

23. ASIAN DEVELOPMENT BANK (ADB)

23.1 Energy Policies and Actions

The first energy policy of the Asian Development Bank (ADB) was prepared in 1981 and the second policy paper was published in 1995. The energy policy was reviewed in 2000 and recommended four operational priorities:

- reduce poverty by creating energy infrastructure for sustainable economic growth and increasing access to energy for the poor, particularly in rural areas;
- promote private sector involvement by restructuring the energy sector and creating an enabling environment for private investors;
- address regional and/or global environmental impacts, especially acid rain problems, support clean energy and the Kyoto Protocol mechanisms for greenhouse gas abatement, and finance renewable energy projects; and
- promote regional cooperation by helping DMCs identify and implement export-oriented hydropower and natural gas-based generation and transmission projects.⁴⁰⁶

In 2006, ADB began to review its energy policy. The new energy strategy for ADB will focus on addressing the challenges the sector faces today: meeting energy security and transition to a low carbon economy toward achieving the ADB's overarching poverty reduction objective. The strategy will build upon the following three key pillars:

(i) Meeting Energy Demand in a Sustainable Way

ADB has placed emphasis on both supply side and demand side of energy efficiency (EE). ADB has initiated the Clean Energy and Environment Program (CEEP) in 2005 to help its developing member countries (DMCs) build energy efficient and low carbon 25 economies. On the demand side, assistance will be in the form of technical assistance in identifying EE options. ADB will assist DMCs in forming legislation and efficiency standards that will require manufacture and use of energy efficient equipment and goods. On the supply side, ADB's support for renewable sources of electricity will be increased substantially. At present, most ADB projects in this sector focus on small and mini hydropower plants. Support for other sources has to be also enhanced in the future.

(ii) Energy for All

As more than one billion people of the region do not have access to modern forms of energy, ADB will actively engage with DMCs and other aid agencies in addressing unmet energy needs of the people within a targeted timeframe. ADB will support sustainable rural electrification efforts of the DMCs which are designed to provide electricity and a sustainable economic potential to the rural population. In addition, ADB will design projects that will provide modern cooking stoves which can be operated using a wide range of fuels, including

⁴⁰⁶ Referenced to the Energy Sector Strategy and Development 2007, <http://www.adb.org/Documents/TARs/REG/40293-REG-TAR.pdf>

biomass.

(iii) Energy Sector Reforms and Governance

ADB supported the restructuring and regulatory reform efforts in DMCs that were seeking private sector participation in the power sector. ADB will continue to assist DMCs in the restructuring and reform of the energy sector through technical assistance and project support. In addition to adopting reforms and restructuring, assistance will be extended to DMCs that are establishing competitive electricity markets for benefit of the consumers.

ADB's Energy Sector Operations

ADB's oil and gas sector operations started in the early 1990s with significant support in the initial years. Since 2002, ADB has increased its operations in this sector, especially in the cleaner gas sector, by financing pipelines, storage facilities and distribution systems. The private sector group of ADB has also embarked aggressively in the gas sector, especially since 2004. ADB power sector support was consistent with the existing energy policies. Recent energy trends, extensive use of fossil fuels, and the resultant projected global warming, suggest a need to focus on development of cleaner energy especially in electricity generation.⁴⁰⁷

ADB's Clean Energy and Environment Program (CEEP)

The Clean Energy and Environment Program (CEEP), designed by the ADB's Regional and Sustainable Development Department (RSDD), is a comprehensive strategic program to assist DMCs achieve measurable changes in their energy use pattern and secure a low carbon sustainable energy future. The programme combines several previous existing initiatives with new efforts comprising the following: Renewable Energy, Energy Efficiency, and Climate Change (REACH), the Energy Efficiency Initiative (EEI), the Carbon Market Initiative (CMI), Energy for All, Energy Efficiency in Transport, and Development of Knowledge Hubs. The proposed energy strategy will encompass these initiatives within its framework and propose a way forward for ADB and its DMCs.⁴⁰⁸

⁴⁰⁷ Referenced to Draft Energy Strategy 2007,
<http://www.adb.org/Documents/Strategy/Energy-Strategy-May07.pdf> &

<http://www.adb.org/Documents/Brochures/InBriefs/ADB-Clean-Energy.pdf>

⁴⁰⁸ Referenced to Energy 2000: Review of the Energy Policy of the Asian Development Bank,
http://www.adb.org/Documents/Policies/Energy/energy_rev404.asp

23.2 Environmental Evaluation/SEA in ADB

In 2002, an environment policy⁴⁰⁹ was introduced in the ADB which strengthened the consideration of the environment at the ADB. The policy was prepared through a broad consultation process with governments and civil society within the region and with many major donor countries. It mandates the integration of environmental considerations in all ADB operations at various stages of project and programme cycles, including planning, preparation, implementation and evaluation. The policy requires environmental assessment of all project loans, programme loans, sector loans, sector development programme loans, financial intermediation, and private sector investment operations.

Key aspects introduced by the policy include:⁴¹⁰

- environmental assessment as an on-going process throughout the project cycle;
- increased emphasis on environmental management plans to ensure mitigation during project implementation;
- strengthened environmental screening procedures; and
- strengthened disclosure and public consultation requirements.

For which, SEA is a tool for use in the environmental assessment of programme loans and sector loans, which covers policy, plan and programme. For programme loans, SEA can be used to help preparing the matrix of environmental impacts of policy and institutional actions, mitigation measures, and the institutional basis for implementing mitigation measures and monitoring programme. It can also be used to review environmental sustainability objectives of the programme and propose a set of criteria, targets or indicators for evaluating the effects of the loan. For sector loans, SEA can help with the cumulative impact assessment for all projects envisioned as a part of the loan. Also, it can enhance the efficiency of subproject-level Initial Environmental Examinations (IEEs) by avoiding the need to redo analyses for issues covered adequately in a SEA for the entire sector.⁴¹¹

Below shows the generic steps in conducting a SEA: ⁴¹²

- **Screening** – screening exercise is undertaken to determine whether there is any environmental issues for the proposed policy, plan or programme
- **Scoping** – scoping exercise is conducted to ensure that all high priority issues relevant to the decision being made are addressed in the SEA. There is wide agreement that both direct and indirect (or “secondary”) effects of a proposal should be examined and that cumulative impacts should be included in a SEA.
- **Identification, Prediction and Evaluation of Effects** – SEA is concerned with the

⁴⁰⁹ Environment Policy of the Asian Development Bank, Asian Development Bank, 2002, http://www.adb.org/Documents/Policies/Environment/environment_policy.pdf, page 15

⁴¹⁰ Extracted from the “Strategic Environmental Assessment: A sourcebook and reference guide to international experience”, Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter4_Oct04.pdf, page 123

⁴¹¹ Referenced to the Environmental Assessment Guidelines by the Asian Development Bank, 2003, http://www.adb.org/Documents/Guidelines/Environmental_Assessment/Environmental_Assessment_Guideline_s.pdf, page 100

⁴¹² Referenced to the Environmental Assessment Guidelines by the Asian Development Bank, 2003, http://www.adb.org/Documents/Guidelines/Environmental_Assessment/Environmental_Assessment_Guideline_s.pdf, pages 98-99

both direct and indirect impacts. The impacts of policies, programmes, and plans on the environmental components are normally indirect. That is, the policy, programmes, or plans are designed to bring about changes in social and economic behaviour. These social and economic changes may in turn lead to potential direct and indirect impacts on the environment. The process of forecasting and evaluating environmental effects in a SEA can employ some of the same methods and procedures used in project-level EIA.

- **Integration** – integration of environmental, social and economic effects must be part of the impact prediction and evaluation process. This joint consideration of environmental social and economic effects is essential because some proposals will yield direct economic (or social) impacts that will then lead to indirect (or “higher order”) environmental effects. While most countries emphasise environmental effects in SEAs, some are beginning to experiment with appraisals that integrate environmental, social and economic effects in a balanced way.
- **Mitigation** – a SEA should include measures that eliminate, reduce or offset adverse environmental effects. The term “mitigation” refers to the “elimination”, reduction or control of the adverse effects of the policy, plan or programme, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.
- **Monitoring** – a SEA should include a plan for monitoring environmental effects so that mitigation measures can be implemented if unforeseen effects occur. In addition a SEA should include a plan for ensuring that agreed upon mitigation measures are actually carried out.
- **Independent review** – it provides a check on the quality of the assessment. Results from the review should be considered in preparing the final SEA and in making final decisions. Researchers have developed criteria for reviewing and evaluating SEAs.
- **Influence on Decisions** – the SEA (including results of the independent review) should be made available to decision makers at a time when those results can inform debate on the proposal and alternatives to the proposal.

23.3 Environmental Evaluation/SEA on Energy Policies and Actions in ADB

For ADB, SEA is a tool for use in the environmental assessment of programme loans and sector loans, which covers policy, plan and programme related to energy sector.

Details of the requirements should refer to section 23.2.

A summary table for the energy policies and actions and SEA status in ADB is presented in **Exhibit ADB-1**:

Exhibit ADB-1 Summary of Energy Policies and Actions and SEA status in ADB	
(a) Energy Policies and Actions	
Energy Policies and Actions	Policies <ul style="list-style-type: none"> • Energy Policies of the Asian Development Bank Actions <ul style="list-style-type: none"> • Clean Energy and Environment Program (CEEP)
Guidance/Legislations in Energy	N/A
(b) Environmental Evaluations / SEA Status in Energy Policies and Actions	
Type of Assessment	SEA
Requirement Mechanisms	Administrative
Legislation for Environmental Evaluation / SEA	N/A
Applications	Policies, Plans and Programmes



Asia Clean Energy Forum June 2007 ⁴¹³



Energy sector needs a macro plan for the medium to long term ⁴¹⁴

⁴¹³ Source: <http://www.adb.org/NGOs/whatsnew.asp>

⁴¹⁴ Source: http://www.adb.org/media/Articles/2003/2539_Sri_Lanka_Sustainable_Energy_Plan/

23.4 Analysis and Conclusions

For the Asian Development Bank (ADB), the energy strategy focuses on meeting energy security and transition to a low carbon economy toward achieving the ADB's overarching poverty reduction objective. ADB has initiated the Clean Energy and Environment Program (CEEP) to help its developing member countries (DMCs) build energy efficient and low carbon 25 economies. ADB also actively engages with DMCs and other aid agencies in addressing unmet energy needs of the people by providing electricity and a sustainable economic potential to the rural population. The last part of the strategy of ADB is to support the restructuring and regulatory reform efforts in DMCs that were seeking private sector participation in the power sector.

In Hong Kong, the key energy policy objectives are to increase and sustain conservation of energy in order to reduce the growing trend of energy use. One of the approaches is to develop renewable energy, which is a cleaner energy source and it does not produce carbon dioxide and other greenhouse gas emissions. Other approaches include launching different programmes and campaigns in order to promote energy conservation and efficiency, to arouse public awareness in global warming effect and to educate the public the correct ways to consume energy. Those activities include "Action Blue Sky" campaign, Energy Efficiency Registration Scheme for Buildings and Energy Efficiency Labelling Scheme.

For Asian Development Bank, SEA is a tool for use in the environmental assessment of programme loans and sector loans, which covers policy, plan and programme related to energy sector.

While the ADB uses SEA as a tool for environmental assessment administratively, Hong Kong has already two systems for implementing SEA, including an administrative requirement and a statutory requirement under Schedule 3 of the EIA Ordinance. The statutory requirements govern primarily large scale development projects (i.e. over 20 ha of area or population over 100,000), the administrative counterpart has been applied to land use planning, transportation and sectoral PPP. It may be a logical next step to consider:

- Combining the administrative requirements into the statutory system; and
- Providing further specific SEA requirements under the category of energy.

23.5 Examples of Energy Policies/Actions or their Environmental Evaluation/SEA

Example ADB-1 Environmental Assessment Report Viet Nam: Mong Duong Thermal Power Project ⁴¹⁵	
Type of Study	Environmental Assessment
Description of Study	The project is related to coal-fired and thermal-power electricity generation with an ultimate generation capacity of 2,000 MW. The project comprises two 1,000 MW coal-fired thermal power plants, Mong Duong Power Plant 1 (Mong Duong 1) and Mong Duong Power Plant 2 (Mong Duong 2), which will each comprise two 500 MW generating units, and associated supporting infrastructure. Mong Duong 1 will use circulating fluidised bed (CFB) technology to accommodate the high sulfur content of the fuel. For Mong Duong 2 which uses pulverised coal (PC) technology, the plant will be equipped with a flue gas desulfuriser (FGD). Cooling water for both phases will be taken from Luong Gac channel and discharged via the De Dach River to the Thac Thay River. Mong Duong 1 and 2 are expected to be operational by 2010/2011 and 2013, respectively.
Summary of Alternatives	<p><u>Alternatives to Project Location</u> Four locations were identified as being potentially suitable for the project site within Quang Ninh. Three sites are in the Cau Den–Mong Duong area (options CDMD1, CDMD2, and CDMD3) and one is in the Cam Hai area (option CH1). Based on the comparison of the different sites, option CDMD1 was selected as the preferred location by considering the costs, transportation access, economic development, site condition, environmental impacts, etc.</p> <p><u>Alternatives to Fuel Type</u> The three options are coal, hydropower and gas with coal being the preferred fuel type.</p> <p><u>Alternatives to Power Generation Technology</u> Two power generation technologies are considered for the project, including pulverised coal (PC) technology and circulating fluidised bed technology (CFB).</p>
Scope of Assessment/ Study	<p>The evaluation parameters in the study include:</p> <ul style="list-style-type: none"> ● Solid Waste ● Landscape ● Soil Erosion and Sedimentation ● Water Quality ● Flooding ● Air Quality ● Noise ● Cooling Water Discharge ● Aquatic Resources ● Terrestrial Ecology ● Rare and Endangered Species ● Protected Areas ● Social Impacts and Resettlement

⁴¹⁵ <http://www.adb.org/Documents/Environment/VIE/39595-VIE-SEIA.pdf>, page 1, 7-10, 25, 32-47

Example ADB-1 Environmental Assessment Report Viet Nam: Mong Duong Thermal Power Project ⁴¹⁵	
	<ul style="list-style-type: none"> ● Health and Safety ● Land Use and Transport
Environmental Measures	<p>Below shows some of the mitigation measures:</p> <p><i>For the effects on groundwater contamination from disposal of ash</i></p> <ul style="list-style-type: none"> ● Undertake detailed groundwater study to identify the extent, depth, dynamics, and water quality of aquifers in the vicinity of the ash disposal locations <p><i>For dust generation</i></p> <ul style="list-style-type: none"> ● Carry out watering of exposed areas and stockpiles ● Minimise size and duration of exposed areas and materials stockpiles ● Vegetate long term stockpiles with grass or other fast growing species <p><i>For noise generation</i></p> <ul style="list-style-type: none"> ● Maintain construction vehicles and equipment in good condition ● Undertake timely repairs of any malfunctioning construction vehicles and equipment ● Confine noisy activities to day time hours ● Inform community of duration and schedule of construction activities ● Implement community complaints line ● Consider use of temporary acoustic barriers or exhaust mufflers if disturbance to surrounding land use is found to be occurring <p><i>For sedimentation of surface waters</i></p> <ul style="list-style-type: none"> ● Prepare detailed site erosion and sediment control plan identifying berms and sediment capture devices to divert clean runoff from exposed areas and collect sediment before it enters watercourses ● Undertake earthworks where possible during dry season <p><i>For adverse effects on soil, surface water and groundwater quality</i></p> <ul style="list-style-type: none"> ● Treat oily wastewater in coalescence separator before discharge ● Store chemicals in roofed areas with concrete flooring ● Ensure sorbents are available in areas where chemicals are stored ● Train construction staff in clean-up procedures for spills
Outcome of Study	<p>The Project will play an important role in supporting the rapid economic growth of Viet Nam. Because of its heavy dependence on hydropower, Viet Nam is facing a growing deficit of electricity supply, particularly in the north, where the Project will be located.</p> <p>Option CDMD1 in Mong Duong was selected as the preferred location with coal being the preferred fuel type. Use of ash disposal method would correspond to less environmental impacts and could expand the effective life of the storage and reduce operational costs. CFB technology has been chosen as the preferred technology for Mong Duong 1. The use of CFB or PC boiler technology for Mong Duong 2 remains open for further review before finalisation.</p>

Example ADB-2 Song Bung 4 Hydropower Project, Phase 2 Final Report Environmental Impact Assessment ⁴¹⁶	
Type of Study	Environmental Assessment
Description of Study	Song Bung 4 Hydropower Project is located on Song Bung in the upper part of Vu Gia River in Central Vietnam. The river flows to the sea at Da Nang. The Project consists of a dam and a reservoir, and a 156 MW hydropower plant. The Song Bung 4 Dam, located on Bung River will create a reservoir with Full Supply Level (FSL) at El. 222.5 m and Minimum Operating Level (MOL) at El.195 m. The southern part of the catchment is within Song Thanh Nature Reserve, and a small part of the nature reserve will be directly affected by the reservoir.
Summary of Alternatives	<ul style="list-style-type: none"> ● 5 alternative dam sites were investigated, of which three (Dam Site Nos. 1, 2 and 3) were located in the vicinity of the now proposed dam site and two further upstream (Dam Site Nos. 4 and 5). ● Nine alternative FSL between +210 m and +230 m were investigated, and based on economic analysis, where the number of resettled people were taken into consideration, a level of +222.5 m was selected. ● Alternative minimum operating levels between +190 m and +200 m were investigated, and based on economic analysis a level of +195 m was selected. ● Different alignments of the waterway have been investigated, such as locating the power station at the foot of the dam and moving the power station further downstream in the river. Both alternatives were however found less viable compared to the alignment proposed in the feasibility study.
Scope of Assessment/ Study	<p>The evaluation parameters in the study include:</p> <ul style="list-style-type: none"> ● Air ● Noise ● Hydrology ● Soil ● Mining ● Water Quality ● Aquatic Ecology ● Terrestrial Ecology ● Socio-cultural impacts
Environmental Measures	<p>Below shows some mitigation measures at the construction phase:</p> <p><i>For soil impacts</i></p> <ul style="list-style-type: none"> ● Loss of topsoil will be avoided by stripping and storing topsoil prior to construction and reusing it for rehabilitation. ● Erosion will be minimised by regular rehabilitation of areas not in use for project activities during construction. ● Soil contamination will be prevented by installing oil separators at wash down and refueling areas, and by installing secondary containment at fuel storage sites.

⁴¹⁶ <http://www.adb.org/Documents/Environment/Vie/36352-VIE-EIA.pdf>, page 1, 2, 11, 95, 96, 139-145, 163

Example ADB-2 Song Bung 4 Hydropower Project, Phase 2 Final Report Environmental Impact Assessment ⁴¹⁶	
	<p><i>For effects on Water Quality</i></p> <ul style="list-style-type: none"> ● Truck and other vehicle maintenance will be strictly controlled to prevent discharge of waste oil into the river and ensure that standards are followed. ● Regular monitoring of water quality at two stations (upstream and downstream construction area) in the river. <p><i>For effects on Air Quality</i></p> <ul style="list-style-type: none"> ● Using water spray trucks for dust suppression will mitigate dust generation from construction traffic. ● Regular monitoring of air quality at three locations in the construction area. <p><i>For Noise effects</i></p> <ul style="list-style-type: none"> ● Mitigation measures for noise impacts on construction workers will include standard occupational health and safety practices such as ear protection and enforcement of exposure duration restrictions. ● Regular monitoring of noise levels at three locations in the construction area. <p><i>For solid waste and hazardous materials</i></p> <ul style="list-style-type: none"> ● Disposal of domestic waste and construction waste will occur regularly to the approved disposal sites. Hazardous waste will be collected and stored on-site in approved facilities according to relevant standards. Hazardous waste will then be removed from site to approved hazardous waste disposal facilities. ● Mitigation measures to prevent spillage will include installing appropriate hazardous materials storage facilities. Parameters to be monitored: Ensure that standards are followed
Outcome of Study	<p>Major potential environmental impacts from the Project include (i) soil erosion, (ii) loss of biodiversity, (iii) loss of river continuum because of the dam; (iv) a river reach with strongly reduced flow, and (v) daily water level fluctuations downstream of the power plant because of peaking.</p> <p>The adverse environmental and social impacts of the Project can be minimised to acceptable levels by implementing adequately funded environmental and social management activities.</p> <p>The proposed Song Bung 4 hydropower project's anticipated environmental benefits include (i) better distribution of power resources, (ii) independence of fuel price variations, (iii) less emission of greenhouse gases, (iv) a general contribution to the development of the area, (v) irrigation benefits in the dry months of the year, (vi) positive contribution to minimise the salt intrusion problem on the floodplain and (vii) enhance watershed maintenance and protection.</p>