



VALIDATION OF SOCIAL CARBON REPORT

210 MW Musi Hydropower Plant, Bengkulu





PT. MUTUAGUNG LESTARI

VALIDATION REPORT

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AUDIT CRITERIA (standard)	Social Carbon Standard	
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1. Introduction

South Pole Carbon Asset Management Limited commissioned Mutucertification International to validate a 210 MW Musi Hydropower Plant located in Bengkulu, Indonesia.

1.1. Objective

The purpose of this validation is to have an independent third party assessment in order to evaluate the accuracy and consistency of the indicators of the Social Carbon Standard.

1.2. Scope and Criteria

The validation is based on an independent site visit and evaluation as well as on document evaluation and review. There are three reference documents:

- "Guide for Completing Social Carbon Reports" - Version 03, October 2008
- "Approved Indicators for Hydroelectric Power Plants" – Version 4.0, June 2010
- "210 MW Musi Hydro Power Plant, Bengkulu" – Social Carbon Report

1.3. Social Carbon Project Description

The project activity is a new, run-of-river hydropower plant. The total installed capacity of the project is 210 MW, consisting of three 70 MW turbines. The project is owned and developed by PT PLN (Persero), a state-owned electricity company. The project supplies electricity to the connected Sumatra grid. The electricity currently generated by the grid is relatively carbon intensive. The proposed project will increase the utilization of renewable energy sources (in this case hydro energy) by operating a new hydropower plant.

The project area of the Musi Hydroelectric Power Plant is situated in Bengkulu Province about 30 km northeast of Bengkulu city, the capital of the Province. It involves the inter-basin transfer of water from the Musi River in Rejang Lebong Regency to the Simpangaur River in North Bengkulu Regency via a 7.5 km long waterway and an underground powerhouse. The main reservoir is 1.14 km² in size. To avoid sudden floods in the downstream river, there is a 25 ha regulatory reservoir. The regulatory pond is small for a power plant of this magnitude. Thus, its impact on the surrounding natural area is minimal. CDM project activities are not allowed with a power density of less than 4 W/m². For project activities with power densities higher than 10 W/m² no project emissions from the reservoir occur. The underlying power density exceeds the 10 W/m² almost twentyfold.

1.4. Validation Team

The Validation team consists of the following personnel:

- Sigit H. Prabowo – Mutucertification International Team Leader and Auditor of Social and Environmental Responsibility, Environmental Specialist
- Abdul Rahman – Mutucertification International Auditor of Social and Environmental Responsibility, Sustainability Specialist

2. Methodology

The validation of the project was carried out from September 2010 to November 2010.

Preparations : September 14, 2010
On-site visit : October 25 – October 27, 2010
Draft report : November 2 – November 15, 2010
Final report : November 22, 2010

2.1. Method Used for Obtaining Information

The method used for obtaining the Social Carbon Methodology indicators involved four stages:

Stage 01: A questionnaire was elaborated.

Stage 02: The Hydroelectric Power Plant was visited.

Stage 03: Direct interviews and phone interviews were conducted with several local stakeholders during site visits.

Stage 04: Evidence (pictures and documents) was obtained during the site visit.

3. Validation Result

3.1. Social Resources

1. Population Displacement and Activities

Evaluates the need of people's displacement during the project implantation, just as the adopted procedures in order to avoid negative impacts and maximize the positive ones.

Previous index (in the social carbon report): 3

Observation:

During an interview session with Mr. Lukman Hakim, a local NGO (Komunikasi Hutan Kemasyarakatan) leader, he stated that no population displacement exists (meaning that people were not displaced to new living areas as a result of the project). Prior to Musi HEPP construction, around 1995, several farmland owners were compensated by PLN (National Electricity Company) because Musi HEPP was constructed on their land. Mr. Asep Saefudin, an environmental specialist working at PLN, Bengkulu Sector, confirmed, via interview, that there is a government regulation (Permen PU no 63/PRT/1993) issued by the Minister of Public Service that regulates the use of river banks and river management. This regulation makes clear that the river banks are government-owned areas. Therefore, any occupation inside the river banks area is considered an illegal occupation. Mr. Asep Saefudin further stated, under interview, that PIKITRING (PLN's division of HEPP construction) financially compensated illegal inhabitants of the river bank area to prevent conflict.

Index after validation: 4

Status: Upgraded

Perspective:

The interviews revealed that PIKITRING compensated land owners whether or not they were in possession of a land certificate. Therefore, an index of three is not appropriate because index scoring is not affected by the condition of conflicts or power plant magnitude.

The SCR was observed to be not fully correlated with the indicator standard regarding population displacements. Any conflict related to population displacement and/or the magnitude of the power plant shall not affect index scoring. The observation should be more describing about population displacement according to standard.

2. Communication with Stakeholders

Evaluates the process for contacting stakeholders in the planning, implementation and operation stages. The indicator also assesses the existence of an integrated approach among the items that will be evaluated next – acceptance, demands and campaigns – with systems for feedback.

Previous index (in the social carbon report): 3

Observation:

Upon interview with Mr. Luqman Hakim as leader of communication forum named Ujan Mas, it was known there is communication between the PLN with stakeholders related to land acquisition at the time of hydropower construction.

According to Mr. Edison Aliaras, worker Musi HEPP, There are also meetings held with village officials, religious leaders and traditional leaders. The meeting was conducted once a year to discuss about the CSR program conducted by PLN.

Index after validation: 3

Status: Appropriate

Perspective:

The interviews revealed that there was a meeting held at the time the hydropower plant was constructed. And, during the operational stage, similar meetings were held once

per year. From the interviews, it became clear that no forum had been formed to maintain communication among stakeholders.

3. Acceptance

Evaluates the level of support or acceptance from the neighboring population in regard to the entrepreneur.

Previous index (in the social carbon report): 4

Observation:

Interviews with Mr. Lukman Hakim, a leader of a local NGO (Komunikasi Hutan Kemasyarakatan), revealed that local people felt that the impact of Musi HEPP on the local community was positive. The following examples were given by Mr. Lukman Hakim: local farmers no longer went to their paddy fields by foot because Musi HEPP had provided an access road to the fields; income to locals increased because locals were hired to assist with Musi HEPP construction; Musi HEPP installed electricity in the communities (no electricity existed before Musi HEPP); and Musi HEPP provided a traditional market.

Observations included the local community perspective during an earlier EIA and current perspectives from stakeholders, including those of the local community. Musi HEPP established a routine report of RKL-RPL (environmental monitoring and management plan) to be given to a local government agency that addressed the acceptance status of local communities. Upon review of the RKL-RPL report for the period of November 2009, it was evident that the majority of the communities had a mixed perception (both positive and negative) about the impact of Musi HEPP. Most of the positive perceptions centered on the social contributions generated by Musi HEPP. There were some negative perceptions. For example, interviews with Mr. Lukman Hakim and Mr. Asep Saefudin and a report from RKL-RPL revealed that several farmlands in the downstream area were scraped due to a large amount of water discharge and strong water flow from Musi HEPP. The impacted land owners protested and Musi HEPP agreed to compensate the land owners.

Index after validation: 4

Status: Appropriate

Perspective:

An index of four was the most appropriate acceptance indicator primarily because of the conflicts related to land damage in the downstream area.

4 Social Demands

Social Demands may be understood as institutional or civil society interests: demands made by institutions, agencies, NGOs, municipalities or other institutions which aim to improve the human development and/or the environment near the project. This item evaluates which social demands the entrepreneur addresses.

Previous index (in the social carbon report): 4

Observation:

Via interview, Mr. Edison Aliaras, a worker at Musi HEPP, stated that Musi HEPP had met several demands made by local communities such as construction of trash basins for nine villages in the Ujan Mas Sub District, giving one computer to the Lurah office of Ujan Mas, and providing assistance to the Dzikir group. Several other demands received by Musi HEPP were not realized due to a limited budget. Musi HEPP is taking all of the demands into consideration. It was agreed that demands made by surrounding communities are to be in the format of a proposal letter addressed to the PLN office. Upon receiving a demand, and when warranted, Musi HEPP prioritizes it and attempts to meet it via an existing social program.



Index after validation: 3

Status: Lowered

Perspective:

Due to a limited budget, Musi HEPP was not able to surpass their compulsory activities required by CSR activities. Musi HEPP is committed to implementing a CSR (Corporate Social Responsibility) project that will benefit the surrounding communities. An index of four is not the most appropriate index because only compulsory demands are considered and fulfilled due to limited funds from PLN.

5. Social Programs

Evaluates the quality and results of additional social programs, such as:

- Social and Environmental Communications Program
- Community development / income generation
- Ethnic integration
- Other social areas (please specify).

Previous index (in the social carbon report): 3

Observation:

Using the list of social demands received by Musi HEPP, a budget and plan of action was developed to meet the demands. The demands (e.g., assistance with the construction of an *Ojek* (motorcycle taxi) station; construction of trash basins; drawbridge repair, etc) were prioritized in terms of positive community impact and need. The social demands and actions taken to meet them are detailed in the Musi HEPP CSR (Corporate Social Responsibility) report.

Index after validation: 5

Status: Upgraded

Perspective:

The interviews revealed that some social programs such as the construction of the trash basins and repair of a drawbridge had a positive impact on local communities. An index of 3 in the CSR was not the most appropriate index since some programs had a positive influence on daily behavior. The score was upgraded to five.

6. Social Benefit

Evaluates the additional benefits to local stakeholders, when these benefits are measurable or evident. These benefits may include:

- Improvements in health system (new installations, enhanced water and electricity systems, support for health programs, and others)
- Additional economic activities (industry, commerce, and others)
- Improvements in the infrastructure (roads, energy provision, leisure spaces, and others)

Previous index (in the social carbon report): 3

Observation:

An interview with Mr. Edison Aliaras (a worker at Musi HEPP) illuminated the fact that Musi HEPP provided the necessary assistance needed to construct trash basins and repair a drawbridge. Musi HEPP also provided assistance to the Dzikir group.

Current index: 4

Status: Upgraded

Perspective: Interviews revealed that social benefits were delivered to the following sectors: health, economic, religious, and infrastructure. Because the project delivers benefits to multiple sectors/areas with a limited number of local stakeholders, the index was upgraded to level four.

3.2. Human Resources

7. Human Resource Availability and Capacity Building Initiatives

Implementation: Evaluates the availability of human resources as well as their competence for executing the project, including the research, planning and implementation stages. Uncertainty regarding the availability of human resources may be described as the absence of qualified professionals in the market, reduced numbers in the working team, and need for international support, among other alternatives that may compromise the execution of the project.

Operations and Maintenance: Level of experience and capacity of people involved in the operation and maintenance of the project.

Previous index (in the social carbon report): 5

Observation:

Upon interview with HRD staff of Musi HEPP (Mr. Bonnyartha Hangga Dwi Putra), it was evident that Musi HEPP was referring to national regulation on the competence of PLN (National Electricity Company) employees. Each personnel shall participate in competence examination held once every two years. The examination was one big program held once every 2 years to ensure the competence of all personnel. A competence certificate from the examination was issued with cooperation between PLN and IATKI (Indonesian Power Engineers Association). Besides competence criteria, Musi HEPP was also in possession of Organizational Chart and Workers Formation that describes the availability of each personnel.

Musi HEPP had also proposed training needs to their main office in Bengkulu. More than one trainings were usually approved and carried out

Current index: 6

Status: upgraded

Perspective:

All personnel involved in the operational and maintenance stages of the HEPP were competent as measured by the competence standard issued by PLN. Certificates of competence are issued by PLN in coordination with external parties. After approval by the Head Office of PLN, multiple training programs (some one month in duration) are conducted. There are more than one training on operation and maintenance has been conducted for less than one year period.

The nationwide recruitment held by PLN was aimed to fulfill a human resource need according to an established competence standard. In an attempt to increase the quality of human resources, PLN established an annual training program and periodic competence examination for all personnel. The SCR did not describe the actual situation when it misstated that a nationwide recruitment aimed to increase human resource quality. The SCR shall be corrected accordingly.

8. Health and Safety

Evaluates Health and Safety Procedures, monitoring of occupational accidents, adherence to labor laws and specific management programs or systems.

Previous index (in the social carbon report): 5

Observation:

Musi HEPP has an emergency preparedness and response procedure in place (PT-SNKL-MUSI-15). A certificate of Indonesian Health and Safety Management System (SMK3) issued by the Ministry of Labor and Transmigration (number 40/MEN/II/2009) is available and valid until February 2012.

Current index: 6

Status: Upgraded

Perspective:

Musi HEPP received the certificate of occupational health and safety management system (called the SMK3). Because no working accidents occurred since HEPP first became operational, Gold Flag criteria were met (an audit was carried out by independent parties). Therefore, the index category was upgraded to six (existence of occupational health and safety management system certified by a third party).

It was written in the SCR that Musi HEPP had applied occupational health and safety management system. The word 'applied' had a different perspective with the definition that Musi HEPP had been certified to the system. The SCR shall be corrected to explain that Musi HEPP had already applied and certified the occupational health and safety management system by a third party.

9. Benefits

Evaluates existence of additional benefits (not required by law) to workers regarding the following:

- Education (support for studies)
- Health (medical and hospital assistance)
- Retirement assistance
- Other (leisure, sports, and meal vouchers, among others).

In cases where the services for implementation, operation and maintenance are outsourced, the indicator evaluates the outsourced employees. The indicator also considers the existence of programs to evaluate employee satisfaction in regard to their benefits.

Previous index (in the social carbon report): 2**Observation:**

Interviews with Musi HEPP staff (specifically Mr. Asep Saefudin) revealed that Musi HEPP had provided additional benefits to its workers: an annual medical check-up for employees, training/education courses, a retirement fund, an extra-afternoon meal, and access to a sports facility. The compensation/benefits were given only to permanent staff members of Musi HEPP. Compensation/benefits were not provided to contractors and sub-contractors working on behalf of Musi HEPP. The interviews revealed that sub-contractors and their staffs had already received their own benefit/compensation package from companies that employed them other than Musi HEPP. Musi HEPP allows outsourced workers to use its sport facilities and provides them with an extra meal at the afternoon break.

Current index: 3**Status: Upgraded****Perspective:**

Benefits such as education, health assurance and retirement funds were given only to permanent staff members of Musi HEPP. Other benefits such as access to the sports facility were open for both permanent and outsourced personnel. The index score for this indicator was, therefore, upgraded from two to three (benefits are offered to all employees involved in the project into one of the area).

Although outsourced workers did not receive benefits such as health assurance, education, and retirement funds, they received other benefits such as sport facilities, afternoon meal, etc. Therefore information in the SCR, i.e. regarding outsourced workers did not receive any benefits, shall be revised

10. Transfer of New Technology

Evaluates the level of technological innovation and the technologies employed in the project, the origin of the equipment, existence of royalties and technological licenses, and the necessity of international technical assistance. In cases where the technology employed is already known (a common scenario of hydro power plants), it evaluates if there are innovations regarding operational procedures and maintenance, actions for mitigation of impacts, or other aspects that show a break from the common practice of the sector. The existence of research and development projects (R&D) related to the project are also considered in this indicator.

Previous index (in the social carbon report): 3

Observation:

Musi HEPP implemented several innovation programs that centered on operational processes such as the removal of *Eichhornia crassipes*, a water plant that reduces water quality and disturbs the water intake process. The water plant is removed and processed into organic fertilizer. Several other innovative technologies were adopted from the innovation championship held by PLN, such as a technology to modify the filter of the shaft sealing water system at Musi HEPP to increase the lifetime of the sliding ring. An innovative tele-warning system to secure tele-metering assets of Musi HEPP as also adopted.

Current index: 3

Status: Appropriate

Perspective:

Musi HEPP implemented several innovative technologies. However, the program has not focused on reducing environmental impacts.

11. Involvement of the Employees in the Carbon Project

Evaluates internal communication process of the entrepreneur in relation to project emissions reductions.

Previous index (in the social carbon report): 2

Observation:

Several employees of Musi HEPP participated in a Social Carbon Training workshop given by South Pole Carbon during an early stage of the project implementation. Not all of the employees participated in the training, but all of the working areas had their representatives undergo the training. Interviews with Mr. Asep Saefudin (part of the environmental staff of Musi HEPP) revealed that at least 12 people focused on the Social Carbon Project. Those 12 personnel came from different areas within Musi HEPP. Each strategic area at Musi HEPP had at least one person undergo Social Carbon Training.

Current index: 3

Status: Upgraded

Perspective:

Musi HEPP has 32 permanent staff and 45 outsourced personnel. Consequently, it was not difficult to inform all of the employees about the implementation of the Social Carbon Project. It was evident that information about the implementation of the project was received by management and employees directly involve in the carbon project. However, Musi HEPP should consider establishing a documented policy regarding the implementation of carbon project (just like Quality Policy and Environmental Policy) and to distribute and/or display the policy within areas of Musi HEPP to have a more assurance that all of employees had been informed.

3.3. Financial Resources

12. Economic Performance

Evaluates if the economic performance of the project met the expectations of the shareholders and directors regarding, for example, goals for energy generation, stated periods for executing jobs, and operational and maintenance costs. It evaluates if the goals were met or if they did not meet the expectations for the given period.

Previous index (in the social carbon report): 4

Observation:

Musi HEPP project is running in line with expectations. From 2007 to 2009, power generation reached the expected target.

Index after validation: 4 | **Status: Appropriate**

Perspective:

The flow of river water strongly affects the electrical energy generated. As water flow is reduced, so too is the amount of generated electricity. From 2007 to 2009, there was an excess supply of electrical energy due to normal stream flow.

13. Market

Evaluates eligibility of credits to CDM Market or to other voluntary markets as well as their attractiveness to potential buyers.

Previous index (in the social carbon report): 3

Observation:

All project activities are eligible under the VCS.

Index after validation: 3 | **Status: Appropriate**

Perspective: none

14. Sale of Credits

Evaluates uncertainties regarding the value of commercialized credits generated by the project.

Previous index (in the social carbon report): 1

Observation:

To date, no buyer has committed to purchase carbon from the hydropower project. There are potential buyers who are interested, but they have not yet completed negotiations.

Index after validation: 1 | **Status: Appropriate**

Perspective:

Social Carbon verification will improve the attractiveness to potential buyers.

3.4. Natural Resources

15. Sustainability Principles

Evaluates the existence of specific policies and programs geared toward project sustainability and the applicability of the principles, values and objectives regarding sustainability.

Previous index (in the social carbon report): 4

Observation:

Musi HEPP had a documented policy regarding environmental and quality. The policy

was also distributed to all sectors of Musi HEPP. Besides the policy, an environmental and quality objective was also available to ensure a consistent quality and environmental performance.

Current index: 4 | **Status:** Appropriate

Perspective:

Objectives, targets, and programs regarding quality and environmental matters were consistently implemented. Monitoring data on the objective's achievement were available. From the achievement monitoring, it was known that several programs and objectives were not yet achieved due to several different causes.

16. Environmental Management

Evaluates environmental management procedures adopted by the project, including organization, coordination of actions, and documentation of impacts identification, monitoring, and periodic emissions reporting, as well as existence of regular certification.

Previous index (in the social carbon report): 6

Observation:

Musi HEPP had already gained ISO 14001:2004 (Environmental Management System) certificate issued by SUCOFINDO as ISO 14001 certification body (certificate number EMS 00077, valid until August 2011).

Current index: 6 | **Status:** Appropriate

Perspective:

Musi HEPP was consistent to implement the environmental management system, and yet to be certified by an independent certification body. The index of 6 was the most appropriate to be given regarding indicator of environmental management system.

17. Environmental Legislation

Evaluates accordance of the project with environmental laws and norms, including agreements with public authorities, such as environmental licenses, requested authorizations for installation, Terms of Conduct Adjustment, etc.

Previous index (in the social carbon report): 5

Observation:

Musi HEPP had identified all of environmental regulations that were relevant to be complied (list of environmental regulation was in place). From the list, Musi HEPP had also evaluated the compliance status to all environmental regulation identified. And it was evident that majority of the regulation had been complied, though the not complied regulation had been addressed as environmental programs so a full compliance will be achieve.

Musi HEPP had already gained operational permits from Ministry of Environment for temporary hazardous storage (Decision Letter # 168/2009) that valid for 5 years.

Current index: 5 | **Status:** Appropriate

Perspective:

The amount of hazardous waste (e.g. used lubricants) produced by Musi HEPP was insignificant. No other HEPP activity associated with environmental impact needed a license or permit from relevant government agencies. Musi HEPP identified all of the legal environmental regulations and evaluated whether company actions complied with them.

18. Legal Procedures

Evaluates if the project was involved with any lawsuit or administrative sanctions executed by public organs, person or people, aiming the environment and human health protection or repair.

Previous index (in the social carbon report): 6

Observation:

An interview with Mr. Asep Saefudin (Unit Manager of Musi HEPP) made clear that no lawsuit had been filed regarding environmental and human health issues since the initial stage of HEPP construction.

Current index: 6

Status: Appropriate

Perspective:

No lawsuit regarding environmental and human health issues had been filed or received. A conflict regarding scraped land did arise, but it was settled out of court and never became a legal issue.

19. Environmental Impacts

Evaluates accordance of the project with environmental laws and norms, including agreements with public authorities, such as environmental licenses, requested authorizations for installation, Terms of Conduct Adjustment, etc.

Previous index (in the social carbon report): 4

Observation:

Besides Environmental Impacts Assessment made by Musi HEPP, a periodic evaluation on the significance of environmental impacts was also carried out (on the form: “*Daftar Aspek dan Dampak Lingkungan*”). Musi HEPP had a list of all environmental aspects occurred from operational activity and evaluate the impacts which can have significant or insignificant impact on environment or human health. From the list, it was evident that several impacts were categorized as significant impacts and most of it was insignificant. Musi HEPP had also determined what action needed to control the impacts. A procedure of identification on environmental aspects and impacts evaluation was also in place.

Current index: 4

Status: Appropriate

Perspective:

From the periodic identification of environmental aspects and evaluation of the significance of environmental impacts (“*Daftar Aspek dan Dampak Lingkungan*”), it was evident that majority of the impacts were significant. As many as 68.74% of the impacts were significant. The index of this indicator has been appropriate.

20. Environmental Risk Management

Evaluates the definition, implementation and maintenance of procedures relevant to potential emergencies and accidents related to the project, as well as those relevant to the preparation of answers for such situations, in case of emergency.

Previous index (in the social carbon report): 6

Observation:

Musi HEPP adopted a potential emergency procedure that specifies actions to be taken by its personnel in the event of an emergency condition (procedure PT-SNKL-MUSI-15). A simulation test of the emergency procedure was scheduled to be conducted annually. The next simulation is scheduled to take place in December of 2010.

Current index: 6

Status: Appropriate

Perspective:

Musi HEPP committed to carry out a periodic emergency situation simulation drill according to emergency preparedness and response procedures. Accordingly, an index score of six is appropriate.

21. Reservoir and Marginal Areas Management

Valuation about implementation of the Plan for use of the reservoir and surrounding areas, considering its coverage and efficacy for assurance of the planned uses.

Previous index (in the social carbon report): 4

Observation:

Interviews with Mr. Asep Saefudin (Musi HEPP environmental staff) revealed that community safety is a priority concern of Musi HEPP management. Therefore, potentially harmful (in terms of human health and environment) activities that take place around the reservoir (i.e., re-regulating pond) and marginal areas are prohibited. Musi HEPP set a perimeter fence and posted warning signs to prevent unauthorized personnel from entering the pond and/or marginal areas. In spite of precautions taken by Musi HEPP, some people in the community constructed several fish ponds in the upper stream water intake area. The fish ponds were part of a local government program to raise the level of prosperity in the area. According to Musi HEPP, the fish ponds negatively impacted water quality. Musi HEPP set up a Telemetry Water Level System Device inside the re-regulating pond to measure water level in the pond prior to discharge to the outlet river—a river used for land irrigation purposes by people living downstream.

Current index: 5

Status: Upgraded

Perspective:

Due to HEPP management policy regarding restricted area of the reservoir, it was obvious that no invasions or inadequate uses of Musi HEPP’s reservoir. The river utilization on the upper stream to be used as fish pond was actually outside the HEPP property. It only reduces water quality used by HEPP.

Trees used as perimeter fences and water level monitoring were several actions done by Musi HEPP in order to monitoring, safety, and control.

Therefore, the index scoring of this indicator shall be upgraded from 4 into 5 (*satisfactory plan but it only contemplates monitoring, safety, and control activities*). And also, information on the SCR regarding this indicator was not quite appropriate since most of the information described were about reforestation and were not clear the connection between reforestation with the management of reservoir and marginal areas. Such information on reforestation should be more appropriate as information on indicator 22: erosion, landslides, silting, and floods.

22. Erosion, Landslides, Silting and Floods

Evaluate the current stage of erosion and silting of the reservoir and if the operations area major cause of the problem and the existence of programs to manage these risks, such as monitoring, and erosive processes control (ex: protection and reforestation programs for reservoir protection zone).

Previous index (in the social carbon report): 4

Observation:

Musi HEPP did not negatively impact or magnify any erosion/silting problem in the reservoir and downstream areas. As HEPP, they are very relying on water debit so they implemented any action to minimize erosion and silting.

During a site visit, a 15 kilometer landslide was seen. A revitalization program was in place (e.g. reforestation, forest rehabilitation, etc.) but not yet implemented. A study—expected to be completed in 2014—regarding the appropriateness of the revitalization program was developed and set in motion in coordination with the local government (BP DAS & Dishut).

Current index: 4

Status: Appropriate

Perspective:

An index of four is the most appropriate score for the current condition. It might be upgraded to five or six after the revitalization program has been implemented.

23. Water Resources

Evaluates consolidation and interpretation of water quality monitoring data and measures of control implemented, aimed at maintenance of quality conditions and downstream uses (ex: sewage treatment station eventually implemented in local communities due to construction of the hydroelectric plant, actions taken for sanitary vigilance, etc).

Previous index (in the social carbon report): 4

Observation:

Monitoring and measurement of river water quality was conducted once every three months and reported to relevant agencies in the RKL-RPL document.

Current index: 4

Status: Appropriate

Perspective:

The last water quality monitoring report (monitoring the main intake, regulatory pond, and final outlet) revealed that Musi HEPP was not polluting the water and was, in fact, enhancing water quality. Some results did indicate that the water quality in the outlet (water that had been utilized by HEPP) was not as good as the water quality prior to utilization by Musi HEPP. If the water sample taken from the lake had already been contaminated by lake water, this might have been caused a sampling error. Accordingly, an index score of four stands.

3.5. Biodiversity Resources

24. APP (Permanent Protected Areas) and Legal Reservation

Evaluates state of conservation of the areas around the reservoir including Permanent Preservation Areas - APP and legal reserve areas whether owned by the project or not.

Previous index (in the social carbon report):5

Observation:

During interview with Mr. Asep Saepudin, it was known that the project is partially located in a protected area, namely "Protected forest Bukit Daun Register 5".

Index after validation: 4

Status: Lowered

Perspective:

During a site visit it was determined that few APP and legal reservation areas are degraded. Consequently, the index was lowered from five to four.

25. Recovery of Degraded Areas

Evaluates existence of reforestation projects in marginal areas of the reservoir, Procedures for planting, maintenance, control measures and surveillance. It also Evaluates extent of actions: limited legal obligations, areas of the company, riparian Forest in the incremental basin, and so on.

Previous index (in the social carbon report):4

Observation:

Interviews with Mr. Asep Saepudin revealed that Musi HEPP had reforested several areas. The reforestation created a natural boundary between the village and PLN owned lands, and served to revitalize the land, both upstream and downstream of Musi HEPP.

Index after validation: 5

Status: Upgraded

Perspective:

Reforestation on Musi HEPP is progressing. Musi HEPP carried out voluntary action of reforestation in several areas owned by Musi HEPP and outside the project ownership area. Accordingly, the index score was upgraded from four to five.

26. Biodiversity Conservation

Evaluates actions of biological monitoring developed in surrounding environmental areas and influence of the power plant; assesses specific programs developed for flora and fauna on the banks of the reservoir or in surrounding areas for conservation and research.

Previous index (in the social carbon report): 3

Observation:

Monitoring of flora and fauna was done when the EIA report was prepared. It was clear that reforestation was taking place in several areas of Musi HEPP.

Index after validation: 3

Status: Appropriate

Perspective:

The monitoring of flora and fauna was linked to an obligation by Musi HEPP to provide an EIA report that focused on the monitoring of flora and fauna. Accordingly, the index score remained unchanged.

27. Ichthyofauna

Evaluates existence of procedures for monitoring the Ichthyofauna, partnerships for research, and management actions (restocking, culture in ponds, net).

Previous index (in the social carbon report): 4

Observation:

Musi HEPP introduced an imported fish species (grass carp) to control an aggressive water plant that had invaded six areas.

Index after validation: 1

Status: Lowered

Perspective:

The introduction of grass carp in the pond was done to control the distribution and abundance of a fast-growing water plant. It was not done to enrich the ichthyofauna population in the pond. Introducing a non-indigenous fish species into a new habitat can cause biodiversity of local fish populations to decrease if the introduced species out-competes the native species. Consequently, the index score was lowered from four to one.

3.6. Carbon Resources

28. Additionality

Consists of reduction of greenhouse gas emissions or increase in removal of CO₂ beyond what would occur in absence of project activity. This item evaluates tools used for assessing additionality and compliance with national and international standards.

Previous index (in the social carbon report):6

Observation:

Additionality is validated.

Index after validation: 6

Status: Appropriate

Perspective: none

29. Emission Reductions Calculations & Monitoring

Evaluates methodologies used to calculate emissions and monitor compliance with national and international standards.

Previous index (in the social carbon report): 6

Observation:

ACM0002/Version 10, Sectoral Scope: 1, EB 47 was used

Index after validation: 6

Status: Appropriate

Perspective: none

30. Validation & Verification

Evaluates existence of total or partial validation/verification of project by a third party, if third party is accredited by UNFCCC, and compliance procedures for validation/verification with national and international standards.

Previous index (in the social carbon report): 6

Observation:

Project was validated by RINA, who are a UNFCCC accredited DOE.

Index after validation: 6

Status: Appropriate

Perspective: none

31. Project Performance

Evaluates performance of project, verified by comparison with estimates of emissions reductions under the PDD.

Previous index (in the social carbon report): 4

Observation:

Monitored emission reductions increased from 358'484 tCO₂ in 2006 to 539'939 tCO₂ in 2007 and 655'014 tCO₂ in 2008. The initial estimation was 847'020 tCO₂ per year.

Index after validation: 4

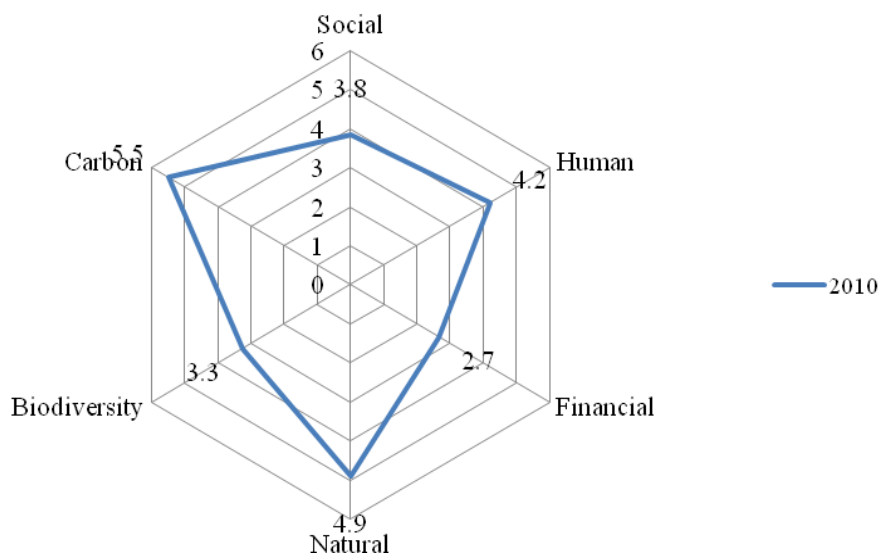
Status: Appropriate

Perspective: none

3.7. General Performance

Table 1. Performance by resource – point zero 2010

Resource	Critical	Satisfactory	Sustainable	Average	General Performance
Social	0.0%	83.3%	16.7%	3.8	Satisfactory
Human	0.0%	60.0%	40.0%	4.2	Satisfactory
Financial	33.3%	66.7%	0.0%	2.7	Satisfactory
Natural	0.0%	44.4%	66.7%	4.9	Sustainable
Biodiversity	25.0%	50.0%	25.0%	3.3	Satisfactory
Carbon	0.0%	25.0%	75.0%	5.5	Sustainable
Total	10.0%	55.0%	37.0%	4.1	Satisfactory



4. Conclusion

The validation review of relevant documents and interviews made clear that Musi HEPP had undertaken actions to improve performance according to the Social Carbon Standard. No performances were lower than satisfactory. However, the validation revealed that several Social Carbon Standard indicators did not reach the highest performance level, indicating that action is needed to improve performance level.

Social Resources – Musi HEPP should consider establishing a permanent forum in order to maintain communication with stakeholders. A permanent forum with established rules and procedures will maximize the probability that higher index scores will be attained.

Human Resource – Currently, benefits which cover health insurance, retirement assistance, and education was limited to permanent workers and not yet included outsourced personnel. Apart from whether outsourced personnel had been given the above benefits by their carrying company, Musi HEPP did provide other benefit such as leisure and sports to all of the employees. Musi HEPP should consider to carry out

satisfaction survey to all employees regarding benefits they received, and also to provide proper benefits to all employees either permanent or outsourced.

Performance on the human resources sector can also be raised if Musi HEPP had developed and/or implement a new innovation to reduce environmental impacts and to gain efficiency. Furthermore, improvement can also be reach if Musi HEPP involved many more personnel in the Social carbon and VCS.

Financial Resources – Musi HEPP was not able to calculate the economic benefit of their operational since electricity produced were distributed to Distribution Section of National Electricity Company, a separate part of the HEPP, and not being directly sold to market. Furthermore, electricity price had been centrally standardized by the government. However, Musi HEPP electricity production itself were possible to be calculated which depends on the river water flow, i.e. normal flow will produced normal electricity and vice versa.

Natural Resources – Sustainable performance had been performed by Musi HEPP regarding Natural aspects. Mostly since Musi HEPP had already certified by external party on their Quality Management System, Environmental Management System, and also for SMK3 as Indonesian Occupational Health and Safety Management System. Higher performance average can be gain by Musi HEPP if consider more action regarding the management of reservoir and marginal areas, which according to social carbon standard, higher performance can be given if there are multiple uses of reservoir and adjacent areas with evident benefits to the local population.

Biodiversity Resources – The biodiversity resources score was satisfactory, mostly due to the condition that more than 70% of Musi HEPP area is in a permanent protected area. To achieve a higher performance score, Musi HEPP should assess (via research) the abundance and diversity of ichthyofauna. This will create a baseline from which the impact of the HEPP project on the ichthyofauna can be determined.

Carbon – already validated by RINA.

Validation of the Social Carbon Report indicated that scores were lowered for indicators 4, 24, and 27. Nine indicators—1, 5, 6, 7, 8, 9, 11, 21, and 25—had their scores upgraded. 18 indicator scores remained the same.

5. Persons Interviewed

- Mr. Edison Aliaras, worker at Musi HEPP
- Mr. Asep Saefudin, worker at Musi HEPP
- Mr. Bonyartha Hangga Dwi Putra, worker at Musi HEPP
- Mr. Luqman Hakim, leader of “Ujan Mas” communication forum
- Mr. Irhanain, village head of Punjung
- Mrs. Elly Marlina, worker at Musi HEPP
- Mr. Sodikin, worker at Musi HEPP
- Mr. Sofyan Amsah, village chief of Ujan Mas.
- Mr. Johan, leader of “Sarrapal Annam” Ujan Mas
- Mr. Amirudin Dalip, head of Ujan Mas Sub District.

6. References

- Guide for Completing Social Carbon Reports - Version 03, October 2008
- Approved Indicators for Hydroelectric Power Plants – Version 4.0, June 2010
- www.socialcarbon.com
- www.southpolecarbon.com
- The cover picture for this report was taken from <http://www.plta-musi.blogspot.com>
- 2010 and 2009 Performance Target of Musi HEPP
- Musi HEPP production data of 2010
- Certificate of ISO 14001, ISO 9001, and SMK3 possessed by Musi HEPP.

7. Validation Statement

THIS SOCIAL CARBON REPORT BY SOUTH POLE CARBON INCLUDES ALL CHANGES REQUESTED IN THE FINAL VALIDATION REPORT. THE LAST REVISION WAS SENT ON NOVEMBER 18, 2010.

THIS STATEMENT WAS ISSUED WITHOUT ANY PRESSURE OR INTIMIDATION FROM ANY PARTIES, AND UPON AN OBJECTIVE VALIDATION AUDIT. THIS VALIDATION REPORT SHALL NOT BE EDITED BY UNAUTHORIZED PARTIES WITHOUT PERMISSION FROM VALIDATOR PERSONNEL OF MUTUCERTIFICATION INTERNATIONAL AS SOCIAL CARBON APPROVED CERTIFYING ENTITY.

8. Attachment

8.1 Corrective Action Request Form (CAR)
Resolved by the Project Owner

8.2. Index of Photos

8.1 CAR Form Resolved by Project Owner

Several non conformances were observed between the Social Carbon Report and field conditions. These non conformances shall be corrected by project owner by revising the Social Carbon Report. Details of the non conformances can be seen below. Project owner shall fill in the column of “summary of project owner response” and “revised sections”.

NC #:	1 of 12	Reference:	SCR Section 4.1, Indicator 1
Non conformance detail:			
Observation in the SCR was not fully correlated to the indicator standard, i.e. regarding population displacements. Any conflicts of the population displacements and/or regarding the magnitude of power plant do not affect any judgment of index scoring. The observation should be more correlated describing about population displacement according to indicator standard.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information			
Revised sections (filled by project owner):			
Indicator 1, added section “additional informaton obtained during site visit” and adapted score. The information regarding power density is mentioned in the indicator as it gives a comparison to the land area required by other CDM HEPPs of similar size and is therefore relevant to understand the magnitude of potential replacement of activities and flooding of natural areas.			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	2 of 12	Reference:	SCR Section 4.1, Indicator 4
Non conformance detail:			
Index of 4 being stated in the CSR was not the most appropriate index since currently only compulsory demands are considered and fulfilled because limited funds from PLN.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Wrong judgement of the magnitude of compulsory demands			
Revised sections (filled by project owner):			
Indicator 4, added section “additional informaton obtained during site visit” and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	3 of 12	Reference:	SCR Section 4.1, Indicator 5
Non conformance detail:			
Index of 3 being stated in the CSR was not the most appropriate index since some program were held successfully (at least one project/action in at least one cluster) that had positive influence on everyday behaviour.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inappropriate interpretation of the scenarios			
Revised sections (filled by project owner):			
Indicator 5, added section “additional informaton obtained during site visit” and adapted score			

Conclusion (filled by validator):

CAR is resolved

NC #:	4 of 12	Reference:	SCR Section 4.1, Indicator 6
Non conformance detail:			
During site visit it was known that project delivers benefits in more than one of the major areas, i.e. Health system, economic activities, improvements in the infrastructure and religious. Therefore, index of 3 being stated in the CSR was not the most appropriate index.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information			
Revised sections (filled by project owner):			
Indicator 6, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	5 of 12	Reference:	SCR Section 4.2, Indicator 7
Non conformance detail:			
The nation-wide recruitment held by PLN was aimed to fulfill the need of human resource according to the established competence standard. While to increase the human resource quality, PLN will arrange annual training program and/or periodic competence examination and shall be participated by all of personnel. That actual condition was not how it's described in the SCR, i.e. to nation-wide recruitment was aimed to increase human resource quality. The observation in the SCR shall be corrected.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Conflicting information from different stakeholders			
Revised sections (filled by project owner):			
Indicator 7, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	6 of 12	Reference:	SCR Section 4.2, Indicator 8
Non conformance detail:			
It was written in the SCR that Musi HEPP had <u>applied</u> occupational health and safety management system. The word 'applied' had a different perspective with the definition that Musi HEPP had been certified to the system. The SCR shall be corrected to explain that Musi HEPP had already applied and certified the occupational health and safety management system by a third party.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information, unclarity about third party verification			
Revised sections (filled by project owner):			
Indicator 8, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	7 of 12	Reference:	SCR Section 4.2, Indicator 9
Non conformance detail:			
Outsource workers did not receive benefits such as health assurance, education, and retirement funds, they received other benefits such as sport facilities, afternoon meal, etc. Therefore information in the SCR, i.e. regarding outsourced workers did not receive any benefits, shall be revised.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Missing information, especially regarding benefits from their own company to outsourced workers			
Revised sections (filled by project owner):			
Indicator 9, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	8 of 12	Reference:	SCR Section 4.2,Indicator 11
Non conformance detail:			
During site visit, it was evident that information regarding implementation of carbon project was not only received by management and employee(s) directly involve in the carbon project. Therefore information in the SCR, i.e. regarding internal communication of the carbon project, shall be revised.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information			
Revised sections (filled by project owner):			
Indicator 11, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	9 of 12	Reference:	SCR Section 4.4, Indikator 21
Non conformance detail:			
The index scoring of this indicator shall be upgraded from 4 into 5 (<i>satisfactory plan but it only contemplates monitoring, safety, and control activities</i>). And also, information on the SCR regarding this indicator was not quite appropriate since most of the information described were about reforestation and were not clear the connection between reforestation with the management of reservoir and marginal areas. Such information on reforestation should be more appropriate as information on indicator 22: erosion, landslides, silting, and floods.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information, wrong interpretation of the indicator			
Revised sections (filled by project owner):			
Indicator 21, added section "additional informaton obtained during site visit" and adapted score. Moved information regarding reforestation activity to indicator 22.			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	10 of 12	Reference:	SCR Section 4.5, Indikator 24
Non conformance detail:			
During site visit it was known in several of the protected areas near project are degraded by illegal logging and ilegal plantations. therefore, SCR shall be revised.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information, difficulties to asses the grade of forests			
Revised sections (filled by project owner):			
Indicator 24, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	11 of 12	Reference:	SCR Section 4.5, Indikator 25
Non conformance detail:			
During site visit, it was evident that Musi HEPP had carried out voluntary action of reforestation on several areas, both owned by Musi HEPP and outside the project ownership. Please add some information about that. See validation report			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information			
Revised sections (filled by project owner):			
Indicator 25, added section "additional informaton obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

NC #:	12 of 12	Reference:	SCR Section 4.4, Indikator 27
Non conformance detail:			
Grass Carp seed spreading in the pond was aimed to control the distribution and abundance of fast-growing water plant <u>and not</u> to enrich ichthyofauna population. Therefore, SCR observation on this indicator shall be corrected although the index scoring was appropriate.			
Summary of response, e.g. what caused the non conformance, if any (filled by project owner):			
Inaccurate information, unclar communications on the purpose of seed spreading.			
Revised sections (filled by project owner):			
Indicator 27, added section "additional information obtained during site visit" and adapted score			
Conclusion (filled by validator):			
CAR is resolved			

8.2 Index of Photos



“Kalangan” traditional market built by Musi HEPP



Communal trash basin in nine villages on Ujan Mas Sub District provided by Musi HEPP



House of Mr. Luqman Hakim, Communication Forum Leader of “Forest Community” from Ujan Mas Sub District



One computer for Lurah office of Ujan Mas



A bridge at Punjung Village made by donation from PLN.