined for the purpose of this assessment. Based on the equivalent definition from Options Assessment (Aspect 2), the team defined it as "the degree to which the demand forecasting process guides choices based on sustainability criteria."

##### **Findings**

The load forecasting process in Thailand has been politicized because of its perceived direct link to power plant construction. After the 1997 Thai financial crisis, the National Energy Policy Office (today named the Energy Policy and Planning Office (EPPO)) continued to promote the necessity of building two new privately owned coal-fired plants. Sustainable energy advocates argued excess power generation capacity made those plants unnecessary. Government analysts familiar with events at the time hinted at manipulation of the load forecast by senior officials (pers. comm. to T. Foran).

After the Thai financial crisis, during the 2000s, NEPO/EPPO could have moved more quickly to re-invest in surveys needed to run end-use engineering load forecast methods. Such models may allow greater clarity about growth in demand, including when particular power plants need to enter the system under various scenarios (e.g. including different levels of investment in energy efficiency). From a Thai buyer, public interest perspective, society derives economic benefit from every year that it can meet energy demand needs with existing capacity, or combinations of existing supply-side capacity and demand-side energy efficiency programs.

To expand on this point: the consuming society derives benefit in other words from deferring investment in new power plant until really needed. The benefit is generated because power plants are capital intensive, and because the time value of money (discounting) makes it preferable to defer costly investments into the future (Swisher et al. 1997: 144-145).

After the 2008 global financial crisis, EPPO commissioned a revised load forecast, with lower demand. As discussed above, EPPO also adopted the results of a new econometric model. These events could be interpreted as a lessening of gross political interference in the load forecast (and options assessment) by any particular actor.

In summary, moves by MoE since 2008 to revise the methodology and data collection improved the credibility of the process. However, ongoing complexity of the load forecast models, and the lack of an

integrated planning methodology does not help promote energy efficiency as a resource. The degree to which Thailand can pursue alternative, less energy-intensive industrial development has been raised by NGOs (see Aspect 1.4). But the use of alternative scenarios, either to explore industrial trajectories or the effect of various demand-side management (DSM) programs, is not yet an established part of the methodology. However, the methodology is still in flux. In 2010, political pressure to expedite the load forecast and PDP process sparked criticism by sustainability advocates.

### **Score for Aspect 1.7**

Based on the above review of evidence, the team gave a score between "Minimal" and Good."

## **Options assessment (Aspect 2)**

According to the 2010 draft plan, Ministry of Energy planners believe Thailand will need to more than double its power generation capacity – from 31,349 MW as of 2010, to more than 66,000 MW in 2030 (EGAT 2010). Figure 1 below shows that the options slated to play a major role in this 103% planned expansion of capacity are imported electricity (mainly from hydropower but also from coal); new bituminous coal-fired plants; renewable power; and (beginning in year 2020) nuclear power.

### **Quality of assessment process (Aspect 2.1)**

#### **Degree to which the options assessment covers the full range of planning approaches to meet demonstrated needs**

*Not integrated* – The analytical framework does not treat supply and demand side options symmetrically as rival options to meet increased need for energy services. By contrast, under an integrated resource planning (IRP) framework, demand-side and supply-side options are given balanced treatment, with the objective of investing in the least-economic cost first (Swisher, et al. 1997). The lack of integration results in mis-matches in the planning horizon: the PDP has a fifteen- or twenty-year planning horizon, but demand-side planning has thus far been a five-year exercise.

*No use of Strategic Environmental Assessment* – An SEA was apparently commissioned recently for nuclear power development in Thailand. The extent to which it will inform the next PDP depends on the quality of that analysis and how it is used by different stakeholders.

#### **Quality of analytical framework**

The analytical framework is a supply-side optimization of financial costs, constrained by typical criteria such as reliability (loss of load probability). It has also been constrained by strategic assessment of public acceptability (EGAT 2008).

*No analysis of uncertainty* – The framework focuses on cost but not risk. By contrast, the U.S. Northwest Power and Conservation Council uses a sophisticated treatment of uncertainty, which could be considered proven best practice. The Council's analysis takes into account uncertainty in future power prices, future demand, hydropower generation, power plant construction costs, as well as the possibility of a future price on carbon emissions (Northwest Power and Conservation Council 2009).

*Treatment of hydropower*– Critics have argued that hydropower is privileged in the "least-cost" planning processes. Apparently, unlike coal, natural gas, or (most recently) nuclear alternatives, hydropower cost-performance data are not input into EGAT's cost optimization model (Greacen and Palettu 2007).

Justifications we have heard for importing power include the following:

1. For energy security / as diversification – subject to constraint limitations based on *number of countries* from which imports are source suppliers (Chiang Mai University Engineering work in progress cited by MoE);
2. Based on the fact that MOUs have already been signed with neighbors;
3. Based on the fact that Thailand's neighbors are developing countries with lower levels of electricity demand and growth as well as higher levels of resource abundance. Trading of power will be beneficial for both sides. Uneven levels of development between neighbors is not in Thailand's national interest (Interview A, 26/4/10);
4. The imported power in the PDP is not specified by technology. In order for EGAT to finally agree on import of power from a particular plant, the cost of that power must be competitive with the cost of alternative plant of equivalent category (e.g. base load, intermediate, or peaking). Such decisions are taken in the medium-term. The specification of import amount in the PDP is not completely binding.

*Outdated conceptualization of reliability?* In the PDP 2010, all forms of renewable energy are assumed to be lower in reliability than non-renewable energy. Solar and wind energy are assumed to be variable and intermittent, the former because of Thailand's cloudy climate. Biomass power is assumed to be subject to seasonal shortages in feedstock. These assumptions reflect consensus of opinion among planners but would be more credible if backed by academic citations. Elsewhere, energy planners conceive of renewable energy as networks of distributed generators which can be integrated into hybrid systems which then have the benefit of helping stabilizing grids (Mendonca, et al. 2010).

### **Range of options**

*Options to diversify from natural gas* - During the second half of 2009, a number of natural gas supply disruptions occurred. The most prominent incident happened on 15 September, when natural gas supplies from three different gas fields were disrupted, including JDA (planned maintenance), Bongkoch, and Yadana (emergency shut-downs). In the attempt to maintain electricity supply in order to secure the system, EGAT decided to increase electricity production from five hydropower dams, two of which were on the main tributaries of Mae Klong river. A very large amount of water was released, causing rapid flooding and damages along the Mae Klong river. This incident created a lot of concern among relevant agencies regarding security of the natural gas supply, in particular, from major sources outside Thailand.

The assessment team feels that such concern is legitimate and should be addressed. The major question is how to deal with such a risk. One of the proposals was to increase the requirement for the reserve margin from the current level of 15% to “more than 20%” (EPPO 2010a) (slide 15). This proposal has received a lot of criticism from the NGO community and eventually was dropped from the plan. Another proposal was to reduce the level of dependency on natural gas and increase the diversity of energy sources. This proposal was apparently adopted. The share of natural-gas-based installation capacity in the final PDP 2010 gradually declines, from 68% in 2010 to 39% in 2030 (as the system doubles in capacity). This significant shift in the long-standing power generation policy happened with very little discussion regarding its implications and/or other possible policy options. One of the options proposed

by NGO representatives was to create natural gas reserve stock to be used as a buffer for unexpected supply disruptions.

*Expanded use of renewable energy* – Compared to previous plans, renewable power has been assigned a greater role in the most recent PDP. Prior to the PDP 2010, certain kinds of private power producers were only recognized for their contributions to demand reduction. Energy (kWh) from these projects was subtracted from the load forecast. The PDP 2010's inclusion of the power (MW) from these small projects allowed them, for the first time, to be compared against large power stations on grounds of cost, reliability, and social acceptability. (These projects include very small power producer [VSPP, 1–10 MW] and "non-Firm:small power producers" [SPP, 10–90MW]).

### **Degree to which prioritization of options reflects a balance of sustainability criteria**

The method of prioritization is not made fully explicit. A presentation made by EPPO (EPPO 2010a) (slide 8) proposes three general criteria:

- system stability, including: reserve capacity, fuel diversification, and electricity imports (60%);
- environment, including: DSM, [domestic] renewable energy, cogeneration, and CO2 emissions (30%);
- load forecasting (10%)

The number in parentheses is somehow a proposed "weight" assigned to each of the above categories. However the above classification is not logically coherent. No explanation is given as to why load forecasting competes against the other two categories. DSM is classified as good for "environment" whereas in fact it also, of course, produces system benefits, including reduced need for imports, for other domestic supply, and for distribution.

The 2010 PDP's proposal to invest in nuclear power has been justified as a "green" response to limiting GHG emissions. Figure 2 below shows that the rate of domestic renewable power growth is modest compared to that of imported power, new coal, and nuclear power. Critics have pointed to the relatively limited role envisaged for renewable power and energy efficiency in the 2010 PDP.

### **Quality of options assessment input data**

Cost estimates for alternative power plants are presented as point estimates. (As noted above, the framework does not explore future uncertainty.)

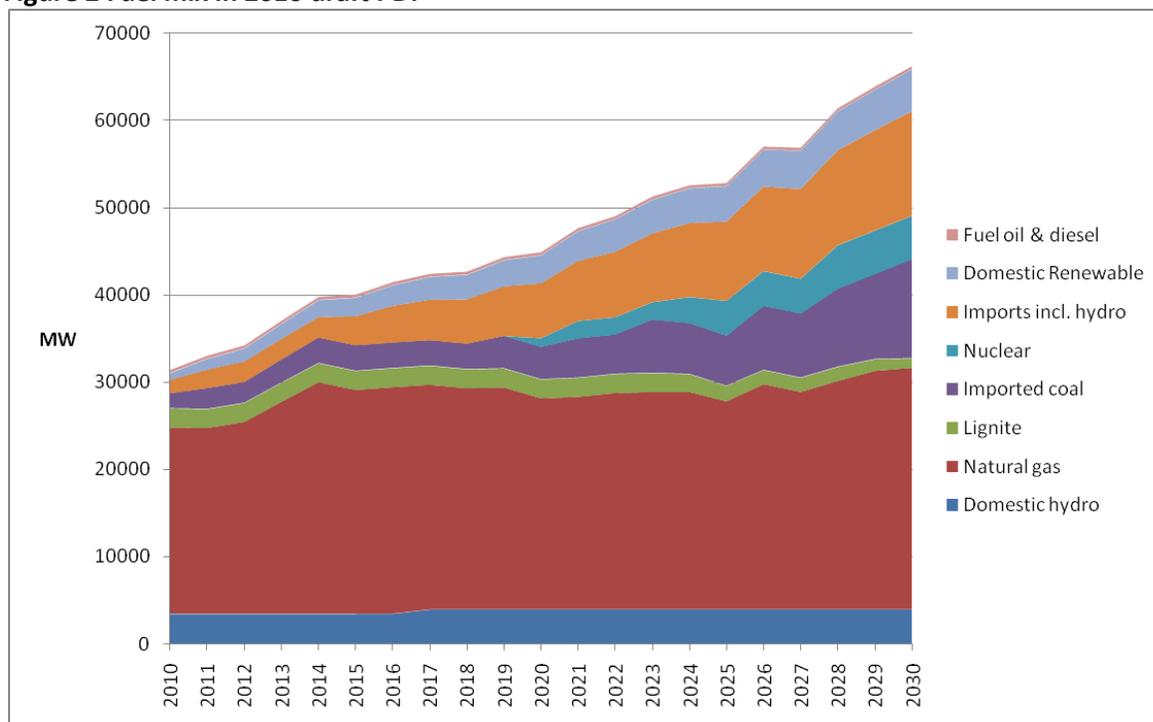
Cost-performance data for all imported power including hydropower are not disclosed in PDP.

We noted above that in the PDP 2010 (as well as in previous versions), all forms of domestic renewable energy are assumed to be higher cost, and lower reliability, than non-renewable energy (EGAT 2010). However, for small domestic renewable power, gaps appear to exist in the MoE's reliability data: MoE used data supplied by an NGO. On the one hand, this indicates openness to receiving input from civil society. On the other hand, it indicates lack of attention to an important parameter.

### **Score for Aspect 2.1**

Based on the above review of evidence, the team gave a score of "Poor/Minimal" to the assessment process.

**Figure 2 Fuel mix in 2010 draft PDP**



Source: based on data from EGAT (2010).

### Quality of management process (Aspect 2.2)

#### Methodological Note

Although coded as generally not relevant in draft HSAP, the team felt that the complexity of options assessment calls for a well governed assessment management process.

#### Findings

*Disclosure* – The analysis is not made fully explicit: the PDP is a summary of detailed optimization analysis rather than a detailed presentation (cf. Northwest Council 2009). Thus although the PDP claims to be the result of a least-cost planning process, costs of alternative plans are not presented by MoE.

*Conflicted interest of modeling experts?* – As noted above, analysis is conducted by Electricity Generating Authority of Thailand (EGAT). EGAT is the nation’s generation and transmission utility, and the single buyer of power produced by independent power producers. For the PDP 2010, EGAT modeling experts were instructed by EPPO on what key input parameters to use in the detailed power system planning model. We have no reason to doubt that EGAT analysts follow those instructions, however it would be preferable if the model was run in parallel outside EGAT.

*Recognition of need for ongoing improvement studies* –An official responsible for managing the PDP process acknowledged a number of limitations in the PDP 2010, notably the accelerated schedule given by the Minister, the lack of alternative policy scenarios (going beyond alternative assumptions of GDP growth), as well as lack of data on externality costs and reliability of renewable energy. The official noted the shortage of staff in EPPO's power division, and expressed interest in cooperating with academics to improve the next PDP. We were told the multi-stakeholder PDP preparation sub-

committee would still continue its work. It was not clear, however, whether an action plan exists to deal systematically with the above gaps in the assessment process, or whether we heard a more general verbal commitment to improve (Interview A, 26/4/10).

### **Score for Aspect 2.2**

Based on above evidence, a score between "Minimal and "Good" may be justified.

### **Quality of consultation process (Aspect 2.3)**

Describing the planning process in the mid-2000s, Foran (2006b) argued that:

EGAT's Power Development Plan (PDP) emerges from a closed planning process that begins with a national load forecasting sub-committee and ends with approval by the Cabinet. The process has extremely limited civil society participation, no oversight by parliament, and limited participation by other stakeholders. Of all the agencies involved, EGAT plays a major role in shaping the details of what appears in the PDP, particularly plant size, fuel source, and location. These conditions prevailed in the 1980s, at the time Pak Mun [Thailand's most controversial dam] was identified as a potential addition to the Thai power system. They prevail today. The continuity surrounding the PDP process is remarkable considering the dynamism [around privatization] surrounding EGAT.

Since 2006 the assessment and consultation process has opened up. However, it is still subject to limitations presented outlined in Aspect 1.3 above.

### **Score for Aspect 2.3**

Since the consultation process is essentially the same as in Aspect 1, the same score ("Poor/Minimal") is given.

### **Level of stakeholder support (Aspect 2.4)**

A small sustainable energy advocacy network exists today in Thailand. The network consists of civil society organizations working closely with people opposed to power plant construction in particular regions, along with policy-oriented groups promoting softer development paths (Foran 2006b).

Sustainable energy advocates believe much more aggressive development of energy efficiency and small domestic renewable energy options is possible, as well as repowering of existing power plants (Decharut Sukkumnoed 2007; Foran 2008; Greacen and Footner 2006; Witoon Permpongsacharoen 2004). In general, this network believes that large power plants should be avoided to the extent possible. The first public seminars (i.e. hearings) organized around the PDP (in 2007) were disrupted and boycotted by network members opposed to the process.

The Federation of Thai Industries is an industry association that represents large electricity consumers. It also has members involved in power generation and related businesses. This actor has been critical of electricity tariff increases but regarding the PDP has generally not been vocal in terms of support or criticism.

Representatives from renewable energy businesses by contrast have criticized the PDP for what they see as unrealistically low plans to purchase solar power.

## Score for Aspect 2.4 – "Poor"

### Effectiveness (Aspect 2.7)

#### Methodological Note

The sustainability criteria suggested in the guidance note (HSAP 2009: 25) focuses on hydropower, as opposed to comprehensive options assessment. The team however considered that "increasing effectiveness [of existing infrastructure]" was consistent with improving energy efficiency throughout the system, whereas "avoidance of impact, followed by minimization and mitigation" was consistent with prioritizing energy efficiency first, followed by small scale, distributed renewable energy systems.

#### Score for Aspect 2.7

To what degree does options assessment guide development choices based on sustainability criteria? The assessment detected a number of important gaps in quality of options assessment, quality of consultation, *and* level of stakeholder support. For this reason it is difficult to rate effectiveness from a sustainability perspective as entirely "good." The score given is between "Minimal" and "Good."

## 4 Economic & financial issues (Aspect 9)

#### Methodological Note

The assessment team finds that there is ambiguity in terms of the definition of this aspect. In evaluating a particular hydropower project, the concern of the developer would be on the possibility and/or the risk in recouping his/her investment plus returns. So the financial risks would be the issue that is more important. But when the evaluation is done from the perspective of the governmental agency, then theoretically the economic risks should be the major issue instead. However, in a lot of cases, the difficulty in evaluating non-monetary costs often limits the capability of government agencies in considering non-financial issues and risks. The evaluation results for this aspect could be considerably different depending on whether the evaluation is done from an economic or a financial perspective.

#### Quality of assessment process (Aspect 9.1)

The selection of power plant options to be included in the PDP is based primarily on the cost of each energy source. The cost data used in the comparison, however, are mostly deterministic cost data – except for the case of waste-to-energy and biomass energy (EPPO 2010c). Hence, there is practically no consideration about the risks related to investment cost and/or fuel cost estimates in the PDP process. The recent volatility in fossil fuel prices is a prominent example of the significance of financial risk related to fuel costs that should have been incorporated in the process. Another prominent risk would be the risk of higher than expected investment cost for nuclear power. The assessment team feels that the nuclear investment cost data used in the PDP is rather conservative and there is no adequate consideration of its risk.

The lack of adequate consideration of investment cost risk is even more serious when we consider the case of hydropower.

*Disclosure* -A number of hydropower resources were included in the PDP, but there is no disclosure at all about the cost of any of these resources – financial or economic. Similarly, the total cost of alternative portfolios is computed, along with an estimation of the tariff, but not disclosed. The omission of these

costs is surprising given that capacity and energy cost estimates are provided for other technologies, e.g. natural gas, nuclear, coal, biomass, wind, and solar.

In any case, much of the PDP discourse that refers to hydropower from neighboring countries is framed as trade and the financial costs of importing power as a commodity. A purely financial view predicts that Thailand is expected to benefit from the increased level of power imported from Lao PDR in terms of the lower energy system cost and greater diversification of energy sources (Watcharejyothin and Shrestha 2009).

*Economic versus financial costs* -All the cost data used in the PDP process only involve financial costs. No data on social or external costs are considered in the selection process. The environment costs incurred from the emissions of pollutants from fossil fuel combustion, the social and ecological impacts of hydropower dams, the risks related to the operation of nuclear power plants and/or the handling of nuclear waste – all these economic costs and risks are not considered in the process.

### **Score for Aspect 9.1**

Based on the above review of evidence, the team gave a score of "Poor" to the assessment process.

### **Quality of management process (Aspect 9.2)**

Logically, the poor quality of the assessment process reviewed above imposes significant limitations on the capability to formulate management plans in dealing with economic and financial risks.

An official closely involved in the PDP process was not comfortable with the fact that only financial costs were used to meet the PDP 2010's accelerated timetable for completion (Interview A, 26/4/10). We heard public declarations of intent to include externality costs in the next PDP. EPPO has commissioned at least one recent study of externality costs (by the Joint Graduate School of Energy and Environment) but not formally accepted those results yet.

### **Score for Aspect 9.2**

Based on the above review of evidence, the team gave a score of "Poor" to the management process.

### **Quality of consultation process (Aspect 9.3)**

Evaluation of this aspect is covered in the discussion of Aspect 2.3.

### **Level of stakeholder support (Aspect 9.4)**

Evaluation of this aspect is covered in the discussion of Aspect 2.4.

### **Level of Effectiveness (Aspect 9.7)**

#### **Likelihood of avoidance, mitigation or compensation of economic and financial issues and risks**

Due to the poor quality of the assessment process as discussed above, the PDP2010 is highly susceptible to both financial and economic risks, especially the risks related to fuel price volatility as well as environmental impacts of the proposed plan. However, compared to previous plans, the new PDP 2010 has a lower risk to fossil fuel price volatility. This is due to a much lower dependency of natural gas as

well as the increase in the use of hydro, coal and nuclear power. The correlation between the prices of oil and natural gas is much higher than between the price of oil and the price of coal or nuclear fuel.

### **Likelihood of the project delivering economic and financial benefits**

The assessment team feels that there is a need to separate the discussion on this sub-attribute in terms of financial risks and economic risks, because the results of the evaluation are different from the two perspectives.

In terms of financial perspective, the assessment team feels that the likelihood of the PDP in delivering the “expected” financial benefits is good. The financial result of the plan is one of the most important considerations of the whole process. Even though there are a number of financial risks, most notably the risk of fuel price volatility, the team believes that, on average, the risk would not be so disruptive. The current crude oil price is already at a relatively high level. The future price could increase or become volatile during some period of time, but on average, the expected increase in price should not be unacceptably large.

From the economic perspective, however, the assessment team feels that the likelihood of the PDP in delivering the “expected” economic benefits is low. A lot of social and environmental costs exist and were not considered in the process. These external costs would significantly reduce the expected economic benefit of the plan.

### **Score for Aspect 9.7**

Based on the above review of evidence, the team would give a score of “Good” for financial effectiveness and a score of "Minimal" for economic effectiveness.

## **5 Environmental, social & political issues**

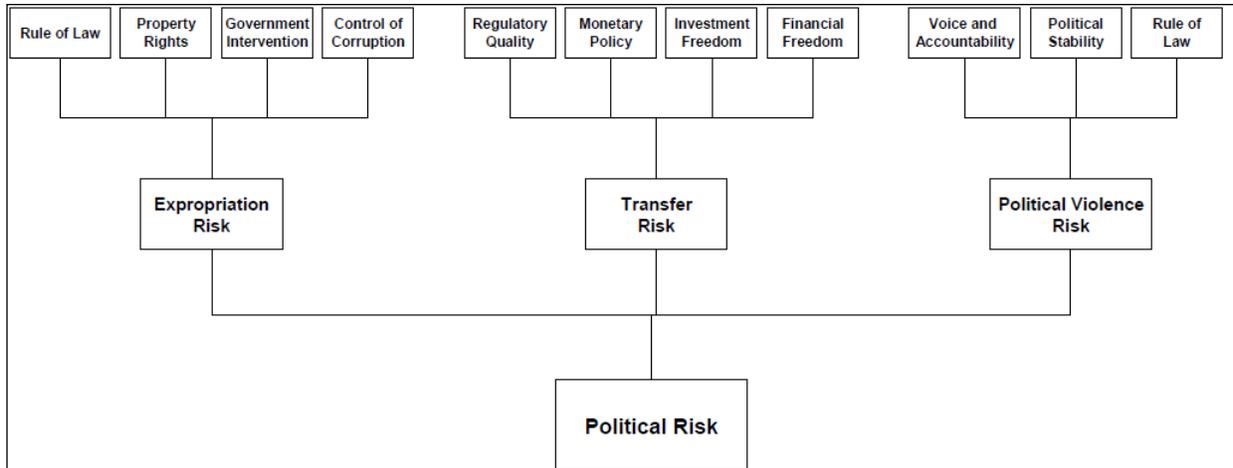
The purpose of this section is to describe the PDP process with a focus on assessment and management of environmental, social, and political risks, and to assess sustainability of those processes using the draft HSAP.

### **Political issues and risks (Aspect 4)**

As typically defined, the concept of "political risk" is framed in terms of risks *to developers* (not to affected people or wider stakeholders). The focus is on risks that originate from countries that host a particular investment, including the risk of political violence that may occur within host countries.

Figure 3 shows how political risk can be divided into expropriation risk, financial transfer risk, and risk of political violence. The 2009 Protocol also requires an assessment of 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 of HSAP is that political issues and risks are well understood and managed. As the protocol notes, a government's failure to observe and enforce the rule of law may affect the cost and terms of finance for hydropower projects.

### **Figure 3 Conceptual framework for political risk**



Source: (Ferrari and Rolfini 2008)

In general, the countries of the Mekong region do not rank highly in terms of corruption and transparency. A political risk index constructed by Ferrari and Rolfini (2008) based on World Bank data ranked Myanmar and Laos as highest risk (in the first quintile) for expropriation risk. Myanmar, Laos and Vietnam were ranked in the first quintile for transfer risk. Similarly, Myanmar and Cambodia were ranked in the first quintile for political violence. Their study was based on 2007 governance data from World Bank and the Heritage Institute.

During the past decade, however, Laos seems to have emerged as an attractive destination for hydropower foreign direct investment. In the 1990s Laos had a limited track record with complex partnerships, but this changed during the course of developing Nam Theun 2. At that time, critics of Nam Theun 2 (such as International Rivers) claimed that the guarantees would create a "moral hazard" by encouraging investors to invest in complex and costly large-scale projects which were highly risky given the underdeveloped regulatory environment. (The concept of moral hazard refers to a context in which investors engage in risk-seeking behavior with the assumption that public institutions will subsidize any losses their investments incur.) The World Bank, seeing need worldwide to bring the private sector in to finance infrastructure, developed new types of political risk guarantees (Wyatt 2004) (p87-88). By the late 2000s, many MOUs had been signed, Laos' largest project to date was completed (Nam Theun 2), and several more were under construction.

In addition to Laos, Thailand has also signed MOUs with Myanmar (1500MW) and China. The feasibility of building a coal-fired plant in Cambodia was also being studied by Thai developers as of 2008.

#### Quality of assessment process (Aspect 4.1)

Although the concept is framed in terms of risk to developers, this does not necessarily mean that risks of social conflict involving affected people are ignored. The extent to which risks of social conflict are considered depends on the particular assessment framework used by particular actors.

#### Quality of the process leading to an understanding of political risks

*Assessments by Thai state agencies* – It is not clear if Thai MoE (including EGAT) conducts any assessment of political risk, as defined above. No such assessments have been disclosed. The only acknowledgement of risk from imports presented during the PDP 2010 consultations was quite indirect. MoE showed a slide relating the maximum proportion of power that should be imported (as a share of demand) to the *number* of countries from which imports are sourced. It was not clear if this analysis was based on technical or political considerations. MoE stated that the analysis (apparently originally commissioned by EGAT) was being updated by researchers at Chiang Mai University.

*Assessments by lenders* – Lenders to project-financed hydropower companies (see Text Box) are known to seek political risk insurance from third parties. Agencies that provide such insurance include IBRD (International Bank for Reconstruction and Development) and MIGA (Multilateral Investment Guarantee Agency) both of which are part of The World Bank. Other insurers include state-owned agencies such as China's Sinosure.

IBRD provided political risk insurance to Nam Theun 2. More recently, it has reviewed environmental and social planning around the Nam Ngum 5 (NN5) project. (NN5 has been approved by the Government of Lao, is under construction, and will sell power to Thailand not earlier than 2011.) Such a review is part of MIGA's process of negotiating the terms by which it might provide political risk insurance.

The study team did not directly access analysis by MIGA. It is not clear if such assessments have been disclosed. However, MIGA made four visits to the site between 2007–2010, and also funded revisions to the Social Action Plan (Yu Yin and Lazarus 2010).

### **Scoring**

As with environmental issues, we encountered problems with disclosure of political risk assessment. For this reason alone it is difficult to give a score of "Good." Therefore the score for MIGA's assessment processes is "Poor–Good" and the score for the Ministry of Energy is "Very Poor–Poor."

### **Text box: Project finance**

#### *Project-finance of Mekong hydropower*

The typical corporate structure for investment in large Mekong hydropower is that of a public-private partnership. Such partnerships are commonly structured according to principles of "project finance" (Yescombe 2007). An independent project company is formed for the specific purpose of developing the hydropower project and operating it during the course of a 25-30 year concession period. After the concession period, ownership may be transferred to the state. The company is owned by investors, who contribute equity (e.g. 30% of total project cost). The remainder of the project cost (e.g. 70%) is funded by loans. Lenders have traditionally been international finance institutions (such as World Bank or ADB), but it is now common to see large commercial banks and other Asian-based financiers (such as state-owned China Export-Import Bank) acting as lenders.

### **Quality of management process (Aspect 4.2)**

#### **For governments, planning to address political risks**

*Planning by Thai state agencies* –Thai agencies do not appear to have engaged directly in any bilateral initiative with electricity suppliers directed at reducing corruption or promoting sound fiscal management.

Management planning instead appears to be reactive. In 2004 and 2007, two EGAT staff were killed in separate incidents near the site of the proposed Hutgyi Dam in eastern Myanmar. EGAT withdrew from the project in late 2007 (Magee and Kelley 2009). Ministry of Energy subsequently signed MOUs to increase the volume of power Thailand would purchase from Laos.

However the turn to Laos does not mean that MoE staff have rejected the possibility of importing hydropower from projects on the Salween River in Myanmar, including Hutgyi. Some see having a Myanmar option as attractive in terms of providing a bargaining point for Thai-Lao price negotiations. Other MoE officials we interviewed stated that the Ministry would review proposals to sell power from viable projects, but would not lead the implementation of procedures to assess the social, environmental and political performance of multiple projects. They argued that parallel processes of criticism existed in Thai civil society. The Ministry would consider purchases from projects that survived such civil society review processes (Interviews A, D, 26-27/4/10).

*Planning by World Bank* – IBRD, as a condition of providing a \$100 million political risk insurance for the Nam Theun 2 project, apparently required the Lao government to issue a counter-guarantee (Wyatt 2004:87-88).

Under the "Revenue Management Arrangement" for Nam Theun 2, Government of Laos revenues from this project are meant to be spent on health, education, and rural roads.

In addition, World Bank and ADB have also supported the Public Expenditure Management Strengthening Program, a technical assistance package aimed at reforming public expenditure systems in Laos (Asian Development Bank (ADB) 2007; Lawrence 2009).

World Bank attaches considerable significance to those reforms:

The [Lao government] has been undertaking a considerable number of important reforms in the last four years that are helping to establish a more rational and consistent public financial management system. From acquiring and storing data in a more comprehensive manner to implementing a strengthened and new budgetary law . . . The reforms . . . the institutions that are being put in place and the capacity that is being built, among others, will not only be useful to manage NT2 revenues, but all revenues in the country and their allocation.

(Ilangovan 2009)

An experienced donor representative we spoke to in Vientiane described this arrangement as ring-fencing the system. He expects however that this mode of management will eventually shift to a system where the Lao government itself exercises full authority over its budget. For example, the current Lao five year national development plan allocates approximately a third of its budget to economic development, a third to infrastructure, and a third to social programs. However, such budgeting is still top-down, as it typically is around the world. Ideally, Laos would implement more participatory planning, so as to build a basis for participatory budgeting (Interview K, 20 May 2010).

### **Scoring**

Score for World Bank and other international donors to Laos: "Good"–"Very Good." Score for Thai agencies: "Very Poor."

### **Conformance (Aspect 4.6)**

#### **For governments, conformance with planning to address political risks**

One of the objectives of the ADB support for public expenditure strengthening is to help draft the detailed regulations needed to actually implement the 2006 Audit Law (Asian Development Bank (ADB) 2007).

However, a 2009 report by the World Bank found inconsistencies in the framework of Lao laws related to financial accounting and audit of private and public entities (World Bank 2009). Across the private and public sector, financial reporting does not meet international reporting standards (ibid), making tax evasion and public financial mismanagement possible.

### **Scoring**

We could not assess in depth the degree to which GoL is *conforming* to the ADB 2007 initiative, or the more recent policy recommendations made by the World Bank (2009).

In order to have adequate evidence to make such an assessment, either the Lao government or the donors would need to disclose relevant progress reports.

Thus for the Lao government and ADB, the preliminary score given is "Minimal/Poor."

### **Effectiveness (Aspect 4.7)**

#### **Methodological Note**

The Protocol states "For governments, level of likelihood of political risk," which we interpreted as the likelihood that political risk will be encountered at one or more hydropower projects exporting power to Thailand .

The phrase "level of likelihood of political risk" does not logically match the scoring system (1= None, 5 = Very High). Hence we inverted the scoring such that 1 = Very High, 2 = High, 3 = Moderate, 4 = Low, 5 = Very Low.

Note that the word "Good" used in the HSAP to refer to level 3 is confusing in this context.

### **Findings**

There is no single process of political risk assessment or management. Different actors conduct assessments of varying quality. It appears that management arrangements also vary in quality between projects, depending on what arrangements developers and lenders make for political risk insurance.

Gaps exist in MoE underestimation of political opposition by civil society that may emerge in response to the next wave of large hydropower. Political violence associated with the Tasang and Hutgyi projects has already been reported. Thailand's reaction – essentially to concentrate on sourcing power from Laos – significantly reduces the likelihood of political risk. However, the discussion of environmental and social aspects above showed that opposition to large Lao hydropower projects proposed for Thailand has already emerged.

It is possible – during the course of the 20 year PDP – that environmental or social disputes around Lao hydropower development will become sporadically violent. Second, it is possible that such disputes could result in political mobilization against dams.

At one Lao hydropower project under construction in 2010, we heard that district-level government officials handling compensation claims on behalf of villagers recently threatened the project company to expand the lists of eligible people (Interview J, 18/5/10).

Through study exchanges or through hosting field visits, potentially affected people already have connections with civil society organizations in Thailand and outside the region. During a two-decade time frame the framing of environmental and social grievances in political terms may increase. Low levels of freedom of assembly and speech might repress mobilization, and thus give the impression of low political risk, but this could change.

### **Scoring**

The team felt that a score of 2–3 was appropriate based on above evidence.

### **Social Issues and Risks (Aspect 7)**

Over the years, there has been widespread concern over the social risks attributed to large hydropower development projects and whether developers, national governments and civil society organizations have attended to these risks and issues. It is therefore worthwhile to assess whether an importer of power such as Thailand, a key stakeholder in hydropower development in the Mekong Region, has paid special attention to such risks in its power development planning process.

In Aspect 7 the following points are considered:

- Whether hydropower development in the Mekong region has attended to social issues and risks, and programs and efforts to mitigate and address these issues;

- Whether the Thai PDP has considered the social risks and issues that have been raised in assessments of hydropower development in countries in the Mekong region from where Thailand plans to import energy.

### Quality of Assessment (Aspect 7.1)

This section assesses the quality of the PDP process leading to an understanding of social issues and risks relevant to importing hydropower from neighboring countries, especially from Lao PDR.

Numerous assessments have been conducted for hydropower projects in Lao PDR, from where Thailand began to purchase energy since 1971. Two of the biggest hydropower projects in Lao PDR have undergone various types of assessments. Below, two cases discuss some of the findings on these projects' social impacts on the lives and livelihoods of people in dam-affected communities.

#### Text box: Nam Theun 2

##### *Nam Theun 2 Project*

Laos' largest hydropower project to date, the 1080 MW Nam Theun 2 project began operating in 2010. The project involves diverting water from the Theun River to create a reservoir on the Nakai Plateau. Reservoir water is then dropped through underground tunnels into a powerhouse at the bottom of the plateau, then downstream via a 27km water channel into the Xe Bang Fai River. The design is highly efficient from a power maximization perspective but involves trans-basin diversion and major civil engineering work in five areas.<sup>5</sup>

ADB (2004) forecasted the direct and indirect impacts of project as loss of land and changed livelihoods; resource access restrictions and altered livelihoods, changes in ecology and accessibility to rivers for people dependent on aquatic resources; changes in water quality and water flow resulting in the introduction or elimination of water-borne diseases; health impacts which include increased sexually transmitted diseases, poor sanitation and human trafficking (Asian Development Bank (ADB) 2004).

Foerster's (2009) report on the social and environmental issues and mitigation measures by the Nam Theun 2 Power Company (NTPC) outlined several potential impacts in downstream areas that will experience changes in flow regime and water quality: (i) increased flooding in the lower Xe Bang Fai river area, (ii) incremental river bank erosion and sedimentation and river bank garden impacts, (iii) fisheries impacts including fish catch and fish biology, (iv) access route impacts (v) possible riverine forest losses and migration of mammals and other wildlife and (vi) domestic and irrigation water supply impacts. Nine environmental health risk areas (EHA) were also identified including (i) respiratory diseases, (ii) vector-related diseases, (iii) sexually transmitted infections, (iv) food and water borne diseases, (v) accidents and injuries, (vi) exposure to hazardous materials, (vii) nutrition and food source risks, (viii) psychological impacts and (ix) risks associated with changes to cultural health practices. Five resettlement action plans

<sup>5</sup> Nakai Nam Theun National Protected Area, Nakai Plateau, Nam Theun downstream of the Nakai dam, Xe Bang Fai river, and project lands.

intend to mitigate and minimize these impacts that include infrastructure, livelihood, cash compensation and community development components (Foerster 2009).

Despite the number of participatory impact assessments conducted prior, during and after the construction of Nam Theun 2 project, questions continue to persist as to whether participation in project planning is indeed possible in Laos where structures of governance remain largely hierarchical and top-down. Additionally, critics question the appropriateness of resettlement action plans that will implement livelihood plans for resettled villagers despite the presence of poor quality soils, reduced availability of land for farming and grazing, the sustainability of high-input agriculture in experimental cropping systems, and the possibly low uptake of aquaculture as a replacement for former fishery-based livelihoods in resettlement areas (Lawrence 2009).

Thailand's Power Development Plan (PDP) has expressed the importance of importing energy from its neighbors (Lao PDR, Myanmar, Cambodia and China) and private power companies such as independent power producers and small power producers. However, the assessment team could not find any mention of recognizing social risks and issues in the PDP, or specifically the social impacts and their mitigation in exporting countries like Lao PDR (EGAT, 2008; EGAT, 2010). The team's interview with a MoE hydropower expert revealed that EGAT is ready to accept higher pricing for power imports if the Mekong River Commission or the exporting country enforces regulations on environmental management and environmental impacts mitigation (Interview D, 27/4/10). The expert's position – which was shared by one other we interviewed within MoE – is that responsibility for regulation, compliance and enforcement rests with the host country, and Thailand should not interfere in this. Thailand's role is to consider the price of power, and will consider the most competitive cost possible. Where plants are equally competitive, Thai agencies will consider the reliability over consideration of environmental impact. Priority should be placed on the energy security needs of Thailand (Interview A, 26/4/10; Interview D, 27/4/10).

### **Score for Aspect 7.1**

We rate the assessments (both developer-driven and independent) conducted on the Lao hydropower projects discussed above as 'Very Good,' since these provided knowledge on social impacts, issues and risks.

However, the team assesses the Thai PDP process as "Poor" since as an importer and thus major stakeholder in hydropower development in the region, Thailand has not been adequately attentive to social issues and risks relevant to hydropower development in neighboring countries. The importation of power from neighboring countries falls within the supply-optimization premises of the Thai PDP, thus rendering this as largely a commodity transaction with its attendant economic cost-benefit values (see discussions in this report on Aspect 1 and 2).

## Text box: Theun-Hinboun Project

### *Theun-Hinboun Project*

Like Nam Theun 2 project, the Theun-Hinboun hydropower project (THB), is a transbasin diversion project involving a run-of-river dam on the Nam Theun River in central Lao PDR. Water is diverted from the Theun River through tunnels into a surface powerhouse, then into the Nam Hai, and Nam Hinboun rivers. The project was funded by the ADB, Nordic Development Fund and the Theun-Hinboun Power Company (THPC). The project was launched in 1994 and became operational in early 1998.

Regarding impacts of the original THPC dam on the Theun River, an independent study by Shoemaker (1998) reported a 30-90% decline in fish quantity caught in downstream areas, substantial loss of agricultural land and damage to fragile ecosystems. Fish species from the *Cyprinidae* and *Gyrinocheilidae* families feed primarily on periphyton, but a decline in periphyton attributed to the dam reduced numbers of these species (Lee and Scurrah 2009).

Shoemaker (1998) argued that thousands of Lao citizens suffering harmful impacts from the project did not receive direct compensation for their losses. Within the entire \$260 million dollar project cost – which allocated \$2.59 million for a mitigation program –\$50,000 was allocated for all resettlement and compensation costs for affected local people. In October 1996, the Lao government, acting with legal advice from the ADB, signed a license agreement with THPC, which absolved the company from any further obligation to assist with mitigation or compensation measures for the life of the project (Shoemaker 1998).

Barney (2007: 15) argues that it took pressure from environmental NGOs to prompt ADB to commission a second review. This was conducted in November 1998. ADB subsequently acknowledged for the first time that the project impact area should be expanded to include the full downstream impacts. THPC subsequently created a ten-year program designed to mitigate and compensate fully for all negative environmental impacts, developed by independent consultants and financed by ADB (Theun-Hinboun Power Company 2000).

In 2007, the Association of International Water Studies (FIVAS), monitoring Norwegian aid in the water sector, deployed researchers to assess impacts of the Theun-Hinboun project after almost a decade of operations. They found that fish and aquatic resources have continued to decline, causing loss of livelihood options for local communities. No compensation has been paid for lost fish productivity. A few small aquaculture ponds were built in a few villages as mitigation measures, but these have not had a significant impact. Fluctuating water levels and stronger water flows have seriously eroded banks along the receiving rivers (the Hai and Hinboun) leading to loss of agricultural lands and riverbank gardens. These losses have not been compensated by the THPC. Flooding has become increasingly severe since 1998, which was linked to THPC water releases. Villagers have experienced repeated loss of wet season crops, leading to widespread abandonment of rice agriculture (FIVAS 2007).

Apart from increased flooding, the turbidity and sediment level of floodwaters have killed rice crops, thus over 820 hectares of paddy land has been abandoned. Increased flooding has also caused skin diseases, water contamination, livestock disease, loss of fruit trees, loss of boats and

fishing gear due to sudden water releases and food shortages due to mobility problems during flooded periods (FIVAS 2007). Fisheries, an important source of nutrition and livelihood for most Mekong populations, are one of the most important sectors affected by dam development.

Because the THB project sits below the newer Nam Theun 2 project, it was known that water supply from the Theun River and hydropower revenues would decline once the upstream dam for Nam Theun 2 was completed. The THPC was thus allowed to develop the Theun-Hinboun Expansion Project, which involves a storage dam on the Nam Gnouang, at a higher-elevation site in the Theun catchment. The additional water is diverted so as to flow into the same powerhouse, increasing power production to approximately 500 MW, but exacerbating flooding along the Hai and middle Hinboun Rivers during the wet season. This will require relocation of affected households, fisheries monitoring, promotion of improved and flood resistance rice varieties, and, if necessary, investment in dry-season irrigated systems (Theun-Hinboun Power Company 2010).

### Quality of Management (Aspect 7.2)

This section assesses efforts to manage social risks both by hydropower projects and by the Thai government energy sector through mitigation measures and/or incentives for regulation premised on the reduction of social risks and negative impacts.

#### Theun-Hinboun Project

After six years of implementation of the Theun-Hinboun Power Company's Mitigation and Compensation Program, there have been a few concrete successes. The gaps or omissions appear to be as follows: no compensation for lost fisheries, and only four community aquaculture ponds have been built to replace lost fisheries, having a negligible impact on the protein requirements of affected communities. No compensation has been paid for the massive rice paddy abandonment that has occurred as a result of prolonged and more frequent flooding since project operation. The dry season vegetable garden program has met with limited success due to lack of a market for produce, the extra labor required, water pump breakdown and crop disease. The dry season rice irrigation scheme, after an initial bumper crop, has seen universal declines in yields over the past five years. The profitability of dry season rice is questionable due to the costs of inputs such as fertilizer, pesticides and electricity for water pumping and many households have fallen into unpayable debt as a result (Bush and Hirsch 2004); (FIVAS 2007).

Expansion of the Theun-Hinboun project is meanwhile underway, and a similar mitigation and compensation program has been in place for Nam Theun 2. The prior experience of the Theun-Hinboun project in terms of mitigation and compensation programs raises questions about how the Theun-Hinboun Expansion Project (THXP) can effectively mitigate the social risks of development.

Critics of the Expansion Project's Resettlement Action Plan (RAP) argue that it continues to prescribe a range of "unproven" and "under-funded" projects such as aquaculture, dry season irrigated rice, and livestock husbandry to substitute for lost wild fisheries and wet rice production (Imhof 2008) (p38). The developer however disputes these assertions (Theun-Hinboun Power Company 2009).

## **Thai energy regulator**

For its part, the Thai energy sector has created an energy regulatory commission whose primary task is to consider the power purchase projects and negotiate on the power purchase agreements (PPA) to attain appropriate prices, conditions, security of power generation and distribution as well as appropriate cost of transmission systems (Jarvis 2009).

Thailand's Energy Regulatory Commission (ERC) is envisaged to address issues around licensing and consumer rights protection, with a view to making the Thai energy sector becoming more rule-based, transparent and predictable. Additionally, a Power Development Fund is being created as a channel for implementing subsidy arrangements for underprivileged power consumers, compensating people affected by power plant operations and the promotion of renewable energy sources. However, this will not cover groups affected by hydropower development in neighboring countries.

## **Score for Aspect 7.2**

Programs that address mitigation for social risks at projects such as Theun Hinboun have not been clearly successful. However, both Nam Theun 2 (NT2) and the Theun-Hinboun Expansion Project have designed and implemented more elaborate environmental and social impact assessments, including setting income targets for affected households (Foerster 2009). It remains to be seen if the livelihood support programs at each of these relatively high-profile projects will deliver up to expectations. On the other hand, equally relevant for this sustainability assessment of the Thai PDP is the fact that social issues management frameworks such as those seen at NT2 and Theun-Hinboun Expansion Project are the exception rather than the norm.

The assessment team provides a mark of "Poor–Good" to the implementers and drafters of these mitigation measures.

Thailand, meanwhile, is strengthening its regulatory mechanisms to ensure greater transparency, avoiding conflicts of interest in contracting power purchase agreements and licensing agreements, and possible compensation measures and subsidies for socially affected groups. For this, the team marks the creation of the Energy Regulatory Commission as "Good" for its attempt to manage the social risks of energy development in general, *however* it still remains unclear as to how ERC regulation can benefit affected groups beyond Thai borders.

An ERC representative thinks that the purchasing of power from hydropower sources in neighboring countries is more efficient and cheaper in the long run than from internal sources. His concern for dam-affected groups beyond Thai borders is based largely on the risks posed by internal conflicts that may constrain the importation of power: "The purchasing of electricity from Myanmar is more risky than purchasing from Lao PDR. In Myanmar, there is political instability, the ethnic minority conflict and a problem in international relations" (Interview E, 27/4/2010).

Discourses by hydropower proponents often state that the environmental and social downsides can be mitigated without destroying the economics of the hydropower projects (Greacen and Palettu, 2007). With no clear evidence of to the contrary, this hope is still unrealized in the Mekong.

## **Quality of Consultation (Aspect 7.3)**

This section of the assessment will evaluate the quality of the consultation process in building understanding of social issues and risks on the part of developers from outside Thailand and around the Thai PDP process.

An assessment of the governance of electricity in four Asian countries, including Thailand, concludes that opportunities for public participation in policy processes remain quite limited (Nakhoda, et al. 2007). While Thailand has a vibrant and open culture towards civil society organizations in the environment and social issues domains, it registers a very low mark with respect to quality of public participation during power and energy policy decisions. There appears to be very little public notification, public registries of documents, communication of decisions within a month, use of diverse communication tools, opportunities for consultation, and outreach to vulnerable communities (ibid).

The planning and development process for power in Thailand has historically been a closed procedure and over time increasingly captive to monopoly interests coming from electric utilities, thus in turn increasingly incentivized to over-estimate energy demand. Additionally, there is also less public attention given to the energy sector in proportion to its importance in Thailand's economy and society (Chaivongvilan, et al. 2008; Greacen and Palettu 2007).

An interview with an ERC representative also suggests that regarding the PDP 2010, the regulator was given very short notice to comment on the draft before final submission to the Thai Cabinet (Interview E, 27/4/10).

In Lao PDR, on the other hand, there exists doubt as to whether participatory processes have been accountable and transparent given the political system in the country (Lawrence, 2009).

The potential social risks to people beyond Thailand's borders have not been positioned high in any agenda of multilateral consultations either. Instead, cross-border energy transaction is heavily endorsed by ASEAN Vision 2020 which aims to establish interconnecting arrangements for electricity and natural gas through an ASEAN regional power grid and gas pipeline network (Mulugetta, et al. 2007)..

### **Score for Aspect 7.3**

In view of the weak demonstration of consultations around the social risks and issues attributed to energy and power planning development in Thailand, the team thus rates this attribute as 'Poor.'

### **Stakeholder Support (Aspect 7.4)**

Stakeholder groups who follow hydropower development in the Mekong, particularly civil society groups, tend not to distinguish between "social" and "environmental" issues. The two are intertwined because of the region's unique fisheries resources, and the large number of people thought to be at risk from fisheries collapse (ICEM 2010). Thus the team conducted a single assessment for this attribute.

In Thailand, the 'Mekong' is not a prominent issue in national policy debates compared with its neighboring countries (MRC, 2010). The visibility of the Thai National Mekong Committee (TNMC) of the MRC is rather limited and confined to a coordinating role. The TNMC, however, has been able to work with local NGOs and river basin committees, often playing the role of supporting linkages between civil society-led initiatives within Thailand. Discussions on hydropower development largely dwell on dams in Thailand and concerns with the regional role of the MRC.

The team gives the score of "Minimal/Poor" for this stakeholder support.

### **Effectiveness (Aspect 7.7)**

Overall, both the PDP process and regional efforts for mitigation of social risks resulting from hydropower development (and its importation for Thailand) have not been high on the decision-making

and implementation agenda. At best, mitigation and compensation programs have been drafted but no model exists today demonstrating significant recovery from displacement or livelihood losses. That said, however, the Nam Theun 2 Power Company (NTPC) and the Government of Lao PDR have signed a Concession Agreement that contains about 1400 sections on environment and social aspects. This Agreement requires household income targets to be reached 5 years into the resettlement implementation period. The yearly target being the greater of (i) the current national rural poverty line, (ii) 1,420,800 Lao Kip per person multiplied by the number of persons in the household (= 800 USD per average household in June 2002 for an average household of 5.518 persons) (Foerster 2009: n38).

The score given to Effectiveness is therefore "Minimal/Good."

### **Environmental issues and risks (Aspect 8)**

Our definition of environmental issues focuses on issues, risks, and opportunities associated with changes to environmental flow regimes from Thai hydropower imports. The intent of HSAP is first that "environmental issues and risks are well understood [by responsible parties] at a very early stage" and second that "decisions to invest in project preparation are well-informed on these matters."

#### **Quality of assessment process (Aspect 8.1)**

***Case a: Assessment process defined as developer, EGAT, or MoE assessment of environmental issues related to power imports***

#### **Findings: quality of analytical framework**

*Issue framing* – Environmental issues tend to be scoped and studied at project level. An issue that has emerged in parallel with the resurgence of interest in large hydropower development has been the risk of fisheries collapse and ecosystem change from cumulative impacts of hydropower and other water resources development (Sarkkula, et al. 2009b).

*Disclosure* – Significant disclosure problems exist. Developers tend not to disclose EIAs (Lawrence 2008) (pp 7-8).

*Use of unofficial codes of conduct* – Kelley is an independent analyst with an interest in hydropower development on the Nu/Salween rivers (Magee and Kelley 2009). Kelley observes that:

For Thailand, [domestic] hydropower and other development projects are subject to formal environmental impact assessment laws administered by the Office of Natural Resources and Environmental Policy and Planning . . . but they do not require consultation with dam affected communities. *In neighboring countries, however, Thai projects are not governed by any formal regulatory structures or adherence to internationally recognized codes of conduct, for long-term, rational water resources planning, or benefit-sharing arrangements. . . . in Myanmar EGAT says it follows the laws of the host country as well as its own "unofficial" codes of conduct, which are modeled after the criteria outlined in the International Finance Corporation Performance Standards.*

(Kelley n.d.) (p15)

If Kelley's understanding is correct, a state-owned utility (EGAT) is basing its policies on IFC standards, but those standards are developed for private sector clients and arguably have low disclosure requirements. Use of IFC standards raises the issues of whether critical gaps exist in the IFC standards. Kelley for instance notes that:

"Civil society organizations have criticized Performance Standards for their vague language and for being weak on issues of human rights and social safety measures as well as biodiversity conservation and climate change. . Critics also say that the Performance Standards emphasize managing risk to investors and developers while overlooking people."

(ibid, 17)

***Case b: Assessment process defined as knowledge production processes of the Mekong River Commission (MRC) related to this issue***

**Findings: quality of analytical framework**

A study commissioned by the World Bank that used MRC models argued that the Mekong basin has considerable development potential (Podger, et al. 2004). This, however, has come under challenge especially since the study exclusively employed a hydrological analysis (Lee & Scurrah 2009). Work by Finnish analysts under the WUP-FIN<sup>6</sup> program of the MRC points to loss of wetland habitat in the Tonle Sap if flow regimes are changed, with subsequent loss to fisheries (Sarkkula, et al. 2009a). In general, the further downstream a dam is, the greater the loss of access to the river system by migratory fish. Dams proposed for floodplain sites inundate potentially larger areas. Particular concern has been expressed about the impacts of sites such as the Sambor and Stung Treng dams in Cambodia, as well as the Don Sahong, and Lat Sua sites in southern Laos (comments made at MRC SEA impact assessment workshop, 19-20 May 2010) (Baird 2009). Aside from these sites, however, we do not know how many other dams can be tolerated before key ecological thresholds are crossed.

A 2009 "Preliminary Design Guidance" paper issued by MRC (Mekong River Commission 2009) clearly discusses importance of migratory fisheries; risks to population viability posed by dams; and the need to integrate fish passage design into dam design. It recommends that developers should propose mitigation & compensation if fish passage cannot maintain populations (ibid, 10-11). The paper also makes useful recommendations based on IWRM principles (ibid, 2). The Preliminary Design Guidance paper recognizes that changes to flow regimes from dams will lead to changes in habitats and aquatic ecosystems:

Today there is increasing recognition that modifications to river flows also need to be systematically balanced with the maintenance of essential water-dependent ecosystems. These ecosystems include not just river fauna and flora, but also the floodplains and wetlands watered by floods, groundwater-dependent ecosystems replenished through river seepage, and where applicable, estuaries. Flow assessments

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<sup>6</sup> WUP-FIN (<http://www.eia.fi/wup-fin/>) was a complementary project to the MRC Water Utilization Programme. It ran 2001-06 as was funded by Ministry for Foreign Affairs, Finland.

are becoming integrated with other tools such as EIA and water allocation planning for guiding decisions on sustainable water resource developments (balancing economic, social and environmental considerations) in hydropower development.

(MRC 2009: 29)

Furthermore, the 2009 paper recommends conducting environmental flow assessment during design and subsequent stages. It argues: "Good practice is to introduce [environmental flow assessment] concepts and methodologies at the EIA stage, either as a parallel study to inform the EIA, or as a sub-component of the EIA" (ibid).

*Scope* – The Preliminary Design Guidance is useful, but not comprehensive. Corresponding to MRC's mandate, it covers mainstream, not tributary dams. It focuses on hydropower and does not cover situations where water will be diverted from rivers or abstracted for irrigation.

*Disclosure* –MRC has had a past reputation for disclosure problems (Lee and Scurrah 2009) but appears to have a new disclosure policy that observes specific criteria for disclosure as stated on its website.

**Score for Aspect 8.1** – Based on the above review of evidence, the team found a number of critical gaps in assessment, and thus gave a score of "Poor/Minimal" to environment assessment processes.

### Quality of management / planning to address environmental risks (Aspect 8.2)

#### Findings

*Management performance varies* – The quality of environmental planning varies between projects. Relatively high performers like Nam Theun 2 differ from projects such as Nam Ngum 2, where critics note the developer has *not* disclosed the EIA or resettlement plan despite repeated requests. Critics have voiced concerns about Nam Ngum 2 reducing water quality in the Nam Ngum river basin (Lawrence 2008) (p. 47, 51). Observers familiar with resettlement and livelihood restoration programs at NN2 state that they are "far worse" than Theun-Hinboun or Nam Theun 2 (Interview N, 22/5/10).

*Pattern of externalization of impacts?* – A possible pattern may exist where private developers fail to invest sufficiently in environmental and social avoidance, mitigation, compensation. If third parties are able to intervene on behalf of affected people, this in turn may trigger decisions by development banks to intervene (see Theun-Hinboun case above). If this is correct, then there is a problem that begins with weaknesses in assessment, but continues into management as well.

*Precautionary approach not used?* – Assessments calling for a precautionary approach have been urged by scientific groups such as WUP-FIN and WorldFish but key actors, in particular the Government of Lao, have moved ahead rapidly. GoL signed multiple MOUs with developers in 2007.

*Use of cumulative impact assessment* – Knowledge of cumulative impacts does not feed back to altered dam design. In a review of strategic environmental assessment (SEA) and cumulative impact assessment (CIA), Keskinen and Kummu (2009) argue that:

Neither the SEA nor the CIA has –yet– been extensively used in the Mekong. They have, however, already . . . appeared in the plans and strategies of both regional organisations

and the governments of the riparian countries, and increasing amount of actors are including SEA and CIA as part of their planning process. Yet, the *implementation* of both of the methods seems still to be sporadic and weakly connected to the actual decision-making. The importance of understanding the possibilities and limitations of the two methods is therefore just increasing [emphasis added].

(Keskinen and Kummu 2009)

*Vague guidance on responsibilities* – MRC's preliminary design guidance (see above) is vague about responsibilities and accountabilities. It clarifies legal requirements at a basin level, but is vague on exactly how guidance will link to national legal/policy frameworks. It talks about 'developers' referring primarily to private sector project developers, but sidesteps the role of the state as an equity partner in hydropower projects<sup>7</sup>, which raises issues of how to regulate conflicted interests, which are not explored.

**Score for Aspect 8.2** – Based on the above review of evidence, the team found a number of critical gaps in environmental management, and thus gave a score of "Poor/Minimal" to those processes.

### Quality of stakeholder consultation processes (Aspect 8.3)

#### Findings

*Inadequate Thai state agency consultations* – No dedicated space on MoE consultation agendas exists for environmental issues. Space to discuss all issues related to the PDP (aside from demand forecasting) was provided in two public seminars (see Options Assessment above.) By contrast, civil society organizations have organized their own seminars and dialogues. However the attendance of MoE actors is not common.

*Developers rarely meet with critical stakeholders* - In the few cases where they have been disclosed, project environment assessments have been highly contested. An ongoing disagreement between the Theun-Hinboun Power Company and International Rivers over quality of assessment and management planning of impacts of the Theun-Hinboun Dam has taken the form of written exchanges, which have not yet been resolved via private or public dialogue: (see (Matsumoto 2009); (Theun-Hinboun Power Company 2009); see also (Blake 2008). One developer familiar with the THPC project acknowledged however the value of the independent, critical assessment conducted by Blake (2008) (pers. comm. to T.Foran, February 2009). This suggests a significant gap exists in consultation processes, which perpetuate disputes over assessment and management.

Similarly, in the case of Hutgyi dam, a proposed project on the Salween river in Myanmar, Kelley (n.d.) states: "EGAT and MDX [the developer] say they are taking steps to ensure compliance and best practice with regards to resettlement and to limit environmental damage by applying their own internal standards, but in the absence of public documentation or public discussion with stakeholders, opponents are dubious of the claims" (ibid, 14).

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<sup>7</sup>For example, Lao Holding State Enterprises is an equity partner in Theun Hinboun and Nam Theun 2 projects.

**Score for Aspect 8.3** – Based on the above review of evidence, the team found a number of critical gaps in consultation around environmental issues, and thus gave a score of "Poor/Minimal" to those processes.

#### Level of stakeholder support (Aspect 8.4)

##### Findings

*Regional civil society* - Civil society stakeholders have been vocal in their opposition to mainstream dams and large tributary dam projects, for reasons related to concern about negative impacts on fisheries. Dore and Lazarus (2009) note that in late 2007 "201 citizens' groups and individuals from 30 countries wrote to the MRC demanding it uphold the 1995 Mekong Agreement and protect the river and its people from the resurgent threats posed by the proposed mainstream dams."

*International scientific organizations and networks* - WorldFish, a scientific organization that is part of the CGIAR system, has been notably critical of the Don Sahong dam, one of the proposed Mekong mainstream dams that is in an advanced stage of planning (Baran and Ratner 2007). In 2009, more than 40 academics, many of whom were fisheries experts, submitted an open letter expressing concern about this project.

Also in 2009, the Australian Government via AusAID funded the CGIAR Challenge Program on Water and Food and the M-POWER research network to study governance around "optimization" of benefits from hydropower dams and other water infrastructure in the Mekong. This funding decision could be interpreted as an attempt to improve status-quo assessment, planning, and management processes.

Donors to MRC have questioned how it will implement its "Procedures for Notification, Prior Consultation and Agreement"(PNPCA) (Dore and Lazarus 2009). (The intent of these Procedures is to support consultation and consensus-based agreement between member countries on proposed projects having a significant impact on flows of the mainstream Mekong.)

*Stakeholder support for outcomes* - Mekong development stakeholders are divided into two "discourse coalitions." On the one hand, a diverse coalition consisting of regional and transnational civil society, scientific organizations, and elements of the international donor community regards the current expansion of interest in Mekong hydropower development as problematic and controversial. On the other hand, a riparian coalition consisting of government agencies, power utilities, and the construction engineering sector regards it, essentially as a positive-sum activity whose negative aspects can be managed. For outcomes, any mainstream project on the lower Mekong would likely be a target of opposition, based on experience of prior opposition to tributary dams and controversy over dams on the Lancang reach of the Mekong.

**Score for Aspect 8.4** – Based on the above discussion, the team gives a score of "Low" for level of stakeholder support. From the Thai PDP perspective this is ironic because a key motivation for importing hydropower is to improve domestic acceptance of domestic power plants.

## Effectiveness (Aspect 8.7)

### Methodological Note

HSAP defines this attribute *firstly* as: "likelihood of avoidance, mitigation, or compensation" and *secondly* as "likelihood of project delivering environmental benefits." The team interpreted "avoidance, mitigation, or compensation" to mean the likelihood that most projects will be able to follow avoidance, mitigation, & compensation *in that sequence*.

The team found the second definition not helpful as worded, and thus did not assess it. A project or set of projects may indeed provide "environmental benefits", but the relevant question in the Mekong context is whether those projects provide *net* environmental benefits in a situation where they also cause negative impacts to fisheries.

### Findings: likelihood of avoidance, followed by mitigation and compensation

The likelihood of avoidance is linked to the ability of Thai society to avoid sourcing power from large dams (and other options with irreversible impacts) in favor of energy efficiency and other alternatives. This is related to the effectiveness of the PDP options assessment process, reviewed in Aspect 2 above. In Aspect 2.7 we argued that the effectiveness from a sustainability perspective could be rated as between 'Minimal' and 'Good.'

Regarding mitigation: to mitigate means *to reduce severity of, or to moderate*, an impact. Case studies such as Thuen-Hinboun point to the fact that losses may occur in time before developers recognize them as problems, and take mitigation and compensation action. Secondly, such action may require civil society advocacy, and need to be funded by public interest donors, not the developer (Barney 2007) [p.16]

### Score for Aspect 8.7

Projects such as Theun-Hinboun appear to have been slow to accept responsibility for downstream environmental impacts, hence they have not stringently avoided, then mitigated, then compensated for those impacts in a pro-active manner.

Nam Theun 2 – promoted as a best practice project by its sponsors – appears to have taken more upfront responsibility for downstream impacts, but even so the project company's performance has been the subject of dispute between World Bank and ADB on the one hand, and International Rivers on the other. The dispute is over whether the company is allowed to commence operations before *mitigating* the loss of potable water from the Xe Bang Fai River (which receives turbid water discharged through the power house), as well *compensating* downstream villagers for loss of riverbank gardens.

On the basis of the above discussion, the team felt that a preliminary score of 'Poor/Minimal' might be appropriate.

## 6 Regional planning influences on Thai hydropower planning (Aspect 3)

This section focuses on hydropower-related planning at the Mekong regional level. How sustainable is it? How does it influence the Thai PDP? According to the HSAP: "The sustainability of hydropower

development will generally depend on the quality of integrated planning for resource development" (HSAF 2009: 21). This suggests a number of focal questions for this section:

- With respect to sustainable development, what key regional planning initiatives should hydropower development plans seek guidance from or conform to?
- How do regional policy initiatives prioritize different development objectives?
- Do such policy initiatives provide coherent, salient, legitimate advice to states?

Aspect 3 also specifically mentions the fit between energy planning and: Water resource management; biodiversity / conservation; social & economic development; human rights; resettlement; strategic environmental assessment; environmental impact assessment; climate change and benefit sharing. This suggests we ask:

- Do important logical "gaps," tensions or contradictions exist in the emergent policy framework, and what are their implications for hydropower development?

### Quality of assessment process (Aspect 3.1)

#### 3.1.1 Quality of the process leading to an understanding of relevant regional and national policies and plans

#### 3.1.2 Quality of the process leading to an understanding of gaps, shortfalls or complexities in regional and national policies and plans

#### Methodological Note

As with political risk (see above), no single "process" of regional policy assessment or management exists. We return to this point below under "Effectiveness."

#### Findings

*Thai state agencies* – The study team was not able to obtain any direct evidence of relevant assessment processes conducted by Thai state agencies. However, we observed staff from the Thai Department of Water Resources provide detailed feedback to the MRC secretariat regarding preliminary findings of the Basin Development Plan water development scenarios. We have also observed staff from EGAT attend other MRC events including a training session on the HSAP. Likewise we are aware that representatives from Ministry of Energy and other branches of government have attended regional project events organized by ADB. In short we have evidence of participation but have not sighted agencies' assessment documents.

*Regional organizations* – Among processes relevant to sustainability, some of the more accessible and sophisticated are those led by inter-governmental and multi-lateral organizations such as the MRC and the ADB. Both organizations are leading regional planning initiatives (see case studies below).

For evidence to assess this attribute, we analyzed how regional needs and challenges are framed in project design documents and in various outputs.

**Text box: MRC Strategic Environment Assessment project**

*Case 1: MRC's Strategic Environment Assessment (SEA) of Proposed Mainstream Dams*

This project commenced in 2008 with a participatory and multi-disciplinary design. It is the most prominent activity of MRC's Initiative on Sustainable Hydropower..

Its purpose is to inform – through a collaborative process – decision making about mainstream hydropower, in particular an inter-governmental process known as Procedures for Notification, Prior Consultation and Agreement (PNPCA) regarding large-scale development on the Mekong mainstream.

The main purpose of the SEA initiative includes to: "evaluate the development opportunities and risks of proposed LMB mainstream dams and the regional distribution of these factors, as well as avoidance, mitigation and enhancement alternatives and strategies" (Haas 2009).

Final outputs are scheduled to be delivered by the end of 2010. In the context of the fast pace observed to develop hydropower, the SEA initiative will thus be watched both for its substantive contribution as well as for its ability, if any, to change state–state and state–society relations.

The MRC ISH has also published a Preliminary Design Guidance paper for proposed dams on the Mekong mainstream (Mekong River Commission 2009).

## Text box: Energy Strategy of the Asian Development Bank

### *Case 2: Assessment process defined as GMS Energy Strategy and RETA 6440*

The Greater Mekong Sub-region is a program (and a geographical construct) supported by the ADB, designed to promote regional economic integration. It promotes trade in commodities, but also energy and physical infrastructural connection, in the name of reducing cost of goods, creating new market opportunities, stimulating economic growth and reducing poverty. The policy narrative of the GMS is that connectivity leads to prosperity, including pro-poor growth.

During the 2000s, the program commissioned a series of studies to explore the feasibility of developing a regional transmission network. Earlier consultant studies indicated potential economic benefits, but also acknowledged uncertainties existed in project-level costs (Greacen and Palettu 2007). Critics argued that the consultants' studies might, in the absence of data, significantly underestimate actual hydropower project development costs (ibid, 119; see also (Garrett 2005).

In 2007 ADB hired energy modeling experts IRM-AG to further study the economic impacts of several medium-term energy development scenarios. The experts produced a very large model incorporating electric power as well as transportation fuels. The modeling project is rich and complex, running into several hundred pages. It models almost 200 different kinds of energy, including fuelwood and decentralized renewable energy.

The purpose of this "GMS Energy Strategy" initiative (Asian Development Bank 2009) was to test the economic benefit of integrating energy in the GMS by building electricity and natural gas transmission networks, as well as trading liquid fuels (including from coal). A key figure in this report shows electricity power flows within the GMS between GMS and China under a so-called Integrated Scenario (ADB 2009: Fig. 16). Power flows from Myanmar to Thailand go from zero in 2005 to 139,000 GWh in 2025 (which translates to more than 25 dams like Nam Theun 2). According to the model, the total discounted cost of Integrated Scenario is \$200 billion less than the Base Scenario. One reason is that the modelers assumed it is cheaper to build coal and hydropower plants and transmit the power, rather than import fuel such as liquefied natural gas into the region.

A regional technical assistance package known as *RETA 6440 (Facilitating Regional Power Trading and Environmentally Sustainable Development of Electricity Infrastructure in the Greater Mekong Subregion)*, funded by the Swedish International Development Agency, was publicly launched in 2009. The project has two objectives: to support ongoing work towards development of a "Regional Power Master Plan;" and to build capacity among Mekong country government agencies in EIA, SEA, and CIA. Potential synergies between this work and that of MRC's SEA are acknowledged and are being pursued.

The regional power plan will be an economic ranking of generation options. To that economic analysis the ADB consultants will attempt to integrate environmental and social costs, where known.

## Findings

Both the MRC-SEA project and ADB's RETA 6440 are designed to provide substantive knowledge inputs to support prior inter-governmental agreements Mekong countries have made. The SEA project supports "PNPCA" procedures pursuant to the 1995 Mekong Agreement. Those procedures (agreed to in 2003) set out institutional processes to be followed, as opposed to scientific content. The Regional Power Master Plan supports a 2003 agreement by the GMS member countries to establish a regulatory, institutional and commercial framework for power trade.

Comparing the two agreements, 1995 Mekong Agreement obviously has more language that is concerned with hydrological and ecological sustainability (Governments of Cambodia-Lao PDR-Vietnam-Thailand 1995). By contrast the power trade agreement is more clearly driven by a set of economic values.

*Quality of ADB's GMS energy strategy assessment* – A focus on aggregate economic analysis without incorporating other modes of analysis, such as distributional economics, and socio-political analysis, results in significant gaps. But critics have argued that strategic analysis should not be confined to economics, but also need to make a clear statement about political risks of regional integration (Foran 2008). Is it really “least-cost” for the region to exhaust many of its large hydropower sites by 2025 (with irreversible and highly uncertain political consequences) as opposed to making more aggressive investments in energy efficiency? Exploring those energy efficiency options requires more detailed modeling of end-use energy efficiency potential (Foran et al. 2010).

*ADB's RETA 6440* – The Regional Power Master Plan has not been publicly disclosed at the time of writing. The prioritization of quantitative analysis, and economic analysis, is however clearly evident in the following comment made by Thierry Lefevre, one of the project leaders:

the main output would be the Regional Power Master Plan (RPMP). One output of the RPMP is a ranking list of generation candidates, and their order of importance. The ranking will be mainly based on economic feasibility. However, with the support from institutions such as . . . MRC, we could obtain enough information on environmental and social issues, which could also be integrated into the RPMP. Then, we could present alternative candidates, taking into consideration some social and environmental impacts. We cannot incorporate systematically all environmental and social issues into the RPMP, because some issues are not quantifiable . . . social and environmental [data], particularly related to the potential expansion candidates are simply not available at present and will need long studies before they are available. The RPMP will then include what is quantifiable and available at the time of [model formulation].

(RTE International 2009) (p19)

The fact that environmental and social issues which are not available or "quantifiable" – but which of course could be discussed and analyzed using other methods – will be excluded is evidence of a significant gap in the analytical framework, as is the focus on supply-side alternatives.

An expert familiar with the study noted that RETA 6440 is a *power* master plan, not an *energy* master plan. The power modeling is done with an *hourly* time step. The model includes only alternatives with firm capacity. Renewable energy and energy efficiency are not included. Renewable energy is not "firm"

(e.g., there is no solar power at night). The value of renewable energy and energy efficiency would become more visible with an energy modeling exercise. The expert stated that RETA 6440's environmental and social component is confined to capacity building. Environmental and social values will not be internalized in the power model. A sustainability analysis of the regional power master plan would be worthwhile, and one EU donor may fund it, but that is a future project (Interview O, 19/5/10).

*Quality of MRC's SEA* – The assessment was not finalized at the time of writing. Based on examination of the terms of reference and interim outputs we observed first that, compared to the ADB projects, the MRC SEA is more obviously multi-disciplinary and holistic. The basic methodology chosen involves detailed description of one most-likely future scenario (the baseline). The baseline is essentially one in which the urban and industrial economy grows in importance, even as rural poverty persists (as natural resource base declines) and the numbers of urban poor increase in absolute number. No attempt is made to explore alternative futures. To be sure, forthcoming descriptions of how to avoid and mitigate negative impacts of mainstream hydropower dams can be elements of alternative future scenarios, but this is different from imagining a contrasting set of futures or policy scenarios that range across a number of sectors.

The SEA project has been implemented by the consultants in installments, to allow for an incremental, participatory process. The *baseline* analysis (eight thematic papers as well as one 176 page "summary" paper) is quite long. This was followed by a long paper summarizing impacts in different sectors, presented in May 2010 at an *impact* assessment workshop. The third and critical phase, a paper and workshop on how to *avoid and mitigate* those impacts, was held in June 2010.

In terms of providing appropriate citations for factual claims, or presenting sharp conclusions, chapters of the baseline and impact analysis vary noticeably in quality. For example the social systems chapter presents a complex, yet accessible narrative of who is vulnerable to rural social change, whereas the economics chapter presents aggregated sector and demographic data based on country and regional level, with limited and incomplete analysis of economic impacts (ICEM 2010: Table 5.1).

In any case, it is clear that the SEA of mainstream dams will *not* be a comprehensive assessment of energy options that can displace or defer the need for large hydropower. One expert familiar with the study justified this by stating that MRC is a river basin organization (Interview M, 21/5.10), not one that has a mandate to conduct comprehensive electricity planning. *Significant gaps and complexities* – Neither of the above regional assessments explores in detail the political economy of investment in large hydropower. Neither is explicitly framed as a sustainability assessment.

### **Scoring**

MRC-SEA: Good; ADB: Poor–Good; Thai agencies: insufficient evidence.

### **Quality of management / planning (Aspect 3.2)**

#### **Methodological Note**

In this attribute we also touch on issues of stakeholder consultation, which we considered relevant (cf. Protocol, p. 26)

#### **3.2.1 For governments, planning to address gaps, shortfalls or complexities in regional and national policies and plans**

#### **3.2.2 For governments, where relevant, planning to address trans-boundary issues**

## Findings

*Quality of government planning through the MRC* – Responsibility for planning around impacts of mainstream dams has been given to MRC by its member states; however, those states have been criticized for not assigning higher status to the work of their units ('National Mekong Committees' or NMCs) which interact with MRC, thus marginalizing the entire vision of regional cooperation (Dore and Lazarus 2009).

In general, weak linkages of NMCs to national planning have been acknowledged by MRC (Lee and Scurrah 2009:39). Analysis commissioned by MRC credits the Thai National Mekong Committee for good linkages to Thai civil society (Mekong River Commission 2010). However, weak linkages of the Thai NMC to national energy planning are evidenced in the following quote:

Development of mainstream dams remains an issue of great concern, and dominated much of the discussion in Thailand. The proposed dam in Ban Kum is the most prominent of the planned dams. . . . There is concern that despite policy commitments to participation in Thailand, the information on mainstream dams involving Thailand is not in the public domain. That the MRC is not able to provide such information raises doubts about the degree of recognition and influence the MRC has, or about its own transparency and integrity. . . . Civil society [groups are] . . . suspicious of engaging in a process in which the objectives are not clear, or when basic information is not available or not acceptable.

(MRC 2010: 82)

*Quality of management planning in ADB's GMS energy strategy* – The proposed GMS Strategy recognizes the importance of regional efforts to improve energy efficiency (coordination on appliance standards and labelling, removing price subsidies that make cost of energy less than that required for cost recovery, coordination on energy service companies [ESCOs]). However, these are broad policy recommendations, as opposed to detailed management plans based on detailed assessment of energy efficiency potential in the GMS.

## Scoring

MRC: Poor; ADB: Poor; Thai agencies: insufficient evidence (no management plans were sighted).

## Governments' level of conformance with regional initiatives (Aspect 3.6)

*Thai agency conformance with MRC initiatives* – Officials in the Ministry of Energy indicated that in general, they treat MRC's policy recommendations with respect. One official even suggested that the mainstream dams Preliminary Design Guidance paper would have the status of a "bible" when complete.

At the same time, certain aspects of the guidance might be difficult to implement given EGAT's current power purchase criteria. For example, EGAT prefers, during the dry season, power production for at least 8 hours per day (Interview C 26/4/10). The design guidance paper by contrast calls for fish passes to be operational all year round. It is conceivable that projects which conform to the MRC's guidance paper will have costs of electricity that increase beyond what EGAT has paid in the past. If so, EGAT / MoE willingness to pay more will be the litmus test of conformance.

## Scoring

A definitive score could not be given because no written evidence of conformance was sighted. However a preliminary score of "Good" may be appropriate.

### **Notes**

In the case of regional power trade, conformance of government with various ADB-GMS plans appears to be good. However – and more relevant from a long-term sustainability perspective – ADB-GMS has issued no detailed regional action plan for energy efficiency, making conformance a moot point.

### **Effectiveness (Aspect 3.7)**

#### **3.7.1 For governments, degree to which the entire package of plans and policies provide guidance to project planning, development and operation**

##### **Methodological Note**

Rather than the "entire package of plans and policies," the team assessed the emerging work led by MRC and the ADB-GMS program. We defined relevant "guidance" as that based on substantive sustainability principles & criteria such as:

- reducing direct and indirect human threats to system integrity
- providing decent livelihood opportunities
- intragenerational equity
- intergenerational equity
- resource maintenance and efficiency
- socio-ecological civility and democratic governance

(Gibson 2006)

For example, efficiency and equity imply developing less materially- and energy-intensive approaches to personal satisfactions among the advantaged, to permit material and energy sufficiency for all. Civility requires capacity building and mobilizing all producers and consumers to lower their socio-ecological footprint, not just the energy sector (Foran 2010; Gibson 2006: 174).

### **Findings**

MRC is a river basin organization with sustainable water development clearly on its agenda; evidenced by detailed preliminary guidance (Mekong River Commission 2009), its hydropower SEA project (ICEM 2009), as well as an ongoing basin planning initiative called the BDP (Basin Development Plan Programme). But these MRC plans and policies are not the "only game" – the GMS energy strategy (Asian Development Bank 2009) was a call to greatly expand energy trade in the region based on an aggregate economic analysis.

Mekong countries have committed to regional agreements emphasizing different values or principles. The ADB-GMS prioritizes economic efficiency (expected from power trade) whereas the MRC has a more balanced set of priorities that include reasonable use and ecological integrity. Since sustainable development is by definition a multi-objective problem, this situation is hardly unique to the region.

However the fact remains that when taken together, the MRC and ADB policy "package" sends mixed signals about sustainable hydropower and energy development.

It is difficult to assign an authoritative score for several reasons. The concept of sustainable development includes both the needs of the present generation as well as future generations. For example, ADB (2009) argues that increasing the access of today's rural and poor people to modern energy services is a high priority goal and one necessary for a "sustainable" energy future.

Since there is no single, correct, precise, rule on how to weigh between present and future needs we need to take this goal seriously. The means available to attain these goals, however, are diverse. The question that remains to be convincingly answered by both regional planning initiatives is which portfolio of energy service options is the best "portfolio" to meet such valid needs.

### **Scoring**

The ADB's GMS regional power plan and the MRC's SEA are in progress. In Aspect 3.1 we identified gaps in quality of assessment processes, which prevent us from giving a score of "Very Good."

Should the two initiatives complement each other – with the ADB regional power master plan informed by rich environmental and social analysis from MRC programs – the team believes a score of "Good" is justified. Otherwise a score of "Poor" is appropriate.

## **7 Synthesis: Agenda setting & decision making within the Thai state**

This section uses elements from Aspect 5 of the 2009 HSAP to discuss and comment on the Thai state's agenda setting and decision-making in the context of national electricity planning.

Aspect 5 (Institutional Capacity) assesses whether projects have a comprehensive and balanced set of capacities amongst a range of stakeholders (governments, regulators, developers, banks, contractors, suppliers, labor force, civil society and affected peoples). The assessment aims to provide a basis for developing and operating sustainable water and energy services.

Departing slightly from the HSAP's original aims in Aspect 5, this part of the report instead assesses the extent of integrative or holistic planning within and around the Thai PDP process. In light of these broad concerns, the report has formulated questions that refer to process and performance attributes, as will be discussed below.

**Process Attributes:** *Has the Thai power development planning process been transparent, consultative with stakeholders, and open to a wider set of options for energy security and development in Thailand? Whose voice counts in shaping decisions regarding energy security and planning in Thailand?*

In Thailand, the architecture of power generation is framed by a strong supply-optimization orientation and planning model. Planning proceeds with a special committee on load forecasting that formulates and justifies the rationale for the volume of power demand, and which will be articulated as power and energy generation targets in EGAT's Power Development Plan (PDP) released every three years. The PDP identifies present and future sources of electric power for Thai consumers, and its lead author, EGAT, in turn negotiates purchase power agreements with independent power providers.

Thailand's forecasting methodology is premised largely on the assumed GDP growth rate of the country. This has come under question by civil society organizations, especially since the demand forecast is often biased high (Greacen and Palettu 2007) in favor of buttressing supply rather than exploring

demand-side possibilities, which in other countries are factored into equations that target overall energy security. As we have seen, sourcing of power supply has in recent years become contentious and will be for the foreseeable future as Thailand attempts to build new domestic power stations.

The importation of power supply from large hydropower projects stationed in Lao PDR, Myanmar and Cambodia is equally controversial due to mounting evidence of social and environmental risks, coupled with opaque systems of governance and uneasy state-society relations in these countries. Additionally, multilateral organizations are implementing integrated assessment and planning activities for energy and hydropower, as well as power trade and infrastructure networks in the Mekong Region, for example the ADB's GMS Energy Strategy and MRC's Strategic Environment Assessment (see Section 6 above). It is for these reasons that Thailand's energy sector, a major player and stakeholder, cannot disconnect itself from regional developments in power generation.

Foran (2006) explored the pattern of practices within the Thai energy sector from the 1960s to the present time. This pattern, his work shows, has been persistently driven by the need to increase power supply in view of present and projected economic and industrial growth. As a result, energy conservation and demand side management (DSM) through rigorous integrated resource planning (IRP) do not place high on the planning and action agendas of the energy sector. Additionally, Thai power utilities' consistent use of a cost-plus approach – combined with EGAT's monopolistic buyer and wholesaler role – offers little incentive for a shift to an efficiency and conservationist approach to energy security. Greacen and Palettu (2007) further point out that the PDP has been shaped to favor the commercial costs from EGAT's perspective.

Peter du Pont explored energy efficiency and renewable energy options not included in the 2004 PDP (du Pont 2005). This study argued that a careful and realistic accounting of the potential of DSM, energy efficiency and firm renewable energy resources in Thailand can exceed the output of Nam Theun 2. Effectively, this can provide power for the Thai customer, at a cost approximately 25% less than Nam Theun 2 (Lawrence, 2009). Foran's interview with a government energy practitioner on whether DSM in energy planning lowers profits, reveals that DSM has other functions for the sector:

'People in the organization have been socialized according to business principles . . . they emphasize making profits, they don't consider the larger [societal] context . . . even though the cost of programs can be passed on [to the customer] lower sales will lead to lower profits . . . DSM (demand side management) for this organization is really about building a positive public image.'

(Foran 2006b) (p33)

The Thai PDP framework therefore prioritizes cost-optimization and supply-generation rather than risk or demand management to achieve energy security.

Planning the PDP has historically been a closed process until 2007. Earlier, the planning process began with deliberations within a national load forecasting sub-committee whose agreements were submitted to the Thai Cabinet for approval. The process was not open to civil society participation or any other oversight body.

For the 2010 PDP, as indicated in earlier sections, a representative of civil society organizations was invited to assess the assumptions of the PDP in a sub-committee organized within the Ministry of Energy. However, subsequent meetings were called at short notice, which limited informed engagement. At the official public consultation events on load forecasting and options assessment

organized by the Ministry, it was also not possible, in our opinion based on direct observation, to hold serious interactive discussions on these issues.

In 2008, the Energy Regulatory Commission (ERC) was established, with the task to regulate the energy sector along the lines of transparency, credibility and public participation in decision-making. There is however lingering doubt whether the ERC can break through what appears to be a tightly knit web of players within EGAT and impose strong and independent regulatory action in the energy sector as a whole. It appears that the ERC is still experiencing 'birthing' problems and its relationship with EGAT is still less than straightforward and independent.

For instance, some members of ERC were the members of the PDP 2010 preparation committee, which could be problematic especially in terms of establishing ERC as a truly independent agency. The draft PDP 2010 was sent to ERC two days before its final submission to the Thai Cabinet, which was too short for any substantial review and comment (Interview E, 27/4/10). There is therefore still insufficient evidence whether the ERC has flexed enough muscle in its regulatory function. It has not yet held its own public consultations on the PDP process. Consultations focused on environmental and social risks and issues in Thailand's electricity planning tend to be led by civil society, not state agencies or the private sector.

Overall, Thai electricity planners have hesitated to engage more widely with other sectors both inside and outside Thailand in their planning and decision making, thus continuing to maintain this exclusive process. Additionally, inertia and a predilection towards cost and supply optimization may constrain transparency and wider civil society engagement in order to minimize current challenges to this orientation. Environmental planning, for its part, similarly remains top-down, following a bureaucratic model where a designated committee centralizes key decision-making, usually segregated from and with little integration of, other potentially relevant agencies such as energy planning. Although there have been efforts at more integrative policy making, environmental problems in Thailand have not been solved due to mismatches between development objectives and natural resource and environmental conservation policies, insufficient staff and budget, and inadequate tools for monitoring and accountability systems (ONEP 2005). This is also symptomatic of planning traditions in the Thai bureaucracy and state that have been described as 'absolutist' and elite-driven by scholars, and where the vocabularies of rights, participation and decentralization have slowly but uneasily made their way into the formal arena of parliamentary democracy (Case 2002; Phongpaichit and Baker 2002).

In view of the public interest principle that underlies this report, the team gives the Thai PDP processes a score of "Poor/Minimal".

**B. Performance Attributes:** *How well has the Thai PDP process engaged with other regional stakeholders in ensuring a just and fair trans-boundary and regional cooperative environment for energy futures? What are the terms of Thailand's involvement in current moves for regional integration of electricity?*

Hydropower is classified in the Thai PDP as imported electricity, and justified by the following arguments:

- To diversify fuel sources
- MOUs have already been signed with neighbors
- Imports support economic development goals of Thailand's neighbors, especially Lao PDR

In view of critical public opinion and mounting evidence of environmental and social risks of hydropower development, questions about who has a voice in electricity decision making resonate, particularly when foreign governments make choices that affect citizens to whom they are not accountable. Are there existing or evolving mechanisms where such questions get deliberated? Do attempts exist to foster a more equity-oriented and fair basis for sharing the risks and benefits of power generation in the region?

In Section 6 on regional planning influences, the team discussed two processes – the MRC Strategic Environmental Assessment (MRC-SEA) of Proposed Mainstream Dams and the ADB's Greater Mekong Subregion's Energy Strategy and RETA 6440. The MRC-SEA focuses more on hydrological and ecological sustainability of hydropower development, whereas the ADB-GMS Strategy is driven largely by the economic values that support a regional energy trade network.

The study team was not able to obtain any direct evidence of such deliberations conducted by Thai state agencies with any of these two projects. However, in 2010 it was observed that the Thai Department of Water Resources provided detailed feedback to the MRC secretariat regarding preliminary findings of the Basin Development Plan water development scenarios, as well as regarding the SEA of mainstream hydropower. Likewise we are aware that representatives from the Ministry of Energy and other branches of government have attended regional project events organized by ADB. There is evidence of participation. However, the extent to which Thai agencies produce assessments of regional opportunities and risks is unclear, because they are not disclosed to the public.

In view of the question posed for this sub-section, and from a public interest perspective and recognition of the importance of active involvement in a regional regime of governance for energy development, the team has given the Thai energy sector a score of "Poor/Minimal."

## 8 Conclusion

This report reviewed the sustainability performance of the Thai power development plan (PDP) and a number of related planning processes. We focused on the role of large (imported) hydropower in the Thai plan. We used the 2009 draft Hydropower Sustainability Assessment Protocol (HSAP), and interpreted it where necessary to fit a public interest perspective (see Section 2). Figure 4 summarizes results of our assessment.

Does rapid assessment improve our understanding of sustainability challenges, and if so, how? On the basis of available evidence, from a sustainability perspective we found a number of significant gaps or weaknesses in the Thai PDP process (see Section 7). When combined with the challenges of political instability faced by the government of Abhisit Vejjajiva in 2009-10, we found that these longstanding challenges resulted in generally low levels of sustainability performance of the 2010 PDP.

We found, however, what appears to be a genuine willingness of the Thai Ministry of Energy to cooperate with civil society organizations to improve the next PDP. How can we translate good intentions into better PDPs, into plans which meet international best practice?

**Figure 4 Summary of scores given by assessment team**

| THAILAND / Aspect:                                     | Attribute               |                |                  |                         |                            |                            |                   |
|--|-------------------------|----------------|------------------|-------------------------|----------------------------|----------------------------|-------------------|
|  | Quality of Process      |                |                  | Level of Performance    |                            |                            |                   |
|  | 0.1 Assessment          | 0.2 Management | 0.3 Consultation | 0.4 Stakeholder support | 0.5 Conformance with plans | 0.6 Compliance             | 0.7 Effectiveness |
| <b>1. Demonstrated need</b>                            | Poor--Good              | Poor--Good     | Poor--Good       | Poor                    |                            |                            | Poor--Good        |
| <b>2. Options assessment</b>                           | Poor                    | Poor--Good     | Poor--Good       | Poor                    |                            |                            | Poor--Good        |
| <b>3. Regional &amp; national policies &amp; plans</b> |                         |                |                  |                         |                            |                            |                   |
| MRC  | Good                    | Poor           |                  |                         | not selected <sup>/a</sup> | not selected <sup>/a</sup> | Poor--Good        |
| ADB  | Poor--Good              | Poor           |                  |                         | not selected <sup>/a</sup> | not selected <sup>/a</sup> |                   |
| Thai state agencies                                    | not rated <sup>/b</sup> |                |                  |                         | Good (prelim.)             | not selected <sup>/a</sup> | Poor (prelim.)    |
| <b>4. Political risks</b>                              | Very Poor--Poor         | Very Poor      |                  |                         | Poor                       |                            | Poor--Good        |
| <b>5. Institutional capacity</b>                       | Poor                    |                |                  |                         | Poor                       |                            | Poor              |
| <b>6. Technical issues &amp; risks (not chosen)</b>    |                         |                |                  |                         |                            |                            |                   |
| <b>7. Social issues &amp; risks</b>                    | Poor                    | Good           | Poor             | Poor                    |                            |                            | Poor--Good        |
| <b>8. Environmental issues &amp; risks</b>             | Poor                    | Poor           | Poor             | Poor                    |                            |                            | Poor              |
| <b>9. Economic &amp; financial issues &amp; risks</b>  | Poor                    | Poor           | Poor--Good       | Poor                    |                            |                            | Poor--Good        |

Source: Authors' analysis. Notes: <sup>/a</sup>Not relevant to this actor. <sup>/b</sup>Insufficient evidence. <sup>/c</sup>Topic not chosen for this assessment.

We need a better understanding not just of costs, but of risks and opportunities associated with various technologies. That understanding can be gained by using techniques such as strategic environmental assessment, using alternative energy policy scenarios (Ghanadan and Koomey 2005), and building on recent work by MRC and ADB-GMS. Scenarios could feed into a unbiased comprehensive options assessment, which would be based on integrated resource planning (IRP) principles (Swisher, et al. 1997).

One important finding clearly emerges from our use of the HSAP. We found that the performance and perspectives of multiple actors is relevant to the Thai PDP. At the same time, this relevance (or 'regional consciousness') has not yet influenced PDP processes, resulting in Thailand's uni- and bilateral actions towards power imports. Because Thailand is a net importer of energy for electricity production, the regional planning activities of the MRC and ADB can help various groups visualize options, opportunities, and risks. These groups include state agencies (Thai and Lao), developers, and civil society. All of these actors can and must improve the quality of their assessments and disclosure.

The 2009 HSAP was not an easy tool to use and in many instances, a cumbersome tool that lacked user-friendliness. Many indicators were not clearly specified, requiring careful interpretation before they could be used (see Section 2 and subsequent Methodological Notes). The assessment was time consuming and resource intensive, partly because we felt there were multiple processes that deserved to be assessed.

The 2009 draft protocol requires the user to make fine distinctions between management of assessment processes, management of stakeholder consultations, and other management functions, to gather data on each, and to give a qualitative score. In cases where we could not access evidence (data) in a timely manner, we were forced to give a low score. The authors of the protocol intend that low scores will give an organization incentive to improve its performance.

We also found the tool was designed principally for the use of developers to re-visit their planning and implementation processes. For this specific assessment of Thai electricity planning as a major driver of hydropower development in the Mekong region, we discovered that we had to adapt many of its elements to address our specific concerns. We constantly had to remind ourselves that our unit of analysis was electricity planning in Thailand and not any specific hydropower project. Moreover, we had to analyze Thai national planning in the context of regional hydropower development, which then required analyses of processes at multiple scales. The HSAP by contrast focuses on singular, place-based hydropower projects in a way that can be misleading.

Yet we found that even an imperfect tool yielded important findings. Sustainable development needs tools that allow us to stand back and revisit options. Thus we conclude that some kind of early stage assessment tool is useful.<sup>8</sup>

Our experience suggests that such tools can be refined and the capacity to use them can be improved. But the controversial nature of large hydropower development means that it is naïve to expect stakeholder consensus around any integrated assessment tool *per se*. It is more realistic to value a tool for its ability to help generate useful discussion.

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<sup>8</sup> The 2010 “Recommended Final Draft” version of the HSAP (IHA 2010) is the most current version as of this writing. Its Early Stage assessment is a sharply simplified version of the 2009 tool we used. Whether this represents a useful advance remains a question for further inquiry.

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