

SOCIALCARBON REPORT

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ATTACHMENTS

1. Identifying the Project

Basic Information	
Indicators	<i>Indicators for the Hydroelectric Power Plants Version 04.1, 06/2011</i>
Project Name	<i>50 MW Sipansihaporas Hydro Power Plant</i>
Year-Point of Project	<i>0</i>
Monitoring period (SOCIALCARBON)	<i>April 2010 - February 2013</i>
Version + Date of report completion	<i>V 2 (01/10/2013)</i>
Corresponding Monitoring Report (Carbon Accounting Standard)	<i>Monitoring Report 50 MW Sipansihaporas Hydro Power Plant North Sumatera, Version 2.0 (05/08/2013)</i>
Location	<i>Central Tapanuli District, North Sumatera Province, Indonesia</i>

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2. General description of the reduction of GHG emissions Project activity

2.1. Context and history of the reduction of GHG emissions project

The project activity is a run-of river type hydro power plant in North Sumatra province in Indonesia. The total actual installed capacity of the project is 50 MW, comprised of a 33 MW and a 17 MW turbine, with a predicted electricity supply to the grid of 214,800 MWh per annum¹. The project is owned and developed by PT. PLN (Persero), a state-owned electricity company in Indonesia. The project generates and supplies the 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 new hydropower plant.

2.2. Activities and methodology used for reduction/capture of GHGs

The project activity is a run-off-river type hydropower plant with a daily regulating pond. The power density of regulating pond is 820 W/m². Total installed capacity of the project is 50 MW, comprises of a 33 MW and a 17 MW turbines with annual electricity generation of 214,800 MWh, in which all of power generated will be delivered to the Sumatra Grid. The project activity generates an average of 159,596 emission reduction credits per year, starting on the 21 October 2002. According to the CDM UNFCCC criteria, one approved GHG program by the Voluntary Carbon Standard (VCS) Board, the project is classified as large scale. Further to this, based on Annex A of the Kyoto Protocol it falls under the following types/categories of the Clean Development Mechanism under Kyoto Protocol:

“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

Reference: Approved consolidated baseline methodology ACM0002 version 10, sectoral scope 01 - Energy Industries (renewable-/non-renewable sources), effect as of EB 47

The specified project is not a part of a grouped project.

The credits will be sold on the voluntary market only.

3. Method of applying SOCIALCARBON Methodology

3.1. Elements considered in the application of the SOCIALCARBON Method for the sector

The application of the SOCIALCARBON methodology was mainly based on existing documents. Stakeholder meetings were conducted during the environmental impact assessment (EIA) development. For further detailed information regarding SOCIALCARBON, South Pole Carbon has developed a questionnaire¹ and filled out by Sipansihaporas HPP staff. Four phone interviews with stakeholders were also conducted based on Sipansihaporas HPP CSR program.

The diagnosis is based in the SOCIALCARBON Indicators² for power plants enterprises, which evaluate 31 meaningful aspects of the project, considering the previous defined resources. The indicators are described individually, followed by a brief explanation of the present situation, the index obtained and, when necessary, the suggestions of actions that may be executed aiming at improvements of the project's sustainability.

The main objectives of this report are the evaluation of the project's sustainability and its contribution to the local sustainable development, without replacing the VCS Project Description (VCS-PD) and its respective Verification Report. Technical specifications about the credits, project's baseline, monitoring plan, employed methodologies, among others aspects will be shown in the PDD and in the reports emitted by the Designated Operational Entity / DOE.

The contributions of the project to the global sustainable development which are not measurable, or that constitutes generic and static contributions, do not demand a periodic evaluation, as proposed in the SOCIALCARBON methodology³.

3.2. Social, economic and environmental impacts of the emission reductions project

Based on the registered VCS Project Description for '50 MW Sipansihaporas Hydro Power Plant, North Sumatra' section 1.16 the project is contributing to sustainable development defined by the government of Indonesia specifically as follows:

Social well-being:

- The project contributes to the development of the region by increasing community development and corporate social responsibility of PT. PLN (Persero) such as infrastructure development (road, bridges); funds for building a new school, church and mosque in the region; upgrading health care facilities (a small clinic) as well as free medicines in the vicinity of the project for the benefit of the community.
- During both construction and operation, various kinds of mechanical work are required, providing employment on a regular and permanent basis.

Economic well-being:

- The project activity generates direct and indirect employment for skilled and unskilled manpower during construction phase as well as during operational stage and thus helped in controlling migration from the region and alleviation of poverty in the local area.
- The generated electricity is fed into regional grids through the local grid, thereby improving the availability of electricity to local consumers (villagers and sub-urban inhabitants) by increasing the electricity supply. Due to increased new opportunities for industries and economic activities arise with a chance for more local employment and better overall development.

¹ Social Carbon Questionnaire (Sipan) Year 0.xls

² http://www.socialcarbon.org/uploadDocs/Indicators_Hydro_v.4.1.pdf

³ <http://www.socialcarbon.org/Documents/>

- The project activity leads to diversification of the national energy supply that is dominated by conventional-fuel-based generating units.
- The project activity contributes to economic sustainability around the plant site and encourages economic power decentralization.

Environmental well-being:

- The project utilizes hydropower to generate electricity, which otherwise would have been generated through fuel- (most likely fossil-fuel-) based power plants. This way it is contributing to a reduction in specific emissions (emissions of pollutant/unit of energy generated), including GHG emissions.
- As hydroelectric power projects produce no end-products in the form of solid waste (ash, etc.), they don't have to cope with the problem of solid waste disposal encountered by most other sources of power.
- Being a renewable energy source, hydro energy is used to generate electricity that contributes to resource conservation.
- Thus, the project causes no negative impact on the surrounding environment; and in the end contributes to environmental well being due to the run-off river type of project activity.

Technological well being:

- The project supports high quality equipment transfer from other regions and even other countries, and contributes to capacity building of the labor force through training and practical work.
- The project promotes local products developed in the region, when replacement of spare parts is necessary, and supports renewable technology development especially for hydroelectric power technology.

3.3. Method used for obtaining information

To collect information regarding the application of the indicators, South Pole distributes the questionnaire and conduct phone interviews with several related informants.

A. Questionnaire

The questionnaire with point of questions develop from the 'Indicators for Hydroelectric Power Plants' (Version 4.1 - June, 2011) filled-in by PLN's staff in-charge for Social and Environment Program implementation at Sipansihaporas hydropower site.

The questionnaire was filled-in by Mr. Dian Hernanto as the Environment and Electricity Safety Junior Engineer from PT. PLN (Persero) Sektor Pandan.

B. Interviews

Based on the information retrieved from the questionnaire result, South Pole conducted phone interview with some informants with regard to collect their opinion regarding the implementation and benefit of CSR programs conducted by PT. PLN (Persero) Pandan Sector Office as the managing office of Sipansihaporas HEPP.

The interviewee are listed below:

1. Mr. Binharun Nababan - Team Leader of CSR Program (P3L Program) PT. PLN (Persero) Sektor Pandan
2. Mr. Hahotan Panggabean - Head of Sihaporas IV Village
3. Mrs. Raudhatul Husna - Headmaster of MDA Al-Ikhlhas
4. Mr. Janter Aruan - Head of Governing Body of Spirituality for Christian (*Bapendro Kristen*) at PT. PLN (Persero) Sektor Pandan

3.4. Actors involved

Actors from Project Owner (PO) and Stakeholder Representation (Date, Time, Participants)

- *A questionnaire filled out by Mr. Dian Hernanto, employee at Sipansihaporas HEPP at August 27th, 2013*
- *Phone interview with Mr. Binharun Nababan, Team Leader of CSR Program (P3L Program) PT. PLN (Persero) Sektor Pandan, 18th of September 2013*
- *Phone interview with Mr. Hahotan Panggabean, Head of Sihaporas IV Village, 18th of September 2013*
- *Phone interview with Mrs. Raudhatul Husna, Headmaster of MDA Al-Ikhlhas, 20th of September 2013*
- *Phone interview with Mr. Janter Aruan - Head of Governing Body of Spirituality for Christian (Bapendro Kristen) at PT. PLN (Persero) Sektor Pandan, 20th of September 2013*

Both questionnaire and phone interviews result would be noted in written copy and use to score the indicators.

4. Results

4.1. Social Resources

1. Population Displacement

Evaluates if the project requires people, activities or services to be displaced due to the implementation of the project, as well as the measures adopted during the planning and implementation stages, in order to minimize impacts or maximize positive impacts.

Observations:

Due to the Sipansihaporas HEPP project construction activity, several families and farming land need to be re-located. PT PLN (Persero) as the owner of Sipansihaporas HEPP Generation Unit was coordinating with local authorization as mediator for the land acquisition process. The land users were compensated according to governmental standards. PT PLN (Persero) used their own budget to compensate the land-owner, hence only legal land-owners are compensated by PLN.

Since land acquisition was conducted more than 5 years ago, hence it is difficult to provide enough evidences to support the statement above. The involved staffs for this issue have also been relocated to another Generation Unit or had resigned from PLN.

Index: 3

Perspectives: none

2. Communication with stakeholders

Evaluates the process for contacting stakeholders in the planning, implementation and operation stages.

Observations:

Local communities are important stakeholder for Sipansihaporas HEPP, hence Sipansihaporas HEPP needs to maintain good communication with them. Sipansihaporas HEPP has started the communication with local communities since the early stage of project implementation.

Sipansihaporas HEPP staff chose public meeting & discussion as the way of communicating with local communities. Although they have not yet set a permanent discussion forum, Sipansihaporas HEPP staff always conducted a public meeting every time they have an agenda need to be share with stakeholders.

Since project owner has communication with stakeholders, hence this indicator is scored 3.

Index: 5

Perspectives: Project owner might set-up a permanent forum to discuss recent issues and to communicate their CSR program.

3. Acceptance

Evaluates the level of support or acceptance from the neighboring population in regard to the project construction or management of the reservoir.

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

Observations:

The operational of Sipansihaporas HEPP project activity is fully supported by local stakeholders. Sipansihaporas HEPP has shown their good intention since early project stage by compensate the land-owner whose land is acquire due to project construction. Project owner also involved local stakeholder on their CSR activities and always gathered their opinion first before setting a new CSR programs.

According the interview with Mr. Hahotan Panggabean, Sihaporas IV Village is totally support the operation of Sipansihaporas HPP surround their village. The routine social activities conducted since the beginning of Sipansihaporas HPP operation be the main factor of high acceptance level from the local stakeholder.

Moreover, since project is operating by utilize a renewable energy with zero emission, no negative environment impact which may cause health problem to the local communities is resulted from this project.

The indicator is scored 6 due to the strong support from local stakeholders.

Index: 6

Perspective: none

4. Social Demands

Social demands may be understood as institutional or civil society interests: demand 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.

Observations:

Sipansihaporas HEPP openly accepted social demands from stakeholder in the form of proposal. The social demands then discussed and selected by Sipansihaporas HEPP staff, which will develop a P3L program (CSR Program) proposal through their Sector Office (PT. PLN (Persero) Pandan Sector Office and submitted to PT. PLN (Persero) Head Office for approval. The approved P3L program then informed to the stakeholders through the socialization event.

Since Sipansihaporas HEPP has policies, rules and/or other criteria to execute voluntary social actions, hence the Indicator Social Demands is scored 5.

Index: 5

Perspective: none

5. Social Programs

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

- Social and Environment Communication Program
- Community development / income generation
- Ethnic integration
- Other social areas (please specify)

Observations:

Since the operation starting date up to recent date, Sipansihaporas HEPP has received many proposals from stakeholders in relevance with the Social Program and Demand. Pandan Sector Office as the managing office for Sipansihaporas HEPP Generation Unit has conducted several Company Social Responsibility (CSR) activities and delivered several financial donations to the community.

List of the CSR activities and donations can be seen below:

CSR Activities:

1. Plant tree saplings distribution and re-forestation
2. Plant tree fertilizing and maintaining
3. Community Capacity Building → training with title 'Hutan & Listrik' or 'Forest & Electricity' to educate the community how important is the forest and people should actively preserve the forest in order to maintain the electricity generation from a hydro power plant such as Sipansihaporas HEPP.

Donations:

1. Financial donation for Mosques at the nearby villages (for worship facilities addition and building renovation)
2. Financial donation for Churches at the nearby villages (for worship facilities addition and building renovation).
3. Financial donation for local Madrasah (Islam-based education center)

Due to some financial difficulty, no new CSR activity conducted for the financial year of 2012. New CSR activity/financial donation will be establish for the financial year of 2013.

Plant Tree Saplings Distribution

According to Mr. Panggabean as the Head of Sihaporas IV Village, his village received several wooden tree saplings as below:

- Durian tree sapling
- Mango tree sapling

Sipansihaporas HPP conducted a site survey prior to the implementation of CSR program to introduce the program and to hear the local villagers opinion, so Sipansihaporas HPP can decide whether the village eligible to receive CSR. By distribute the requested wooden tree sapling, Sipansihaporas HPP hopes that the local villagers will be more responsible with the plant maintenance. Local villagers could harvest the fruit produced from the wooden tree or to harvest the wooden tree after several years.

Head of Village informed that villagers have planted all distributed wooden tree saplings on their lands. And according to his estimation, unfortunately, not all planted saplings grow well.

Community Capacity Building

According to Mr. Nababan as the Team Leader of CSR Program (P3L Program) PT. PLN (Persero) Sektor Pandan, the team has been organized the counseling meeting as part of community relation of CSR Program. The objective of the meeting was to educate the local people not to cut down the trees due to preservation of nature and sustainability of water supply for Sipansihaporas HPP. Such counseling is still continuing to this day, but not in the form of special events such as the events of the meeting, but a direct counseling at the same time the CSR team meet the local people during the realization of CSR programs.

Plant Tree Saplings Re-forestation

CSR team has also implemented green program "one man one tree", in which the purpose of the program is to preserve the environment around Sipansihaporas HPP. The tree saplings were planted varieties in crops such as mahogany trees and fruit trees as well as mango trees. Number of trees that have been planted in around 1,000 trees, where the seeds are supplied by PLN. CSR team has conducted field surveys before planting and together work with local government to determine the location of the planting area in order not to disturb residents' land. And for sure, local residents were involved in the planting of the seeds.

CSR team remains suggested that the greening program routinely performed each year in order to protect the environment around Sipansihaporas HPP.

In summary, the CSR program initiated by Sipansihaporas HPP has sufficiently planned and implemented and there is plenty room for innovation for the next CSR program.

Index: 5

Perspectives:

1. Stakeholder expected to keep receiving another varieties of plant tree sapling, especially rubber tree sapling, as the most of the residents are working as rubber farmers and rubber tappers.

6. Social Benefit

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

- Improvement 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)

Observations:

Since the operational year of Sipansihaporas HEPP, PLN has donated in almost all aspects of life of local stakeholders. PLN has donated for the construction of churches; mosques; and renovation of local schools. PLN has also procured drinking water installation and improved the water drainage system. Although no P3L program was conducted for the financial year of 2012, the impact of previous donations could be evident until now. The complete list of P3L program for Sipansihaporas HEPP is listed on Indicator 6 Social Program.

Since Sipansihaporas HEPP delivers in two major areas to a large number of local stakeholders, hence this indicator is score 5.

Index: 5

Perspectives: None

4.2. Human Resource

7. 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.

Observations:

The Sipansihaporas HPP Generation Unit is part of PT PLN (Persero), a major state-owned company and has generation units spread all over Indonesia. PLN Head office would open a national wide recruitment process to recruit the engineer. This national recruitment system would minimize the difficulty to recruit competence human resources for Generation Unit at remote location such as Sipansihaporas HPP project site.

Each year PLN conducts 'Competency Test' to evaluate the quality of their human resources. Sipansihaporas HPP has sufficient number of competent human resources and qualified for their current position. To improve the working capacity of the employees, Pandan Sector Office (the managing office for Sipansihaporas HPP Generation Unit) assigned their employees for various trainings since project operation starting date in 2002. The standard for competency is also available.

Since the mechanism to evaluate the competency of workers and the competency standard are available, and that PLN continuously support the capacity building of its workers by assigned workers for various trainings all year long, hence the Indicator is scored 5.

Index: 6

Perspectives: None

8. Health and Safety

Evaluates if a comprehensive employee safety program is in place and its effectiveness can be demonstrated by the absence of life-threatening accidents.

Observations:

Sipansihaporas HPP has applied SMK3 (or OHSAS), ISO 14001 and ISO 9001 integrated in 2007 onward and no life-threatening accident occurred since then. The audit carried out by external party and the project received the 'Golden Flag' status for SMK3, which valid until May 2013.

To implement the standard, Sipansihaporas HPP has developed the Emergency Preparedness and Response Procedure in place.

Since Sipansihaporas HPP has applied OHSAS (which certified by a third party), hence this Indicator is scored 6.

Index: 6

Perspectives: None

9. Benefits

Evaluates existence of additional benefits 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 also.

Observations:

PLN staff gets performance bonus, position support, health support and pension benefit. Sport facilities are available. The direct employees at PLN are provided with the benefits. PLN also social provides Social Security Program (Jamsostek) for outsource staff.

Moreover, PLN also has an evaluation method to survey the satisfactory level of PLN staff regarding the provided benefits.

Since only direct employees are provided with benefits in three areas (social, health and financial) hence this Indicator is scored 2.

Index: 2

Perspectives: None

10. Transfer of New Technology

Evaluates the level of technological innovation and the technologies employed in the project or 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.

Observations:

The Project uses proven technology in electricity generation and transmission. The essential equipment used in the Project was procured from another country. However, run-of-river technology is a common practice in Indonesia, hence no new technology transfer needed for this Project. There was some trainings to master the run-of-river technology and some innovations are planned to upgrade the system. The target for innovation programs are to gain efficiency and to reduce environmental impacts.

Index: 3

Perspectives: None

11. Involvement of Employees in the Project

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

Observations:

Annual VCS training held at the project site and attended by VCS related staff of Sipansihaporas HPP. Afterward, the training attendants share their knowledge on VCS material (and climate change issue) to all other staffs at Sipansihaporas HPP site.

Index: 6

Perspectives: None

4.3. Financial Resource

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.

Observations:

Every month Sipansihaporas HPP Generation Unit received 'Rencana Operasi Bulanan' or Monthly Operational Plan from PLN P3B (PLN Load Dispatcher and Transmission Division). Up to 2012 period, Sipansihaporas HPP has successfully fulfilled the targeted electricity generation and gained the expected profit.

Index: 5

Perspectives: None

13. Market

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

Observations:

Project activity is eligible for the voluntary market.

Index: 3

Perspectives: None

14. Sale of Credits

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

Observations:

The voluntary credit resulted from large hydro projects attract less attentions from the buyer. To escalate the selling opportunity of the credit, South Pole intends to upgrade the VCS project with Social Carbon standard with hope that the standard will help attract buyer to the credit.

Index: 1

Perspectives: None

4.4. Natural Resource

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.

Observations:

Sipansihaporas HPP as part of major state-owned company (PT. PLN (Persero)) has an Environment Working and Monitoring Plan (RKL-RPL) to maintain the natural resource sustainability. The RKL - RPL (part of the EIA) document has stipulated all of environment impacts potency from the operational of Sipansihaporas HPP and the countermeasures of the negative impact.

Sector Pandan Office headed the P3L (Environment Empowerment Participation Program) Program. Every year, P3L would plan an Environment Sustainability Program based on the RKL - RPL. Then the Environment Sustainability Program is monitored and reported to the Local Environment Office (Badan Lingkungan Hidup Daerah / BLHD) quarterly.

To manage the Environment Sustainability Program, Sector Pandan placed a representative staff at each Generation Unit (including Sipansihaporas HPP).

Since Sipansihaporas HPP has clear sustainability goals and objectives and in addition they also has collaborators to incorporate the strategy, hence this Indicator is scored 5.

Index: 5

Perspectives: None

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.

Observations:

The P3L staff at Sipansihaporas HPP would develop a Quarterly Monitoring Report title, 'Laporan Implementasi Pengelolaan Lingkungan dan Pemantauan Lingkungan'. This report then reported to the Local Environment Office (Badan Lingkungan Hidup Daerah / BLHD).

Moreover, Sipansihaporas HPP has adopted ISO 14001:2004 (Environmental Management System) and audited by external party.

Index: 6

Perspectives: None

17. Environmental Legislation

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

Observations:

Sipansihaporas HPP has fulfilled its entire legal environmental obligation as stipulated on AMDAL (EIA) document. Sipansihaporas HPP has identified all of the legal environmental regulation and evaluated the compliance level to the identified legal environmental regulation.

Index: 5

Perspectives: None

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.

Observations:

There was no lawsuit addressed to Sipansihaporas HPP since the started of construction phase up to this moment.

Index: 6

Perspectives: None

19. Environmental Impacts

Evaluates magnitude of environmental impacts of the project, existence of environmental impact statements/studies, and maintenance of environmental evaluation procedures.

Observations:

An EIA was conducted and all negative environmental impacts are subject to mitigation measures. To evaluate the environmental impact, Sipansihaporas HPP carried out a period evaluation on the Significance of Environmental Impacts ('*Daftar Aspek dan Dampak Lingkungan*'). There are several significant impacts shown on the EIA, however PO has identified the mitigation action for each significant impact.

Index: 4

Perspectives: None

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.

Observations:

The company has an Emergency Response System team/organization under ISO 14001 and SMK3. To train this team, every year the company conducts an 'Emergency Response Simulation' like Fire Simulation, Earthquake, riot and oil spills.

Index: 6

Perspectives: None

21. Reservoir and marginal areas management

Measures the effectiveness of the Reservoir and marginal areas management, considering:

- a) existence of invasions in the marginal and adjacent areas and mitigation measures adopted
- b) existence of plan or program for use of the reservoir and surrounding areas, considering its coverage and efficacy for assurance of the planned uses.

Observations:

There is no inadequate use of marginal area around the Sipansihaporas HPP project site.

As the P3L program in 2010, Sipansihaporas HPP has distributed tree-plantation seedling to local stakeholders. The main purpose of this program is to support the re-forestation program surround the project area and to maintain the water discharge as the sole input source for the hydro power plant.

According to phone interview with Mr. Panggabean that informed that villagers have planted all distributed wooden tree saplings on their lands. And according to his estimation, unfortunately, not all planted saplings grow well.

The choice of production tree plant sapling instead of wood tree plant is to avoid local villagers cut-off the trees in the future and only harvest the fruit. The planting location was not marked hence there is no sufficient monitoring routine could be conducted.

Started from year 2012, the reforestation program will be monitored once every 6 months for the next 4 years by the CSR staff of PT. PLN (Persero) North Sumatera Region. The monitoring result will be reported on a monitoring report, developed every 6 months.

Index: 4

Perspectives: None

22. Erosion, landslides, silting and floods

Evaluate the current stage of erosion and silting of the reservoir and if the operations are a 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).

Observations:

The potential negative impact of erosion is indicated on the EIA document. The re-forestation program in 2010 was also intended to prevent erosion of the reservoir.

Sipansihaporas HPP also conducts periodic sludge removal activity at the Regulating Pond.

Since Sipansihaporas HPP has initiated program including the preventive actions, hence the Indicator is scored 5.

Index: 5

Perspectives: None

23. Water Resources

Evaluate the current stage of water quality of the reservoir or downstream water and if the operations are a major cause of the problem and the existence of programs to manage these risks, such as monitoring data and measures of control implemented (ex: sewage treatment station eventually implemented in local communities due to construction of the hydroelectric plant, actions taken for sanitary vigilance, etc).

Observations:

Sipansihaporas HPP periodically monitors the water resource quality at Main Intake, Regulating Pond and Power House Outlet sampling points. The sampling results showed that the water quality is still below the obligatory Water Quality Standard (*Baku Mutu Air*) as stipulated on Government Regulation No.82 year 2001.

Index: 5

Perspectives: None

4.5. Biodiversity/Technology Resource

24. APP and Legal Reserve

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.

Observations:

Less than 50% of APP and Legal Reservation areas are degraded and remaining forestry is fragmented. It is caused by illegal logging by surround community. The Protected Forest is in a good condition but threatening by illegal logging. To prevent further degradation of the Protected Forest, Sipansihaporas HPP conducted reforestation activity through their P3L program in 2010.

Index: 3

Perspectives: None

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 obligation; areas of the company, riparian forest in the incremental basin, and so on.

Observations:

Sipansihaporas HPP is actively involved with the reforestation attempt surround the Sipansihaporas HPP project site since 2010.

Index: 5

Perspectives: None

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.

Observations:

Sipansihaporas HPP periodically monitored the population of plankton and benthos at the catchment area (Sipansihaporas River) and the result is reported on the Environmental Management and Monitoring Report (*Laporan Implementasi Pengelolaan Lingkungan dan Pemantauan Lingkungan*).

Index: 3

Perspectives: None

27. Ichtyofauna

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

Observations:

Sipansihaporas HPP has not yet initiated program to preserve the fish habitat surround the project location, hence no monitoring conducted yet for this Indicator.

Index: 1

Perspectives: Project Owner need to arrange a P3L program to preserve the fish habitat and how to monitor the program.

4.6. Carbon Resource

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.

Observations:

Additionality is validated according to an investment analysis.

Index: 6

Perspectives: None

29. Emissions Reductions Calculation & Monitoring

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

Observations:

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

Index: 6

Perspectives: 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.

Observations:

Project was verified by TUV-SUD, India.

Index: 6

Perspectives: None

31. Project Performance

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

Observations: The project reduces emissions by 392,884 tCO₂ from 1st April 2010 up to 28th February 2013 (35 months). In general the project performance is still in-line with the estimated annual reduction in the registered VCS-PD (159,596 tCO₂ / year).

Index: 5

Perspectives: None

5. Analysis of results

To analyze the situation of the project, it is important to consider what is represented by the score obtained for each of the resources. The indicators are established to express the following relationship between the scores obtained and the situation of the project:

Scores 1 and 2:

Situation: Critical.

Characteristics: existence of irregularities; high socio-environmental risk; significant levels of social and environmental degradation; or situation of extreme hardship, which significantly compromises the quality of life of the population.

Scores 3 and 4:

Situation: Satisfactory.

Characteristics: meets all the legal requirements relating to its activities; surpass them through the adoption of good practices and voluntary actions in some cases; or a quality of life that reaches the minimum acceptable standard, but which requires improvement.

Scores 5 and 6:

Situation: Sustainable.

Characteristics: exceeds its legal obligations and/or common practice in the market, in many cases adopting the best-possible practices for the sector; or communities have reached a sustainable livelihood, with adequate access to material and social goods, are capable of recovering independently from situations of stress, and are not causing the deterioration of basic environmental resources through their activities.

In order to obtain an analysis of the Resources average, an equal distribution is adopted between the decimal intervals from 1 to 6, expressing the following relationship amongst the indexes obtained and the project performance.

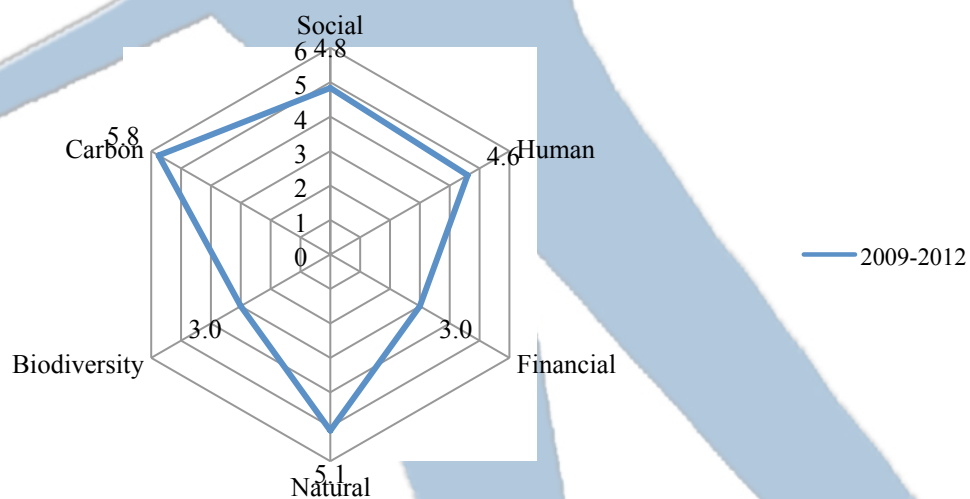
Average index obtained for the Resource	Decimal interval	Situation
Interval from 1 to 2,6	1,7	Critical
Interval from 2,7 to 4,3	1,7	Satisfactory
Interval from 4,4 to 6	1,7	Sustainable

5.1. General performance

Total Average, Spider Diagram, and Comments to exceptional good / bad Indicators

Resource	Critical	Satisfactory	Sustainable	Average	General Performance
Social	0.0%	16.7%	83.3%	4.8	Sustainable
Human	20.0%	20.0%	60.0%	4.6	Sustainable
Financial	33.3%	33.3%	33.3%	3.0	Satisfactory
Natural	0.0%	22.2%	88.9%	5.1	Sustainable
Biodiversity	25.0%	50.0%	25.0%	3.0	Satisfactory
Carbon	0.0%	0.0%	100.0%	5.8	Sustainable
Total	13%	24%	65%	4.4	Sustainable

Representation of the enterprise performance schematic:



Exceptional Good Indicators:

16 - Environmental Management

20 - Environmental Risk Management

For both indicators, the third party validation of management systems has become part of PLN corporate strategy in such a way that proper and effective risk management can be guaranteed.

5.2. Performance by resource

5.2.1. Social Resource

The local stakeholders give full acceptance to the operational of Sipansihaporas HPP at their area. To maintain good relationship with stakeholders, Sipansihaporas HPP management periodically conduct direct and in-direct communication with local community and planned social / environmental programs for local community benefits.

5.2.2. Human Resource

PLN as a major state-owned company has an annually competency test, planned training program for capacity building, applied health and safety standard and prominent benefits for their internal staff. PLN also provides Social Security Program (*Jamsostek*) for their outsourced staff.

5.2.3. Financial Resource

Sipansihaporas HPP financial resource is in a good condition. 2009-2012 financial year has a positive income from the electricity generation. The expected additional revenue form the carbon credit sales would be new source of financial resource for Sipansihaporas HPP.

5.2.4. Natural Resource

The situation is considered sustainable, mainly due to the third party certified environmental management systems. Sipansihaporas HPP also has a sustained re-forestation activity, however it is currently limited to the area owned by PLN.

5.2.5. Biodiversity Resource

Local forests conditions can indeed be improved. There are some efforts by PLN, such as more re-forestation and other activities that could be done.

5.2.6. Carbon Resource

The project has gone through the 2nd Verification for the Voluntary Carbon Standard. PLN has some internal programs regarding climate change but few activities could be enhanced. The overall situation is considered sustainable.

5.3. Historic performance and comparative analysis

There is no historic performance since this is the analysis for year 0.

6. Perspectives

Social Resources (Communication with stakeholders)

- Project owner might set-up a permanent forum to discuss recent issues and to communicate their CSR program.

Social Resources (Social Programs)

- Stakeholder expected to keep receiving another varieties of plant tree sapling, especially rubber tree sapling, as the most of the residents are working as rubber farmers and rubber tappers.