SOCIALCARBON®

SOCIALCARBON REPORT

CONTENT

ATTACHMENTS

1. Identifying the Project

Basic Information	
Indicators	*Indicators for the Hydroelectric Power Plants Version 04.1, 06/2011*
Project Name	*82 MW Lau Renun Hydro Power Plant, North Sumatra*
Year-Point of Project	*2*
Monitoring period (SOCIALCARBON)	*March 2012 - February 2013*
Version + Date of report completion	*V 2 (20/11/2013)*
Corresponding Monitoring Report (Carbon Accounting Standard)	*Monitoring Report 82 MW Lau Renun Hydro Power Plant North Sumatera, Version 2.0 (05/08/2013)*
Location	*Dairi District, North Sumatra Province, Indonesia*

Identifying the Researcher	
Name	*Ikke Martha Prasetyaning and Leonardo Sidabalok*
Address	*South Pole Carbon Asset Management Ltd. Technoparkstrasse 1, 8005 Zurich, Switzerland*
Phone	*+62 21 720 75 67*
Email	*i.prasetyaning@southpolecarbon.com* *l.sidabalok@southpolecarbon.com*

Identifying the Project Developer	
Name	*PT. PLN (Persero), Mr. I Made Ro Sakya*
Address	*Jl. Trunojoyo blok M 1/135, Kebayoran Baru, 12160 Jakarta, Indonésia*
Phone	*+62-21 725 1234*
Email	*imadero@pln.co.id*

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 new run-off-river type hydropower plant with a daily regulating pond at the five-hour peak power generation, diverting from the Renun river main stream and eleven (11) tributaries into Lake Toba. The regulating pond has a storage capacity of 500,000 m^3 and a power density of 820 W/m2. The total actual installed capacity of the project is 82 MW, consisting of two 41 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 Renun Hydro Power Plant is situated in at northwestern part of Lake Toba in North Sumatra Province, and it is about 100 km south of Medan city as the crow flies. It includes part of the upper-reaches of the Renun River and part of Lake Toba. The principal structures of the Renun project such as the main intake and waterway are situated in the upper-reaches of the Renun River basin and the power station on Lake Toba. The proposed main intake is situated at about 750 m downstream from the public bridge of Sidikalang-Tarutung road on the upstream reach of the Renun river at Pangiringan. The power station is located at foot of the spur of Toba Escarpment about 2 km southeast of Silalahi village. The waterway is about 24 km long, including such structures as several stream intake weirs, surge tank and the penstock line is located between the main intake site and power station.

The regulatory pond is 10 ha in size with a very high power density of 820 W/m^2 and a storage capacity of 500,000 m^3 while the power planed is designed for a flow of 10.1 m^3/s respectively 872'640 m^3/day.

The exact location is 02° 39' 00" N and 98° 24' 34" E

Figure 1: Location of Renun HPP

Figure 2: The Reservoir and Control Room of Renun HPP. There is a Marketing Video available from South Pole Carbon Asset Management Ltd. at http://www.southpolecarbon.com/videopopup354.htm.

Planning and Implementation Stage:

The feasibility study for Renun HPP was undertaken by the Japan International Cooperation Agency in cooperation with PLN in 1983-1985, followed by a detailed design completed in December 1988. Three loan agreements were concluded by the Japan Bank for International Cooperation by November 1994 but the project was put on hold again due to the Asian financial crisis. Following the onset of the Asian financial crisis, the Indonesian Rupiah depreciated more than fourfold before stabilizing again. This had an immediate adverse impact on PLN's profitability given that more than 70% of its expenses and all PPAs (Power Purchase Agreement between PLN and Independent Power Producer who built power plant and sell the electricity to PLN) were dollar-denominated while the electricity tariffs are all nominated in Indonesian Rupiah.

The expectation of additional revenue from carbon credits and general improvements in the macroeconomic situation made the project again financially viable so the construction was finally completed in July 2006. The plant started operation in December 2006.

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 82 MW, consisting of two (2) x 41 MW turbines. The 2 x 41 MW installed capacity generates an average of 229,048 emission reduction credits per year, starting on the 01 September 2006. 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 develop a questionnaire[1] and filled out by Renun HPP staff. Two phone interviews and one email interview [2] with stakeholders were also conducted based on Renun HPP CSR program.

The diagnosis is based in the SOCIALCARBON Indicators[3] 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 methodology[4].

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

Based on the registered VCS Project Description for '82 MW Lau Renun 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 impact:

- 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 impact:

- The project activity generates direct and indirect employment for skilled and unskilled manpower during construction phase as well as during operational stage and

[1] Social Carbon Questionnaire (Bahasa) Year 2.xls
[2] Interview notes with Mr. Sidebang, Mrs. Sinaga and Mr. Probo
[3] http://www.socialcarbon.org/uploadDocs/Indicators_Hydro_v.4.1.pdf
[4] http://www.socialcarbon.org/Documents/

thus helped in controlling migration from the region and alleviation of poverty in the local area.

- The project activity is a good investment in a developing region, which otherwise would not have happened in the absence of project activity.
- 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.
- 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 sites and encourages economic power decentralization.

Environmental impact:

- The project utilizes hydropower to generate electricity, which otherwise would have been generated through alternate fuel- (most likely fossil fuel-) based power plants. 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 since it is a runoff-river type hydropower plant with daily regulating pond; and in the end contributes to environmental impact. The low impact on the surrounding environment shows the very high power density of regulating pond of shown to be 820 W/m2.

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 Lau Renun 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 Renun HEPP.

The interviewee are listed below:

1. Mrs. Sinaga – Head of Barisan Nauli Village
2. Mr. Tiopulus Sidebang – Head of SIlalahi I Village

3. Mr. Dian Hernanto – PT. PLN (Persero) Pandan Sector Office.

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

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 Renun HEPP at 1st of April 2013

- Phone interview with Mrs. Sinaga, Head of Barisan Nauli village, 3rd of July, 2013

- Phone interview with Mr. Tiopilus Sidebang, Head of Silalahi I village, 3rd of July, 2013

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:

Some farmland was used for the construction of roads. The land users were compensated according to governmental standards.

Some more farmland and about 40 community businesses were relocated due to the installation of the regulatory pond. There were some problems, including a court case regarding the compensation, in particular due to unclear land ownership titles. There was one meeting with the local society to discuss land acquisition in 1993, but as construction was delayed, this was not sufficient to avoid later conflicts.

The regulatory pond is very small for a power plant of this magnitude and thus does affect the natural surrounding only minimal. Such is expressed in the power density of 820 W/m^2. CDM project activities are not allowed with a power density of less than 4 W/m^2. For project activities with power densities higher than 10 W/m^2 no project emissions from the reservoir occur. The underlying power density exceeds the 10 W/m^2 almost by two digits.

There was also an impact on downstream irrigation, which had not been accounted for in the initial planning stage, as double cropping was introduced in the 1990s only. PLN supported an improvement of the systems to cope with lower water levels. 15 irrigation intakes are directly affected by the project.

Index: 3

Perspectives: none

2. Communication with stakeholders

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

Observations:

To discuss and solve problem related to Lae Renun watershed area, PLN (Renun HPP) continuously carried out a regular discussion meeting with representative from surround villages around Renun HPP project site. To organize this meeting, PLN and stakeholders has established a forum named 'Forum DAS[5] Lae Renun'.

PLN would also hold a socialization event (a meeting to introduce new program or activity to public attendant) whenever they have a new social or environment program. The socialization event was held annually.

To collect some ideas for their Social and Environment Program title '*Program Partisipasi Pemberdayaan Lingkungan*' (Environment Empowerment Participation Program) or shortened as P3L, PLN openly accepted proposals from stakeholders.

[5] Lae Renun river watershed area Forum DAS

From above observation, the Renun HPP has conducted communication with stakeholders via direct and indirect communication. Renun HPP has developed specific procedures to maintain relations and effective communications with stakeholders.

Since there are rules and procedures to systemize the forum information hence the indicator is score 5.

Index: 5

Perspectives: none

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:

During the EIA and the regular consultations, there were no negative comments and high acceptance towards the HPP. Some minor issues were identified during the EIA and addressed. Local stakeholders supported this finding. According the interview with Mr. Tiopulus Sidebang, Silalahi-1 Village is totally support the operation of Renun HPP surround their village. The routine social activities conducted since the beginning of Renun HPP operation be the main factor of high acceptance level from the local stakeholder.

The indicator is score 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:

As per the information above on point 2; Renun HEPP openly accepted social demands from stakeholder in the form of proposal. The social demands then discussed and selected by Renun 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.

Normally, the routine P3L program conducted by Renun HPP is based on accepted social demands from stakeholder. However, for year 2012 Renun HPP conducted 'Tree Plantation Program' and 'Fish-hatch Distribution Program in Lake Toba' CSR program which is part of CSR program from PLN Head Office (the program itself called as 'Program CSR Unggulan' or Priority CSR Program).

Renun HPP will continue receiving social demands from local stakeholder for the next P3L program.

Since Renun 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:

From the time of Renun HPP first operation in 2006 up to 2011, Renun HPP has contributed in several Social Programs as per the demands from the stakeholders. For the year 2012, Renun HPP P3L Program was focusing in 'Social and Environment Communication Program' through their 'Tree Plantation and Fish Hatch Distribution' program.

The purpose of the program is to improve the water availability level by recovering the forest, and to improve the economy level of the local communities whose mainly work as fishermen.

To achieve those goals, Renun HPP distributed the wooden plant tree sapling to preserve the catchment area of Renun HPP. Renun through the local authorization (Head of Silalahi I Village) distribute the sapling to household surround catchment area.

Plant tree sapling

According to Mr. Sidebang as the Head of Silalahi-1 Village, his village received several wooden tree saplings as below:

- Durian tree sapling
- Mahogany tree sapling
- Ingul tree sapling
- Avocado tree sapling

Mrs. Sinaga as the Head of Barisan Nauli Village also informed that her village receive wooden tree sapling as below:

- Pine tree sapling
- Mahogany tree sapling
- Tarutung tree sapling
- Avocado tree sapling

The choice of wooden tree sapling is depend on request from the local villagers. Renun HPP conducted a stakeholder consultation (local villager called the event as 'sosialisasi') prior to the implementation of CSR program to introduce the program and to hear the local villagers opinion and their choice of wooden tree saplings. By distribute the requested wooden tree sapling, Renun 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.

Both Head of Village informed that villagers have planted all distributed wooden tree saplings on their lands. Unfortunately, not all planted saplings grow well. For example, none of the pine tree saplings distributed at Barisan Nauli village are grown. Mrs. Sinaga blamed on the bad quality of tree sapling as the cause. Furthermore she wishes Renun HPP could distribute replacement to the pine tree sapling, hence the local villagers will still be benefited by the CSR program.

Mrs. Sinaga and Mr. Sidebang both evaluated that the CSR program initiated by Renun HPP is not implemented properly yet. The reason is because the local villagers only mildly interested to plant the wooden tree, which could only be harvested after several years.

Mr. Sidebang suggested Renun HPP to continue their previous P3L program for the next year CSR program, which donated the woven yards to the local Ulos maker association. Mrs. Sinaga on the other hand hopes PLN could distribute fruit tree sapling that can be harvested after couple of months such as citrus or coffee plant tree sapling.

Fish Hatch Distribution

Silalahi-1 Village, which located near to the Lake Toba and most of its residents work as fishermen has participated on the fish hatch re-stocking program at Lake Toba. For this purpose, Renun HPP has re-stocked about 20,000 fish hatches in Lake Toba. Mr. Sidebang informed that after one month, the local fishermen have harvested all of fish hatches re-stocked by Renun, because these fishes are the easiest to catch. Further, he suggested Renun HPP to educate the local villager about the importance of environment preservation; hence they will not harvest small fishes anymore.

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

Index: 5

Perspectives:

1. Renun HPP P3L staff need to conducted environment education for the local stakeholders.
2. Beside distribute the wooden tree sapling, Renun HPP might consider to distribute the fruit tree sapling which could be harvested in short period.
3. Stakeholders expected to keep receiving another varieties of plant tree sapling.

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 Renun HPP, PLN has donated in almost all aspects of life of local stakeholders. PLN has donated for the construction of churches; mosques; medical clinic and renovation of local schools. PLN has also procured drinking water installation and improved the water drainage system. Although the 2013 P3L program did not donated on those programs anymore, the impact of previous donations could be evident until now.

For the year of 2012, Renun HEPP was concentrated on the environment conservation and economy areas. Since Renun 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 Renun 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 Renun HPP project site.

Each year PLN conducts 'Competency Test' to evaluate the quality of their human resources. Renun 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 Renun HPP Generation Unit) assigned their employees for various trainings for each month during year 2012. 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 and and have participated in more than one training or course in intervals of one year or less, hence the Indicator is scored 6.

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:

Renun 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 20, 2014.

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

Since Renun 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 máster 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 Renun HPP. Afterward, the training attendants share their knowledge on VCS material (and climate change issue) to all other staffs at Renun 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 Renun HPP Generation Unit received 'Rencana Operasi Bulanan' or Monthly Operational Plan from PLN P3B (PLN Load Dispatcher and Transmission Division). During 2012 period, Renun HPP has successfully fulfilled and surpassed 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 has developed a marketing video, which shown that the project did not use large dam and that they have

applied Social Carbon standard on VCS credit. The marketing video and Social Carbon standard help boosting the credit sales. South Pole has managed to sell all credits for vintage year 2009. This is a great achievement despite the economical condition. Credits from vintage year 2010 - 2012 has a good selling record as well. Several amount of credits from the newly verified crediting period (vintage year 2012 – 2013 or Social Carbon Year 2) have been booked and will be delivered to the buyer after finalization the Issuance process.

Index: 4

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:

Renun HPP as part of major state-owned company 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 Renun 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 Renun HPP).

Since Renun 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 Renun 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, Renun 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:

Renun HPP has fulfilled its entire legal environmental obligation as stipulated on AMDAL (EIA) document. Renun 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 Renun 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. There was no significant environmental impact stipulated on the EIA document. To evaluate the environmental impact, Renun HPP carried out a period evaluation on the Significance of Environmental Impacts ('*Daftar Aspek dan Dampak Lingkungan*'), which shows that most impacts were insignificant.

Index: 5

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 Renun HPP project site.

As the CSR program in 2012, Renun HPP has tree-plantation (reforestation) program surround the tributary intake and regulating pond. The purpose of this program was to maintain the water discharge as the sole input source for the hydro power plant.

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 company started to distribute several varieties of production tree plant sapling since 2010, the trees are planted and several have started to produce fruits. However, 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:

In addition to maintain the water discharge, the reforestation program in 2012 was also intended to prevent erosion of the reservoir.

The RKL document has indicated a potential negative impact of silting at the Main Intake and Regulating Pond areas and confirmed by quarterly environmental monitoring at those locations. The silting caused by illegal sand mining activity on those locations. To overcome this problem, Renun HPP has formed 'Forum Das Lae Renun' together with local stakeholders and authorities. However, this forum has not yet resulted a win-win solution to each party. Renun HPP also conducts periodically sludge removal at Regulating Pond.

Since Renun 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:

Renun 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, Renun HPP conducted reforestation activity through their CSR program in 2012.

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:

Renun HPP is actively involved with the reforestation attempt surround the Renun HPP project site since 2010 and outside the project ownership as well.

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:

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

Beside the obligatory biodiversity monitoring and conservation, Renun HPP also supported local action to preserve the fish stock at the Lake Toba. This is implemented by conducting 'Fish re-stocking program at Lake Toba' as the CSR program in 2012. Renun HPP distributed 20,000 fish hatch in Lake Toba.

Index: 4

Perspectives: None

27. Ichtyofauna

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

Observations:

PLN KITSU (PLN Head Office for PLN Generation Division) together with Renun HPP initiated a fish sapling re-stock program to re-stock the fish habitat in Toba Lake (Water output from Renun HPP would be discharge to Lake Toba).

Index: 4

Perspectives: None

4.6. Carbon Resource

28. Additionality

Consists of reduction of greenhouse gas emissions or increase in removal of CO_2 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 280,354 tCO_2 from 1st March 2012 up to 28th February 2013 (12 months). It is higher than the estimated annual reduction in the registered VCS-PD (232,931 tCO_2 / year).

Index: 6

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.

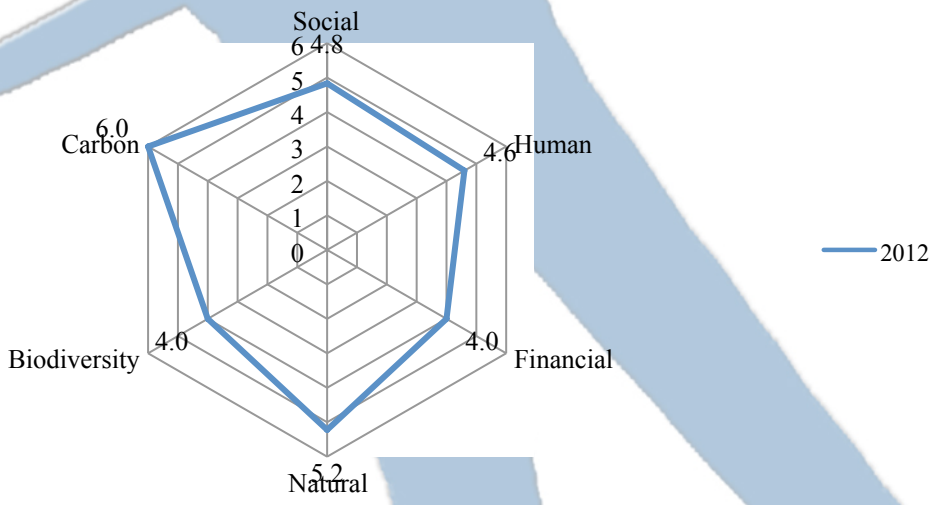
Average index obtained for the Resource	Decimal interval	Situation
Interval from 1 to 2.6	1.7	Critical
Interval from 2.7 to 4.3	1.7	Satisfactory
Interval from 4.4 to 6	1.7	Sustainable

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%	4.83	Sustainable
Human	0.0%	0.0%	0.0%	4.60	Sustainable
Financial	0.0%	66.7.0%	33.3%	4.00	Satisfactory
Natural	0.0%	11.1%	100.0%	5.22	Sustainable
Biodiversity	0.0%	0.0%	0.0%	4.00	Satisfactory
Carbon	0.0%	0.0%	0.0%	6.00	Sustainable
Total	0%	16%	36%	4.78	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 Renun HPP at their area. To maintain good relationship with stakeholders, Renun 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

Renun HPP financial resource is in a good condition. 2012 financial year has a positive income from the electricity generation. Moreover, for the carbon revenues, some buyers at the voluntary market have shown their interest to the VCU credits from Renun HPP, thus giving additional income for PLN.

5.2.4. Natural Resource

The situation is considered sustainable, mainly due to the third party certified environmental management systems. Renun HPP also have 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.

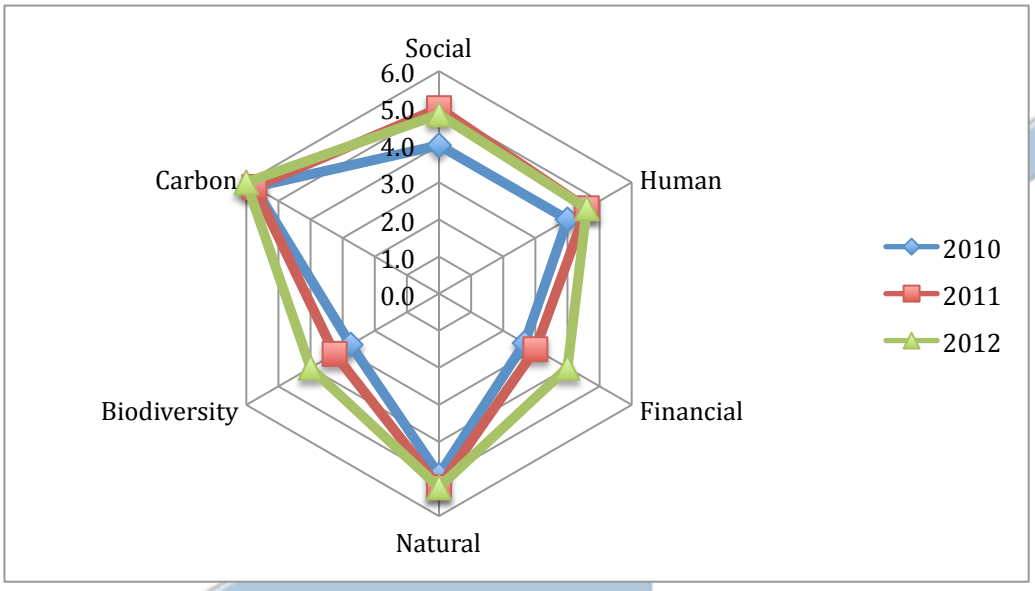
5.2.6. Carbon Resource

The project has gone through the 3rd 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

1. Historic Performance (compared to year zero)

Resource	2010	2011	2012
Social	4.0	5.0	4.8
Human	4.0	4.6	4.6
Financial	2.7	3.0	4.0
Natural	4.9	5.2	5.2
Biodiversity	2.8	3.3	4.0
Carbon	5.8	5.8	6.0
Total	4.0	4.5	4.8


Social
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Human
Financial
Natural
Biodiversity
Carbon
2010
2011
2012

6. Perspectives

Social Resources (Social Program indicator)

- Renun HPP P3L staff need to conducted environment education for the local stakeholders.
- Beside distributing the wooden tree sapling, Renun HPP might consider to distribute the fruit tree sapling which could be harvested in short period.
- Stakeholders expected to keep receiving another varieties of plant tree sapling.