[redacted]

SOCIALCARBON REPORT

CONTENT

ATTACHMENTS

[redacted]

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	*1*
Monitoring period (SOCIALCARBON)	*April 2010 - February 2012*
Version + Date of report completion	*V 2 (07/08/2012)*
Corresponding Monitoring Report (Carbon Accounting Standard)	*Monitoring Report 82 MW Lau Renun Hydro Power Plant North Sumatra, Version 2.0 (06/07/2012)*
Location	*Dairi District, North Sumatra Province, Indonesia*

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

Identifying the Project Developer	
Name	*PT. PLN (Persero), Ms. Assistia Semiawan*
Address	*Jl. Trunojoyo blok M 1/135, Kebayoran Baru, 12160 Jarkata, Indonésia*
Phone	*+62-21 726 1122*
Email	*assistias@pln.co.id*

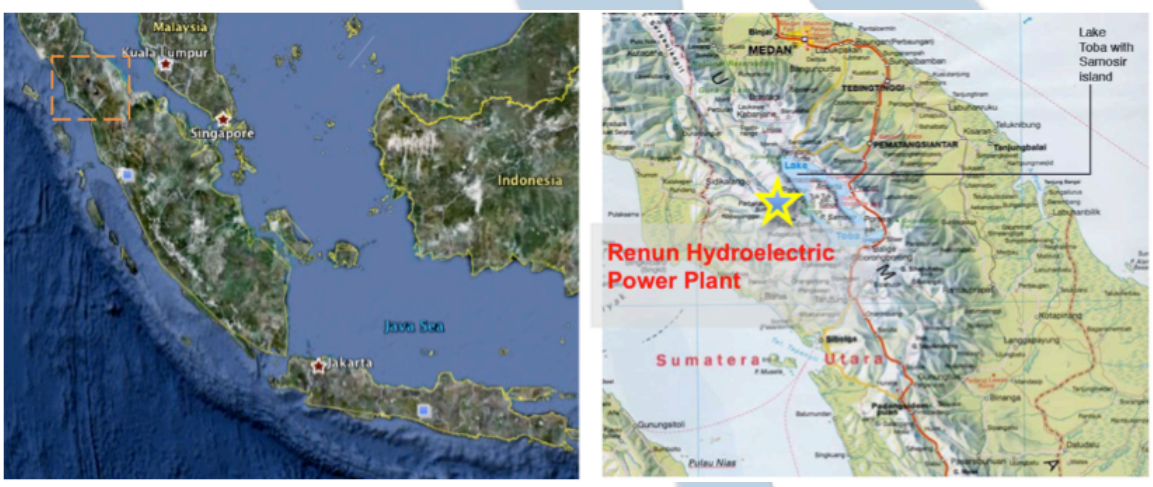
2. General description of the reduction of GHG emissions Project activity

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

The project activity is a new run-off-river type hydropower plant (HPP) 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 HPP 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.

[redacted]

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. Three pre-validation phone interviews with stakeholders were also conducted based on Renun HPP CSR program.

The diagnosis is based in the SOCIALCARBON Indicators[2] 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[3].

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

[1] 2nd Social Carbon Questionnaire (Pak Dian - Sektor Pandan).xls
[2] http://www.socialcarbon.org/uploadDocs/Indicators_Hydro_v.4.1.pdf
[3] http://www.socialcarbon.org/Documents/

- 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

To find out whether Renun HPP has fulfill

South Pole needs to collect objective opinions on Renun HPP achievement to fulfill the application of the indicators. The information collected via several methods: phone interview, direct interview during validation site visit and written questionnaire.

The interviewee are listed below:

1. Mr. Rincon Situngkir –phone interview and interview during validation site visit.
2. Mr. Tiopilus Sidebang – phone interview and interview during validation site visit.
3. Mr. Dian Hernanto –Social Carbon questionnaire, phone interview and interview during validation site visit.

4. Mr. Roni Siahaan –interview during validation site visit.
5. Mr. Edward Batubara –phone interview post site visit.
6. Mr. Heru Priyatno –phone interview post site visit.
7. Mr. Risman Sidauruk –interview during validation site visit.
8. Mr. Hendro Situmorang –interview during validation site visit.
9. Mr. Rendi Wijaya Putra - interview during validation site visit.
10. Mr. Fajar Pamujianto –interview during validation site visit.

The questionnaire and interview results are used to score the indicators.

3.4. Actors involved

Below is the list of actors involved on Social Carbon Validation:

1. Mr. Rincon Situngkir – Head of Silalahi III Village
2. Mr. Tiopilus Sidebang – Head of SIlalahi I Village
3. Mr. Dian Hernanto – the Environment and Electricity Safety Junior Engineer, PT. PLN (Persero) Sektor Pandan.
4. Mr. Roni Siahaan – previously designated as P3L staff for Renun HPP
5. Mr. Edward Batubara – Head of Pandan Sector Office.
6. Mr. Heru Priyatno – Human Resource Department Staff of Pandan Sector Office.
7. Mr. Risman Sidauruk – Unit Manager of Renun HPP.
8. Mr. Hendro Situmorang – Staff of Renun HPP.
9. Mr. Rendi Wijaya Putra - Staff of Renun HPP.
10. Mr. Fajar Pamujianto – Staff of Renun HPP.

[redacted]

4. Results

a. 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:

During construction stage, some farmlands were used for the construction of roads. Some more farmlands and about 40 community businesses were relocated due to the installation of the regulatory pond.

PLN by referring to the Governmental standards has given money compensation to the legitimate landowners. The compensation process has completed in 2010.

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:

The money given to land owners had already through comprehensive studies carried out by relevant government institution, e.g. Department of agriculture, department of forestry, department of social, etc. The amount of compensation had been calculated to include the assurance of livelihood reestablishment and live condition. There were no families without clear legal ownership accepted the compensation.

The compensation status remains the same from previous Social Carbon audit in 2010.

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 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[4] Lae Renun'.

The most recent 'Forum DAS Lae Renun' meeting held in April 2011. The meeting has 3 (three) main agendas: 1) Socialization event (a meeting to introduce new program or activity to public attendant) with purpose to increase people awareness of environment and the importance of river area, 2) Specific river management duty and responsibility for each local government agencies, 3) Technical program to relocate and provide new working activity for the illegal sand-miners on upstream area.

PLN has held a socialization event in 2011 intended to introduce their 2011 'Reforestation Program'. The Reforestation Program was planned to distribute 20'000 tree plant saplings to households surround PLN Lae Renun Catchment Area.

To collect few 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.

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.

Index: 5

Perspectives: From the interview, it was known that Renun HPP has developed specific procedures to maintain relations and effective communications with stakeholders.

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.

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:

The most requested demand from the stakeholder is the job vacancy to work at Renun HPP project site. However, as a state-owned company the recruitment process is handle by the PLN Head Office (national wide recruitment process). To avoid dispute with stakeholders due

[4] Lae Renun river watershed area Forum DAS

to lack of open vacancy, Renun HPP through their Sector Office (Pandan Sector Office located at Sibolga) established P3L program (detail for P3L was described on Point 2) to accommodate social demand from stakeholders.

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:

Renun HPP P3L program is formed to increase welfare and maintain communication with stakeholders. The P3L program is targeted to fulfill the social need as below:

- Community Services (Social Communication Program)

- Community Empowering (Community development / income generation)

- Nature Conservation (Environment Communication Program)

For year 2011, the program is focused on activities below:

1. Donation to construct the Worship House surround Renun HPP site location

2. The yarn donation for Ulos textile weaver around Renun HPP site location

3. Distribution of plant tree saplings and donation for production plant maintenance cost

Renun HPP started to donate yarn for Ulos textile weaver at surround villages in 2010. Renun HPP donated 20 yarns to each village and symbolically received by the Head of Village. He/she then distributed the yarn to 20 households at SIlalahi III village.

By receiving this yarn donation, the Ulos textile weaver could reduce their production cost and increasing the Ulos production.

Renun HPP distributed the 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.

According to the local community(s), the P3L program by PLN has a positive influence on their everyday behavior.

Index: 5

Perspectives:

1. Renun HPP P3L staff need to inform the stakeholders for any new social / environmental program via local authorities.
2. Stakeholders expected to receive more yarn donations in the future.
3. Stakeholders expected to receive another variety of plant tree sapling.

[redacted]

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 2011 P3L program did not donated on those programs anymore, the impact of previous donations could be evident until now.

The level of stakeholder acceptance on social benefit was evaluated in the RKL-RPL quarterly.

Index: 6

Perspectives: PLN P3L Program has measurable and evident benefits that cover most social aspects of local community.

b. 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.

According to interview with Section Head of 'Human Resource Department' of PLN Pandan Sector Office, PLN follows a standard to ensure the availability of competence staff at each unit *("Daftar Sebutan Jabatan dan Formasi Tenaga Kerja Sesuai SK. Direksi No: 140.K/Dir/2011", dated April 2011)*

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. Renun HPP management also proposed a list of training as per necessity on the project site to their Region Head Office in Medan.

Currently, Renun HPP employed 31 permanent staffs and 51 outsourced. Each of staff has passed the Competency Test and qualified for the job spesification.

[redacted]

Index: 6

Perspectives:

Each personnel involved in the operational of Renun HPP are competent based on the Competency Standard stipulated by PLN.

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 an 'Emergency Readiness' and 'Emergency Response' procedure in place (PRO-ENJ-04). Renun HPP applied SMK3 (OHSAS = Occupational Health and Safety Management System) at project site and audited by International Certification Body. The OHSAS certification procedure refers to the Minister of Labor Ministerial Decree (SK Menteri Tenaga Kerja No. 129/MEN/V/2011), which valid until May 20, 2014. Renun HPP meets almost all of OHSAS audit criteria and received Golden Flag award.

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. There is table tennis equipment installed. The direct employees at PLN are satisfied with the benefits. PLN provides Social Security Program (Jamsostek) for outsource staff.

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 will use proven technology in electricity generation and transmission. The essential equipment used in the Project was procured from another country.

Renun HPP applied new technology in 2011 called 'Filter Cooling Water System'. This new technology would optimize the fish filter system at the water intake. Renun HPP also planned a new technology to de-sludge the regulating pond.

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 project related staff of Renun HPP. However the general knowledge regarding VCS and some information materials have distributed to all employees by the VCS consultant (South Pole CAM Ltd.).

Index: 6

Perspectives:

Two VCS trainings have been conducted on Renun project site and attended by representative of all working divisions at Renun HPP. Therefore the information regarding VCS and Social Carbon have widely informed to all staff of Renun HPP.

c. 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 2011 period, Renun HPP has successfully fulfilled the targeted electricity generation and gained the expected profit.

Index: 5

Perspectives:

The electricity power generation is strongly affected by the river water flow rate. During 2011, the water flow rate was in optimum condition; therefore Renun HPP successfully reached the expected target.

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:

14. Sale of Credits

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

Observations:

Many buyers exclude large hydro projects due to sustainability concerns. However, South Pole managed to sell several VCU credits period 2009 –2010 at the voluntary market with application of Social Carbon Standard. Several potential buyers have shown their interest to the newly verified VCU credit from for period 2010-2012 but no deal has been settled yet.

Index: 1

Perspectives: None

d. 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).

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:

Renun HPP has implemented the ISO 14001:2004 with certificate issued by Tuv-Rheinland. To monitor the implementation of Environment Management, Renun management has named several staff as P3L staff. 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).

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. Sector Pandan Office has not yet received the B3 waste warehouse license. However, the amount of hazardous waste produced by Renun HPP was insignificant (e.g lubricant oil and dry cells). Renun has fulfilled their legal environmental obligation.

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 during period 2011.

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 were a few 'Significant of Environmental Impact indicated on the EIA document. However, the EIA document has identified procedure to control the impact.

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 procedural and team under ISO 14001 and SMK3 (procedure PRO-ENJ-04). 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.

Renun HPP has a reforestation program located at catchment area to utilize the marginal area and to maintain the water debit. Renun HPP distributed tree plant saplings in-accordance with the request from stakeholders. In 2010 Renun HPP distributed mango tree plant saplings to be planted at the catchment area of Renun HPP (Renun River). Renun distributed 10 mango tree plant sapling for 10 households at Silalahi 1 Village. The choice of fruit 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.

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:

Renun HPP staff has planned a reforestation program; 'Penanaman 20'000 bibit pohon' (20'000 tree planting program) to avoid erosion.

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.

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

e. 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:

Based on interview with Unit Manager of Renun HPP, it is known that more than 70% of area surround the Renun HPP is Protected Forest (Lae Pondom Protected Forest). The Protected Forest condition degraded due to illegal logging activities by surround villagers.

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 had carried out reforestation on several areas. A series of monitoring data on the forestation was in place, and it was known that reforestation took place since early of 2011 until now. As many as 10.000 tree seedlings had been planted in 2011. Program P3L have a

plan to planting 20.000 tree seedlings in 2012. The planting area was those related to keep the water availability, such as Tributary Intakes which are owned by HPP, and also community land such as Barisan Nauli Village, Parbuluan 6 Village, Perjuangan Village which are on either water cathment areas of the tributary intakes or upstream of the intakes.

Index: 5

Perspectives:

Renun HPP had carried out voluntary action of reforestation on several areas, both owned by Renun HPP and outside the project ownership.

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. Renun HPP in cooperation with the Bukit Barisan military commander and members of the community spread 10'000 Tilapia fish hatchlings in Lake Toba.

Even the monitoring on the abundance of lake fauna was limited to the obligation to provide RKL-RPL report every three months, where monitoring of plankton and benthos became one of the essence of the report.

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 initiate a fish hatchlings re-stock program to re-stock the fish habitat in Toba Lake (Water output from Renun HPP would be discharge to Lake Toba). However there is no monitoring mechanism described on EIA document to monitor the fish stock.

Index: 1

Perspectives: None

f. 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 validated by RINA India.

Project was being verified by TUV-Rheinland, 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 413,313 tCO_2 from 1st April 2010 till 29th February 2012 (23 months, or 700 days) or averaging 215,513 tCO_2 / year. It is approximately 92.5% of the estimated annual reduction in the registered VCS-PD (232,931 tCO_2 / year).

Index: 5

Perspectives: None

2. 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

[redacted]

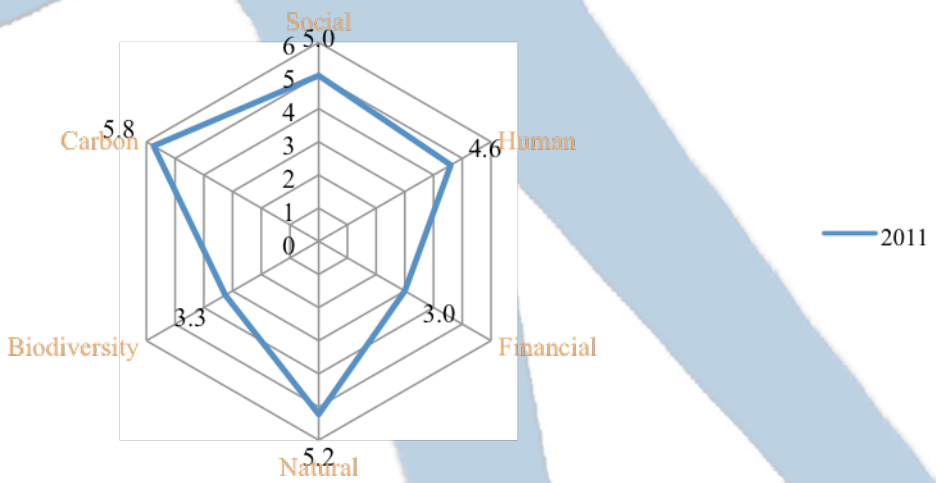
a. General performance

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

Performance by Resource

Resource	Critical	Satisfactory	Sustainable	Average	General Performance
Social	0.0%	16.7%	83.3%	5.00	Sustainable
Human	20.0%	20.0%	60.0%	4.60	Sustainable
Financial	33.3%	33.3%	33.3%	3.00	Satisfactory
Natural	0.0%	11.1%	100.0%	5.22	Sustainable
Biodiversity	25.0%	50.0%	25.0%	3.25	Satisfactory
Carbon	0.0%	0.0%	100.0%	5.75	Sustainable
Total	13%	22%	67%	4.47	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.

b. Performance by resource

4.1.1. Social Resource

Renun HPP, together with local stakeholders, should strengthen the existence of Forum DAS Lau Renun so that periodic forum meetings can be done to discuss public opinion and also to carry out studies on the public opinion.

The P3L program has a positive impact to several local communities and influence their daily behavior.

4.1.2. Human Resource

Currently, benefits which covering health insurance, retirement assistance, and education was limited to the permanent workers and not yet to include the outsourced personnel. Apart from whether outsourced personnel had been given the above benefits by their carrying company, Renun HPP did provide other benefit such as leisure and sports facilities to all employees. Renun HPP 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 Renun HPP had developed and/or implement a new innovation to reduce environmental impacts and to gain efficiency.

4.1.3. Financial Resource

The economic benefit of the Renun HPP was not being able to calculate since electricity produced were distributed to Distribution Section of National Electricity Company, a separate part of the HPP, and not being directly sold to market. Furthermore, the base electricity price had been centrally standardized by the government. However, Renun HPP 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.

4.1.4. Natural Resource

Sustainable performance had been performed by Renun HPP regarding Natural aspects. Mostly since Renun HPP 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 gained by Renun HPP if it may consider more actions regarding the management of reservoir and marginal areas, in 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.

4.1.5. Biodiversity Resource

Only satisfactory performance was given to the aspect of biodiversity resources, mostly due to the existing condition that more than 70% of HPP area is in a permanent protected area. To achieve a higher performance, Renun HPP should consider more action on biodiversity conservation and to conduct a study regarding the abundance of ichthyofauna to determine the effect of HPP operational with the abundance of ichthyofauna.

4.1.6. Carbon Resource

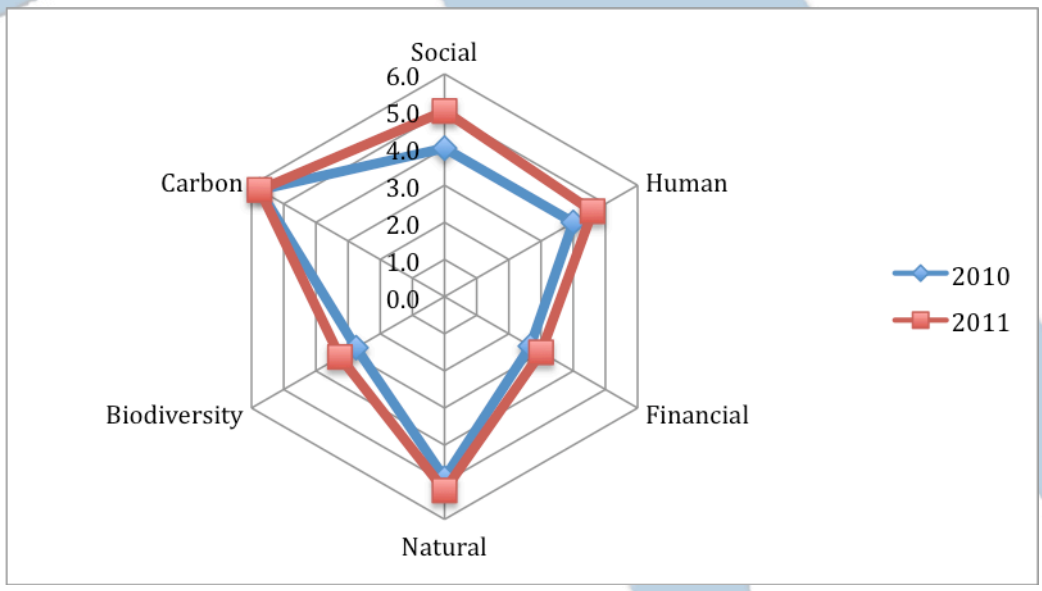
Already validated by RINA, India, and being verified by TUV Rheinland, India.

[redacted]

c. Historic performance and comparative analysis

1. Historic Performance (compared to year zero)

Resource	2010 (year zero)	2011
Social	4.0	5.0
Human	4.0	4.6
Financial	2.7	3.0
Natural	4.9	5.2
Biodiversity	2.8	3.3
Carbon	5.8	5.8
Total	4.0	4.5



3. Perspectives

Indicator 1 (Population Displacement):

The money given to land owners had already through comprehensive studies carried out by relevant government institution, e.g. Department of agriculture, department of forestry, department of social, etc. The amount of compensation had been calculated to include the assurance of livelihood reestablishment and live condition. There were no families without clear legal ownership accepted the compensation.

The compensation status remains the same from previous Social Carbon audit in 2010.

Indicator 2 (Communication with stakeholder):

From the interview, it was known that Renun HPP has developed specific procedures to maintain relations and effective communications with stakeholders.

Indicator 5 (Social Programs):

- Renun HPP P3L staff need to inform the stakeholders for any new social / environmental program via local authorities.
- Stakeholders expected to receive more yarn donations in the future.
- Stakeholders expected to receive another variety of plant tree sapling.

Indicator 6 (Social Benefits):

PLN P3L Program has measurable and evident benefits that cover most social aspects of local community.

Indicator 7 (Capacity Building Initiatives):

Each personnel involved in the operational of Renun HPP are competent based on the Competency Standard stipulated by PLN.

Indicator 11 (Involvement of Employees in the project):

Two VCS trainings have been conducted on Renun project site and attended by representative of all working divisions at Renun HPP. Therefore the information regarding VCS and Social Carbon have widely informed to all staff of Renun HPP.

Indicator 12 (Economic Performance):

The electricity power generation is strongly affected by the river water flow rate. During 2011, the water flow rate was in optimum condition; therefore Renun HPP successfully reached the expected target.

Indicator 25 (Recovery of Degraded Areas):

Renun HPP had carried out voluntary action of reforestation on several areas, both owned by Renun HPP and outside the project ownership.