

**SOCIALCARBON® Standard**  
Indicators for Hydroelectric Power Plants  
Version 4.1 - June, 2011

DOCUMENT REVISION HISTORY

Version	Description of the main adjustments	Review Date
01	First version of the indicators	06/2007
02	Adaptation of Biodiversity Resource indicators	07/2007
03	Adaptation of Natural Resource indicators	04/2008
04	Method of evaluation/obtaining evidence modified to facilitate the auditing process. More detailed information was included regarding potential documents that might be required as evidence. Exclusion or adaptation of indicators specifically designed to the Brazilian context.	06/2010
4.1	Revision to layout only	10/06/2011

## 1. Elements considered for using SOCIALCARBON in Hydroelectric Power Plants

The SOCIALCARBON was initially designed to evaluate the impacts on local stakeholders involved in forestry projects, but has been adapted to projects involved in several kinds of activities.

SOCIALCARBON was first applied to hydropower plant projects in 2007, using indicators based on The International Hydropower Association (IHA)'s Sustainability Guidelines to assess fundamental aspects of economic, social, and environmental sustainability pertaining to hydro projects.

The indicators are applicable to hydroelectric power plants, both small- and large-scale, during implantation and operation activities.

## 2. Application of the indicators

The application may be done through:

- a) Group Work: Participatory meetings with representatives from the stakeholders involved in the project. The meeting is coordinated by a responsible professional whose function is orientating the participants to discuss the aspects included in the indicators. The results of the meeting ought to be compiled, and valued according to the indicators.
- b) Interviews: Key informers may be interviewed in a semi-structured way, aiming to indirectly obtain information concerning the six resources of SOCIALCARBON. The results of the interviews ought to be registered, compiled and valued according to the indicators.
- c) Questionnaires: Responsible professionals may apply questionnaires to key informers of the project in order to gather information. The results of the survey should be registered, compiled and valued according to the indicators.

The person responsible for collecting information or auditing the indicators may select one method or combine several to obtain the best results. It is recommended that the visits are made in the local where the projects are being developed, this will help to characterize the project developer and to obtain evidences.

Other physical and documented evidence might be required to evidence information provided in the SOCIALCARBON Report. Each indicator provides a list of examples of evidences that could be collected. Not all of the many documents and physical evidences described in the indicators need to be checked or available for the auditing process, only those documents necessary to support or verify the audit evidence for the information that is disclosed in the indicator.

In developing countries, it is sometimes difficult to apply the traditional research methods, because documents, researches, studies, satellite images and monitoring parameters such water and air quality are not always available. For this reason, some indicators clearly states that physical and documented evidence is not required and testimonies from local stakeholders are enough to verify the audit evidence for the information that is disclosed in the indicator, especially indicators that assess the impact of the project in the communities.

### Scoring indicators

*Scoring of the indicators should adhere to the following guidelines:*

- The person responsible for applying the indicators should obtain the information necessary to characterize the project's situation in relation to the particular indicator.
- Next, the researcher should compare the characteristics of the project with the six scenarios available for the indicator.

- The scenario that best represents the presented characteristics should be selected and the respective index should be attributed to the indicator.

*Special cases:*

- **The characteristics can't fit any possible scenario:** The person responsible should contact the SOCIALCARBON team to verify the need to reformulate the indicator or to create a new indicator.
- **The indicator does not apply:** The person responsible must justify why the indicator doesn't apply in the SOCIALCARBON Report and identify it as "Not Applicable." No value should be agreed upon in this case.
- **The information necessary to evaluate the indicator does not exist or is not available:** In the case when the absence of information is due to lack of evidence, Index 1 should be applied. If the absence of information is justified by confidentiality reasons, the indicator should be considered "Not Applicable" in the SOCIALCARBON Report and no value should be agreed upon.
- **The characteristics presented match with more than one possible scenario:** The person responsible should always select the scenario with the smaller index.

**3. Indicators**

**Social Resource:** The working networks, the social duties, social relations, relationships of trust, affiliations, and associations.

Indicator	Description	Evaluation Method
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 negative impacts or maximize positive impacts.	- Interviews, questionnaires or meetings: testimony from local stakeholders. - Physical evidence: i.e. site visit or pictures. - Documentation: EIA; Resettlement plans and compensation program; Mitigation / compensation / enhancement plans or programs; etc.
Communication with stakeholders	Evaluates the process for contacting stakeholders in the planning, implementation and operation stages.	- Interviews, questionnaires or meetings: testimony from local stakeholders.
Acceptance	Evaluates the level of support or acceptance from the neighboring population in regard to the project construction or management of the reservoir.	- Physical evidence: i.e. pictures or records of consultation process.
Social Demands	Social Demands may be understood as institutional or civil society interests: demands made by institutions, agencies, NGOs, municipalities or other institutions which aim to improve the human development and/or the environment near the project. This item evaluates which social demands the entrepreneur addresses.	- Documentation: i.e. agreements with stakeholders; summary of interviews or meetings with local stakeholders; Plans for involvement and/or consultation with directly affected stakeholders.

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<b>Social Programs</b>	Evaluates the quality and results of additional social programs, such as: <ul style="list-style-type: none"> <li>- Social and Environmental Communications Program</li> <li>- Community development / income generation</li> <li>- Ethnic integration</li> <li>- Other social areas (please specify).</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: site visit, pictures or other records of results of the project.</li> <li>- Documentation: plan of activities for implementing additional programs; Agreements with partners and other organizations; periodic reports on status of implementation of additional programs.</li> </ul>
<b>Social benefits</b>	Evaluates the additional benefits to local stakeholders, when these benefits are measurable or evident. These benefits may include: <ul style="list-style-type: none"> <li>• Improvements in health system (new installations, enhanced water and electricity systems, support for health programs, and others)</li> <li>• Additional economic activities (industry, commerce, and others)</li> <li>• Improvements in the infrastructure (roads, energy provision, leisure spaces, and others)</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: site visit, pictures or other records of results of the additional benefits.</li> <li>- Documentation: social impact assessment and social management plans; Mitigation / compensation / enhancement plans or programs; plan of activities for implementing additional benefits; Agreements with partners and other organizations.</li> </ul>

Indicator	1	2	3	4	5	6
<b>Population Displacement</b>	Families and activities located in the project area have no compensation due to their displacement.	Relocation, displacement and mitigation programs exist for such families and activities. However, the program does not ensure reestablishment of quality of life enjoyed prior to displacement.	Only legal owners of properties are compensated.	All families and property owners are correctly relocated, including those who do not possess formal title the land.	Participatory Relocation Program, including negotiations with different actors (owners, public agencies, and civil society organizations).	There is no need to displace families or other activities.
<b>Communication with</b>	There is no communication with	Fulfillment of legal obligations (such as	During the planning and operation stages,	Establishment of a permanent forum in	Rules and procedures exist to systemize the	The entrepreneur executes studies

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<b>Stakeholders</b>	local stakeholders.	public consultation) during process to obtain environmental licenses, but evident gaps in communication with stakeholders exists.	the entrepreneur has communication with the stakeholders.	order to maintain communication with local stakeholders.	forum information.	regarding public opinion, including diverse stakeholders of the society.
<b>Acceptance</b>	High level of opposition.	Low support from local stakeholders.	Limited support from local stakeholders.	Support from local stakeholders, but some opposition still exists.	Support from local stakeholders and little opposition.	Strong support from local stakeholders and insignificant opposition.
<b>Social Demands</b>	The entrepreneur has no knowledge of external social demands.	Social demands are not considered in the planning, execution and operation stages, or consideration is unsatisfactory.	Only compulsory demands are considered and fulfilled.	The entrepreneur takes actions that surpass compulsory activities.	In addition to surpassing compulsory demands, the entrepreneur has policies, rules and/or other criteria to execute voluntary social actions.	The entrepreneur has integrated plans to elaborate and execute compulsory and voluntary social actions.
<b>Social programs</b>	No actions were taken.	Actions are in planning stage with high uncertainty that benefits can be delivered.	Actions are in place, but there is high need of corrective actions or deviations in proposed activities so benefits can be delivered.	Some programs were held successfully <sup>1</sup> , but with limited impacts on the beneficiaries were observed.	Some programs were held successfully that had positive influence on everyday behavior.	Some programs were held which show positive results and improve the quality of life of beneficiaries.
<b>Social benefits</b>	Negligible social and economic return for local stakeholders.	Low social return, limited to employment opportunities.	Project delivers benefits in only one of the major areas to a limited number of local stakeholders.	Project delivers benefits in more than one of the major areas to a limited number of local stakeholders.	Project delivers in two major areas to a large number of local stakeholders.	Project delivers in three major areas or more to a large number of local stakeholders.

**Human Resource:** The skills, knowledge, capacities for work and good health that people have. Taken together, these become fundamental for the successful pursuit of different strategies.

Indicator	Description	Evaluation Methods
Capacity	Implementation: Evaluates the availability of human resources as well as their competence for	- Interviews, questionnaires or

<sup>1</sup> At least one project/action in at least one cluster

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<b>Building Initiatives</b>	<p>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.</p> <p>Operations and Maintenance: Level of experience and capacity of people involved in the operation and maintenance of the project.</p>	<p>meetings: testimony from local stakeholders.</p> <ul style="list-style-type: none"> <li>- Physical evidence: not required.</li> <li>- Documentation: Project owners' capacity building strategies and programs; certificates of building capacity courses.</li> </ul>
<b>Health &amp; Safety</b>	<p>Evaluates if a comprehensive employee safety program is in place and its effectiveness can be demonstrated by the absence of life-threatening accidents.</p>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: safety plans or measures; issue identification and risk assessment; certificates or independent assessments for Occupational Health and Safety Management System; certificates for safety training course.</li> </ul>
<b>Benefits</b>	<p>Evaluates existence of additional benefits to workers regarding the following:</p> <ul style="list-style-type: none"> <li>- Education (support for studies)</li> <li>- Health (medical and hospital assistance)</li> <li>- Retirement assistance</li> <li>- Other (leisure, sports, and meal vouchers, among others).</li> </ul> <p>In cases where the services for implementation, operation and maintenance are outsourced, the indicator evaluates the outsourced employees also.</p>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: Agreements with employees or workers' union; Declaration of the outsourced company regarding benefits given to employees; Programs for assessing employee satisfaction in regard to benefits they receive.</li> </ul>
<b>Transfer of New Technology</b>	<p>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&amp;D) related to the project are also considered in this indicator.</p>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: registers of the capacity building programs due the implementation of a new technology; agreements for acquisition of the new technology; reports on results in considerable efficiency gains of the new technology; Researches on new technologies.</li> </ul>
<b>Involvement of</b>	<p>Evaluates internal communication process of the entrepreneur in relation to project emissions</p>	<p>Records of meetings, letters, and</p>

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Employees in the Project	reductions.	presentations for employees.
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Indicator	1	2	3	4	5	6
Human Resource Availability Capacity Building Initiatives	Implementation: Human resources are not available in the planning and implementation stages of the project.  Operations and Maintenance: Lack of a data bank for registering capacity building initiatives for employees of the project.	Implementation: High uncertainty regarding availability of human resources for the project implementation/design.  Operations and Maintenance: Employees of the project have little experience and have never participated in training or courses.	Implementation: Significant delays in planning schedules and execution due to low availability of human resources.  Operations and Maintenance: Employees of the project have little experience and have participated only once in training or courses.	Implementation: Low Significant delays in planning schedule and execution due to low availability of human resources.  Operations and Maintenance: Employees of the project have participated in training or courses for intervals of one year or less.	Implementation: Human resources available for the implementation/design of the project.  Operations and Maintenance: Employees of the project have experience and have participated in training or courses for intervals of one year or less.	Implementation: Distribution of internal and/or external reports about the availability of human resources and associated risks.  Operations and Maintenance: Employees of the project have experience and have participated in more than one training or course in intervals of one year or less.
Health and Safety	Occurrence of life-threatening accidents related to the project in the last year.	Occurrence of accidents (nonlife-threatening) related to the project in the last year.	No accidents related to the project in the last year, but absence of employee safety program.	Significant gaps in employee safety program (i.e. insufficient monitoring and evaluation regarding occupational health and safety; no goals or improvement; or performance evaluation.	Existence of an Occupational Health and Safety Management System or satisfactory safety program.	Existence of an Occupational Health and Safety Management System certified by a third party.
Benefits	Absence of benefits.	Benefits are limited to some of the employees and do not include all people involved in the project.	Benefits are offered to all employees involved in the project in to one of the areas.	Benefits are offered to all employees involved in the project in to two of the areas.	Benefits are offered to all employees involved in the project in to three of the areas.	In addition, there are programs to evaluate worker satisfaction in regard to benefits received, and the results indicate high levels of satisfaction.
Transfer of New Technology	The project does not promote transfer of	Technology transfer is restricted to	The project has some technological or	Technological innovation results in	R&D projects are conducted.	Results of the R&D projects are

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	new technology.	building capacity of employees involved in project activities.	process innovation.	considerable efficiency gains and reduced environmental impacts.		incorporated in operational activities and/or the project has royalties and/or technological licenses.
<b>Involvement of the employees in the carbon Project</b>	Workers were not informed or were insufficiently informed about the project, and they are not involved.	Only management and employees directly involved in the carbon project are aware.	Employees were informed.	-	Internal seminars and explanatory materials were distributed among employees.	Communication with employees also includes information on climate change.

**Financial Resource:** The basic capital in the form of cash, credit/debt and other economic goods which are available or potential.

Indicator	Description	Evaluation Methods
<b>Economic Performance</b>	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.	- Interviews, questionnaires or meetings: testimony from proponent. - Physical evidence: not required. - Documentation: not required.
<b>Market</b>	Evaluates eligibility of credits to CDM Market or to other voluntary markets as well as their attractiveness to potential buyers.	- Interviews, questionnaires or meetings: testimony from proponent. - Physical evidence: not required. - Documentation: Information on market conditions for similar projects.
<b>Sale of Credits</b>	Evaluates uncertainties regarding the value of commercialized credits generated by the project.	- Interviews, questionnaires or meetings: testimony from proponent. - Physical evidence: not required. - Documentation: Information on market conditions for similar projects.

Indicator	1	2	3	4	5	6
<b>Economic Performance</b>	Very low performance. Goals established with shareholders have not been reached.	Low performance. Goals and expectations established with shareholders have	Moderate Performance. Goals and expectations established with shareholders have	Adequate Performance. Goals and expectations established with shareholders have	Good Performance. Goals and expectations established with shareholders have	Outstanding Performance. Goals and expectations established with shareholders have all

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		been partially reached.	almost been accomplished.	been accomplished.	been accomplished and in some cases surpassed.	been surpassed.
<b>Market</b>	Project activities are not eligible for the carbon market.	-	Project activities are eligible for the voluntary market.	-	-	Project activities are eligible for compliance markets.
<b>Sale of Credits</b>	Uncertainties about the commercialization of the carbon credits for the period.	Carbon credits are being negotiated, with little uncertainty regarding its commercialization.	Price of the credits is below the current market value.	Price of the credits is in accordance with the average market value.	-	Credits with high aggregated value, above the market average.

**Natural Resource:** The stock of natural resources (soil, water, air, etc.) and environmental services (soil protection, maintenance of hydrological cycles, pollution sinks, pest control, pollination, among others), from which resources for livelihoods are derived.

Indicator	Description	Evaluation Method
<b>Sustainability Principles</b>	Evaluates the existence of specific policies and programs geared toward project sustainability and the applicability of the principles, values and objectives regarding sustainability.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: Sustainability policy, or policies, on economic, social, and environmental performance; Codes of conduct; Sustainability performance reporting (internal and external).</li> </ul>
<b>Environmental Management</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: Environmental performance reporting (internal and external); Management systems audits and certifications.</li> </ul>
<b>Environmental Legislation</b>	Evaluates accordance of the project with environmental laws and norms, including agreements with public authorities, such as environmental licenses, requested authorizations for installation, etc.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: Environmental licenses and statements related to the</li> </ul>

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		fulfillment of legal obligations stated by environmental agencies.
<b>Legal Procedures</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: Incidents and prosecutions; agreements with public agencies for adjustment; negative publicity due to public arraignment of non conformity with legal requirements, environmental accidents or severe local stakeholders opposition to the project.</li> </ul>
<b>Environmental Impacts</b>	Evaluates magnitude of environmental impacts of the project, existence of environmental impact statements/studies, and maintenance of environmental evaluation procedures.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures; Records of stakeholder involvement.</li> <li>- Documentation: Identification of directly affected stakeholders; Agreements with stakeholders and/or regulators; Environmental Impact Study (EIS/ EIR or equivalents) and Mitigation / compensation / enhancement plans or programs if required by local government.</li> </ul>
<b>Environmental Risk Management</b>	Evaluates the definition, implementation and maintainance 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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: documentation of emergency situations; Management reports and environmental risks;</li> </ul>
<b>Reservoir and marginal areas management</b>	Measures the effectiveness of the Reservoir and marginal areas management, considering: <ul style="list-style-type: none"> <li>a) existence of invasions in the marginal and adjacent areas and mitigation measures adopted</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: Documented</li> </ul>

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		environmental, social, and economic plans; regulatory agreements.
<b>Erosion, landslides, silting and floods</b>	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).	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: Sedimentation and erosion studies or risk management program; specific operational rules; Regulatory requirements; agreements with stakeholders.</li> </ul>
<b>Water Resources</b>	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).	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: water quality studies or risk management program; specific operational rules; Regulatory requirements; agreements with stakeholders.</li> </ul>

Indicator	1	2	3	4	5	6
<b>Sustainability Principles</b>	There are no commitments to sustainability.	Limited incorporation of sustainability in the values, strategy and principles of the project owner.	Incorporation of sustainability in the values, strategy and principles of the project owner.	Clear sustainability goals and objectives inserted in the values, strategy or principles of the project owner, but difficulties exist in applying them in practice.	In addition to the items in Index 4, the values, strategy or principles of the project owner are effectively incorporated by some collaborators.	Collaborators of the organization incorporate the sustainability values, strategies and principals of the project owner satisfactorily.
<b>Environmental Management</b>	There is no systemic approach regarding environmental management.	Large gaps in management systems and no reporting of performance.	Environmental management systems exist, but there is no reporting of performance.	Environmental management and reporting system exists, but with some gaps.	Efficient environmental management system exists but is not necessarily certified.	Certified environmental management system.
<b>Environmental Legislation</b>	Violation or inadequate fulfillment of environmental legal	Licensing process has commenced but with some difficulties such as public lawsuits,	Environmental license has been issued but uncertainties exist regarding the	Environmental license has been issued, but minor uncertainties exist regarding	Environmental licenses routinely issued; determined obligations are	In addition to the items in Index 5, the entrepreneur has systematic control of

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	obligations. Environmental license suspended for indeterminate period or not renewed.	inadequacy of environmental impact statements, and judicial procedures, among others.	fulfillment of determined obligations.	fulfillment of determined obligations.	fulfilled.	the licensing process.
<b>Legal Procedures</b>	The project: - Suffered a public civil lawsuit in the last year due to potential risk or effective damage to human health or the environment - Was ultimately convicted	The project: - Suffered a judicial lawsuit by public agencies in the last year due to potential risk or effective damage to human health or the environment - Was ultimately convicted	The project received a warning from public agencies in the last year due to potential risk or effective damage to human health or the environment.	The project: - Received a warning from a monitoring agency in the last year due to potential risk or effective damage to human health or the environment - Has rectified the situation	The project: - Suffered public civil action or judicial action or received a warning in the last year due to potential risk or effective damage to human health or the environment - Was not convicted	The project did not suffer from public civil or judicial action or receive any warnings due to potential risk or effective damage to human health or the environment.
<b>Environmental Impacts</b>	There are no environmental impact studies. OR Environmental impact studies are incomplete.	Studies show high environmental impact. Compensation and mitigation measures for such impacts are not yet in place.	Studies show high environmental impact, yet compensation and mitigation measures for such impacts are unsatisfactory (i.e. Considerable delays and inefficiencies during execution of environmental programs).	Studies show high environmental impact, yet compensation and mitigation measures for such impacts are satisfactory (i.e. Efficient execution of environmental programs).	Studies show insignificant environmental impact.	Studies show minimal environmental impact. The project implements new technologies or innovative processes to control environmental impacts.
<b>Environmental Risk Management</b>	There is no documentation of emergency situations <sup>2</sup> .	Occurrence of emergency situations with significant impacts on environmental and human systems in the monitoring period. Identification and correction of such impacts were not inefficient.	Identification and correction of the impacts were efficient.	There were no environmental emergency situations during the specified period.	Periodic evaluations of environmental risks are conducted. Environmental emergencies are documented and monitored.	Periodic internal and external audits of environmental risks and technical reports regarding environmental management are conducted.

<sup>2</sup> For example, liquid or solid material spills; unnecessary aggression to the environment such as inadequate deforestation, burning, draining interruption; incidents affecting health, sanitation, security, habitats, tranquility or patrimony of the inhabitants.

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<b>Reservoir and marginal areas management</b>	Existence of invasion and inadequate use of project owner' areas around the reservoir.	Corrective actions are in place to restore invaded areas or illegal uses of project owner' areas around the reservoir.	There are no invasions or inadequate uses of project owner' areas around the reservoir.	In addition, the project owner has a plan or program for management of the reservoir and marginal areas, but with significant gaps (i.e. is incomplete or reasonably inefficient during its execution).	Satisfactory plan, but it only contemplates monitoring, safety and control activities.	Plan also includes actions that consider multiple uses of the reservoir and adjacent areas with evident benefits to the local population.
<b>Erosion, landslides, silting and floods.</b>	Operations cause major ongoing sedimentation or erosion problems in Reservoir or downstream areas. No action concerning these events. OR Limited or no understanding of erosion issues.	Operations cause major ongoing sedimentation or erosion problems in Reservoir or downstream areas. Corrective actions in place, but with relevant gaps during its execution.	Operations cause major ongoing sedimentation or erosion problems in Reservoir or downstream areas. Corrective actions demonstrate efficiency during its execution.	Operations cause minimal or none ongoing sedimentation or erosion problems in Reservoir or downstream areas.	Program includes preventive actions (reforestation, ebb tide monitoring, etc).	Program is supported by external Stakeholders (i.e. regulators, ngos, etc.).
<b>Water Resources</b>	Operations cause major ongoing deterioration to reservoir or downstream water quality or the minimal outflows stipulated are not adhered to. No action concerning these events. OR Limited or no understanding of water quality issues.	Corrective actions in place, but with relevant gaps during its execution.	Corrective actions demonstrate efficiency during its execution.	Operations either enhance or cause minimal deterioration to Reservoir or downstream water quality.	Program includes preventive actions.	Program is supported by external Stakeholders (i.e. regulators, ngos, etc.).

**Biodiversity Resource:** the combination of species, ecosystems and genes which form the biological diversity. Relevant aspects of this component are: the integrity of natural communities, the way people use and interact with biodiversity, the degree of conservation, pressures and threats imposed on native species and the existence of high priority areas for conservation

Indicator	Description	Evaluation Methods
<b>APP and Legal Reserve</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: biodiversity research and studies; Biodiversity assessment and program; Plans for reservoir and marginal areas management; Environmental Impact Study (EIS/ EIR or equivalents) and Mitigation / compensation / enhancement plans or programs if required by local government.</li> </ul>
<b>Recovery of Degraded Areas</b>	Evaluates existence of reforestation projects in marginal areas of the reservoir, procedures for planting, maintenance, control measures and surveillance. It also evaluates extent of actions: limited legal obligations, areas of the company, riparian forest in the incremental basin, and so on.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders.</li> <li>- Physical evidence: site visit, pictures or other records of results of the project.</li> <li>- Documentation: plan of activities for implementing reforestation programs; Agreements with partners and other organizations; periodic reports on status of implementation of these programs.</li> </ul>
<b>Biodiversity Conservation</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: biodiversity research and studies; Biodiversity assessment and program; plan of activities for implementing</li> </ul>

		biodiversity conservation programs; Agreements with partners and other organizations; periodic reports on status of implementation of these programs.
Ichthyofauna	Evaluates existence of procedures for monitoring the Ichthyofauna, partnerships for research, and management actions (restocking, culture in ponds, net).	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from local stakeholders and/or regulators.</li> <li>- Physical evidence: i.e. site visit or pictures.</li> <li>- Documentation: biodiversity research and studies; Biodiversity assessment and program; Programs for monitoring and/or rebuilding of the ichthyofauna; Agreements with partners and other organizations; Environmental Impact Study (EIS/ EIR or equivalents) and Mitigation / compensation / enhancement plans or programs if required by local government.</li> </ul>

Indicator	1	2	3	4	5	6
APP (Permanent Protected Areas) and Legal Reservation	None or very limited understanding of this issues. AND/OR No forestry remains.	More than 50% of APP and Legal Reservation areas are degraded AND/OR Forestry remains extremely fragmented and presents poor fauna and flora.	Less than 50% of APP and Legal Reservation areas are degraded AND/OR Remaining forestry is fragmented, but the fauna and flora is representative.	Few APP and Legal Reservation areas are degraded AND/OR Remaining forestry is not so fragmented, but the fauna and flora are poor.	APP and Legal Reservation areas are not degraded AND/OR Remaining forestry is representative considering its dimension, and the fauna and flora are also representative but lives under constant pressure.	APP and Legal Reservation are recovered or in good condition of conservation, native species are predominant AND/OR Remaining forestry is representative and preserved.
Recovery of Degraded Areas	No actions taken.	-	Limited to legal obligation.	Voluntary recovery of degraded areas but only in areas of project ownership.	Voluntary recovery of degraded areas, also in areas outside of project ownership.	Recovery with support from and integration of local stakeholders.
Biodiversity Conservation	No actions taken.	-	Limited to legal obligation.	Actions to support research on local	Actions to conserve of local biodiversity.	Support to conservation and

				biodiversity.		maintenance of protected areas in the region.
Ichthyofauna	There is no monitoring.	Inefficiency in monitoring.	Plan or program of monitoring Ichthyofauna is efficient.	Program for corrective actions (restocking, transposition, aquaculture, for example).	Plan or program for preventive actions (research, for example).	Voluntary actions to conserve the Ichthyofauna.

**Carbon Resource:** The type of carbon project developed, encompassing the methodologies utilized and project performance.

Indicator	Description	Evaluation Methods
<b>Additionality</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from proponent.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: PDD &amp; Verification Report</li> </ul>
<b>Emissions Reductions Calculations &amp; Monitoring</b>	Evaluates methodologies used to calculate emissions and monitor compliance with national and international standards.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from proponent.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: PDD &amp; Verification Report</li> </ul>
<b>Validation &amp; Verification</b>	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.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from proponent.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: PDD &amp; Verification Report</li> </ul>
<b>Project Performance</b>	Evaluates performance of project, verified by comparison with estimates of emissions reductions under the PDD.	<ul style="list-style-type: none"> <li>- Interviews, questionnaires or meetings: testimony from proponent.</li> <li>- Physical evidence: not required.</li> <li>- Documentation: PDD &amp; Verification Report</li> </ul>

Indicator	1	2	3	4	5	6
<b>Additionality</b>	It is not considered additional.	It has additionally limited to part of the project's activities.	There are uncertainties about additionally, partial or total.	It is considered additional, but it doesn't use internationally or nationally recognized standards.	It is considered additional, and it uses internationally and nationally recognized standards.	It is considered additional according to criteria stated in a monitoring methodology approved by the CDM Executive Board.
<b>Emission Reductions Calculations &amp; Monitoring</b>	Absence of a specific methodology to calculate emission reductions AND/OR It does not have a monitoring plan, or it has only partial or insufficient monitoring.	It has an emissions reductions calculation methodology to part of the project's activities.	It possesses a consistent methodology to calculate emissions reductions AND It possesses a consistent monitoring plan that approaches all dimensions of the project.	-	In addition to the items in Index 3, methodology of baseline and monitoring plans are based in internationally recognized standards.	It possesses a methodology to calculate emissions reductions and a monitoring plan based on a methodology approved by the CDM Executive Board.
<b>Validation &amp; Verification</b>	There is no validation or verification conducted by a third part.	Validation/verification of the project is conducted by an independent third party that is not registered by the UNFCCC (DOE <sup>1</sup> ).	Validation and verification by a DOE is limited to parts of the project.	Validation/verification are conducted by a Designated Operational Entity but don't follow any internationally recognized procedures.	Validation/verification are conducted by a Designated Operational Entity following nationally/internationally recognized procedures.	Validation/Verification are conducted by a Designated Operational Entity according to UNFCCC specifications.
<b>Project Performance</b>	Not successful: 0% of carbon credits predicted for the period were effectively generated.	Very Low: 1% to 25% of carbon credits predicted for the period were effectively generated.	Low: 26% to 50% of carbon credits predicted for the period were effectively generated.	Reasonable: 51% to 75% of carbon credits predicted for the period were effectively generated.	Good: 76% to 95% of carbon credits predicted for the period were effectively generated.	Excellent: More than 95% of carbon credits predicted for the period were effectively generated.