Hydropower Sustainability Standard

Add certification label (if the project is certified)

Assessment Report

Project Name: San Roque Multipurpose Project
Installed Capacity: 435 MW
Country: Philippines

SRPC PHILIPPINES
San Roque Power Corporation

Project Sponsor: SRPC
Report Author: Joerg Hartmann, Antonio Fonseca dos Santos, Anamaya Upadhyay
Report Date: July 12, 2024

Operation

San Roque Multipurpose Project, 435 MW, Philippines

Cover page photo: Google Earth image of project area, showing the Cordillera Central mountains in the north and the Pangasinan plain in the south, with the Agno River in the centre flowing from north to south through the San Roque reservoir and the downstream re-regulating pond, from where it gets diverted into the irrigation districts to the east and west of the river channel.

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Rocha Conde d'Óbidos
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Email: info@hs-alliance.org

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The findings in this report are based on an independent assessment conducted in compliance with the processes set out in the Hydropower Sustainability Assurance System.

Hydropower Sustainability Standard

About the HSS	The Hydropower Sustainability (HS) Standard is the normative document that sets out the performance requirements of the Hydropower Sustainability Certification System, a global labelling and certification scheme outlining the expectations for hydropower projects around the world. The HS Standard recognises hydropower projects for their environmental, social and governance (ESG) performance by setting minimum and advanced performance requirements for the sector and acknowledging projects for meeting these requirements. The HS Standard is aligned with the safeguards of key lenders (e.g. IFC and World Bank) and can be used to attract climate-aligned finance through green bonds certified by the Climate Bonds Initiative and support electricity sales to RE100 companies. The HS Standard is managed by the Hydropower Sustainability Alliance. The HS Alliance was established in October 2023 to act as the independent and multistakeholder standard-setting body that oversees the Hydropower Sustainability Certification System.
Intended users and uses	The HS Standard includes three separate stages: Preparation, Implementation and Operation. These reflect the different stages of hydropower development and have been designed to be used as standalone documents. Each reporting template provides an action plan to help project teams address any gaps against minimum (good practice) and advanced requirements (best practice). Official HS Standard assessments are carried out by Accredited Assessors, who take an evidence-based approach based on data triangulation. All findings are supported by objective evidence, which is factual, reproducible, objective and verifiable. The HS Standard is most effective when operators and developers commit to implement the recommendations provided and resolve identified significant gaps. Hydropower development and operation may involve public entities, private companies or combined partnerships, and responsibilities may change as the project progresses through its life cycle. It is intended that the organisation with the primary responsibility for a project at its particular life-cycle stage will have a central role in any HS Standard assessment.
Structure of the reporting template	The HS Standard comprises 12 sections that cover the environmental, social, governance and climate change impacts, both negative and positive, that arise from hydropower development and operation. Summary sections at the beginning of the report include: (A) Assessment Overview, (B) Project Details, (C) Performance against Minimum Requirements, (D) Performance against Advanced Requirements, (E) Environmental and Social Action Plan and (F) Abbreviations and Acronyms. The summary sections are followed by the 12 ESG sections where requirements for good and best practices are presented and project findings are provided. The report finishes with three appendixes that list the types of evidence used in the assessment.
Supporting resources	Additional guidance on the structure, content and history of the HS Standard can be found online at: www.hs-alliance.org
Version date	October 2023

A. Assessment Overview

Assessor(s)	Joerg Hartmann (Sustainable Water & Energy LLC), Antonio Fonseca dos Santos (Kelowna Consultoria Ambiental e Sustentabilidaded Ltda), Anamaya Upadhyay (Hydro-Consult Engineering Ltd)
Assessment objectives	1. To check and further improve San Roque Power Corporation's (SRPC) performance in the following areas: i. In promoting sustainable operations by implementing and adhering to globally recognized sustainability standards in hydropower operations, ensuring the long-term viability of natural resources and ecosystems. ii. In enhancing environmental performance by continuously improving SRPC's environmental management systems to minimize ecological footprint, reduce greenhouse gas emissions, and protect local biodiversity. iii. In fostering social responsibility by engaging and collaborating with local communities, respecting their rights and contributing positively to their social and economic development. iv. In ensuring operational excellence by upholding the highest standards of safety, efficiency and reliability in hydropower operations, providing clean, renewable energy while maintaining operational integrity. v. In driving innovation by investing in and adopting cutting-edge technologies and best practices to optimize resource use, enhance energy production, and mitigate environmental impacts. vi. In demonstrating transparency and accountability by maintaining an open communication with stakeholders, regularly reporting on sustainability performance and adhering to rigorous independent assessments to validate SRPC's commitment. 2. To lead by example in the hydropower industry, contributing to global sustainability goals and setting a benchmark for responsible energy production.
Assessment dates	April 15-20, 2024
Assessment report date	July 12, 2024
Summary of key findings	The economic, social and environmental benefits of current multi-purpose operations of the SRMP are substantial. The reservoir stores water for one of the country's largest irrigation areas, can capture several hundred million m^3 of water during typhoons and an excessive load of silt from the catchment, thus protecting the downstream floodplain, and generate valuable power for the Luzon system. However, the initial and some ongoing negative environmental and social impacts were also substantial. The mitigation of most issues has been concluded, and ecosystems and communities in the project area have largely adapted to the SRMP. However, a number of impacts are only partially understood and resolved, and some potential opportunities and benefits have not been realized to the extent possible. This relates to the complex responsibilities for E&S issues of the SRMP, which are only partially under the control of SRPC.

	SRPC has inclusive human resource policies and a comprehensive OH&S program. Risks and opportunities for improvement are identified through a well-planned safety inspection program, and the safety record is exemplary. SRPC has several programs to give opportunities to students from local communities and attract local workers. Compliance with a number of regulatory labour and OH&S requirements has been certified. An external Human Rights Assessment was undertaken which confirmed consistency with internationally recognized labour rights. Water quality, erosion and sedimentation are important issues in the SRMP. Water quality in terms of turbidity is improved and downstream areas are protected from excessive sediment loads for several decades, however at the price of sedimentation of the reservoir and future loss of services from the SRMP. Arsenic, copper and potentially other metals from the catchment are public health risks, and while a part of them is removed from the river system by trapping in reservoir sediment, another part becomes more available as the SRMP enables increased fishing and irrigation. The SRMP was built to deliver multiple social and economic benefits, but also required the displacement of several communities. Displacement has been fairly compensated and multiple initiatives have been implemented to improve the lives of local stakeholders. Since the transformation of the SRPC Environment Unit to San Roque Power Foundation Inc (SRPFI) in 2010, this organisation is responsible for implementation and monitoring of all CSR programs (regulatory such as the ER 1-94 program, obligatory under the ECC, and voluntary ones). Project RANG-AY is the current flagship program for all development interventions. There has been significant improvement in all affected municipalities, in the quality of life in terms of access to utilities and housing, and livelihoods. The safety management of the SRMP's dam and associated infrastructure is thorough and proactive. Emergency preparedness and response is robust, and the reservoir has been able to mitigate the floods from major typhoons since commissioning. The resettlement program was delivered as planned in the RAP by NPC, and then continued in some aspects by SRPC. Resettled and host communities on the whole are better off today, especially in terms of their housing conditions and access to utilities. Livelihoods support had a more mixed success, with significant initial adjustment problems and several failed initiatives, and a continued need for support from NPC and SRPC, which means that not all livelihoods are yet self-sustaining. The SRMP actively contributes to restoring and enhancing biodiversity in the project area, particularly the rich terrestrial biodiversity in the Cordillera Central mountains, where SRPC and government bodies conduct collaborative reforestation efforts. While ecosystem health is still impaired, there are no notable emerging threats for aquatic and terrestrial habitats, and trends are generally pointing in the right direction. While IPs did not have an opportunity for FPIC prior to the project decision, they have been fully involved in planning, implementing and monitoring a development plan for their communities, besides participating as all other affected people in resettlement and livelihoods restoration programs and in benefit sharing. The SRMP was set up as a hybrid structure or public-private partnership, which allowed it to be financed, built and operated by a private entity (SRPC) while still delivering its multiple purposes in the public interest. SRPC is a well-structured company with significant experience operating in and adapting to the evolving Philippine regulatory framework and market.

	SRPC has used a number of communications and consultation strategies, throughout the different phases of the SRMP and for different target stakeholder groups including resettlees, other affected communities upstream and downstream, IPs, government entities, and employees. A comprehensive consultation and disclosure process have been implemented since the start of the project, including a FPIC process for the support projects to be implemented in the IP communities. Communication channels are in place to attend the various stakeholder groups in an appropriate manner. Engagement activities include participatory meetings with community relations officers, open houses, walk in policy, project tours, communications campaigns and presentations where monitoring results are presented. The SRPC website provides a number of reports on project performance including SRPC's GRI-compliant Sustainability Reports. Stakeholder mapping is updated periodically. There is a systematic grievance mechanism. The San Roque reservoir and the associated downstream re-regulating pond are operated under rules for multiple objectives including power generation, irrigation, flood control and sediment retention while maintaining dam safety and river maintenance flows. These rules are largely accepted and based on a good understanding of their hydrological basis and effectiveness, with the exception of river maintenance flows in the main river channel downstream of the re-regulating pond. The SRMP has a relatively high power density and is therefore likely to have relatively low reservoir and total emissions. Its large reservoir can support adaptation to climate change. The resilience of the SRMP to climate change, i.e. the ability under future climate conditions to safely provide the various services such as power generation, flood control and irrigation, is currently being analysed.
Limitations of the assessment	The San Roque Multipurpose Project (SRMP) is operated by the San Roque Power Corporation (SRPC). The owner of the assets is the National Power Company (NPC), which in turn is owned by PSALM (Power Sector Assets and Liabilities Management), a government holding company. The scope of this assessment covers the ESG issues related to the SRMP assets, and under the responsibility of SRPC and NPC. These assets are influenced by upstream land and water users (e.g. hydropower projects, miners, farmers, loggers), and in turn their operation influences downstream land and water users (e.g. irrigation farmers and the National Irrigation Administration (NIA), municipalities and provinces and their flood control efforts). While these interrelationships are described in the assessment, and upstream and downstream stakeholders were interviewed to provide context, their ESG management and the overall coordination across the basin is outside the scope of the assessment.

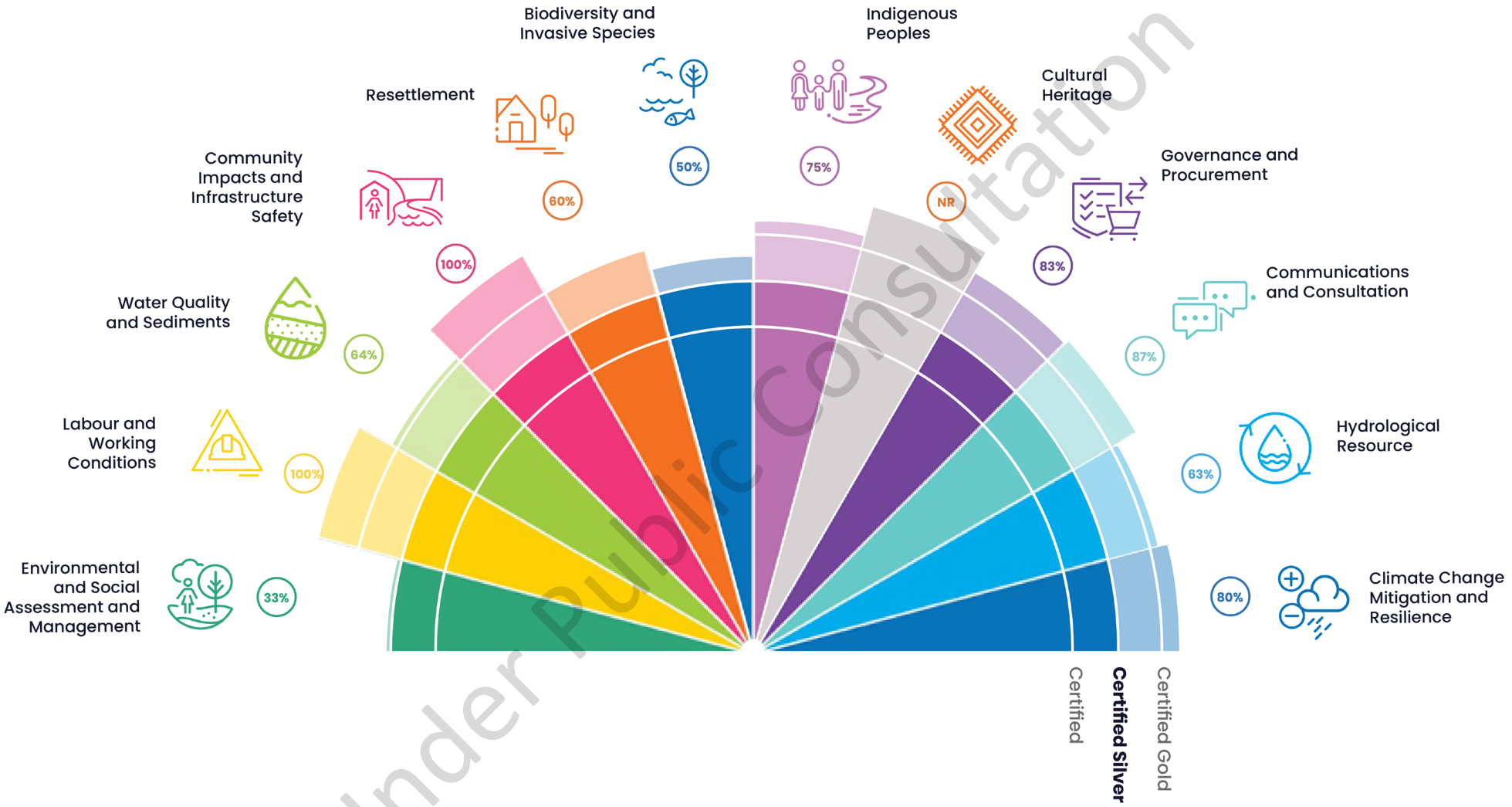

Figure 1 – Hydropower Sustainability Standard (HSS) Results Diagram

B. Project Details

Project name	San Roque Multipurpose Project (SRMP)
Country	Philippines
Location	Central Luzon island, 200 km north of Manila, on the Agno River
Purpose	Peak power generation, irrigation of 21,000 ha of downstream farmlands, largely for rice, flood control for 16 downstream municipalities, and water quality improvements
Developer / Owner	San Roque Power Corporation (SRPC), owned by private companies Marubeni, Kansai and Mizuho-Marubeni Lease (Japan)
Financer(s)	Lead financier: Government of Japan (JEXIM/JBIC)
Installed capacity (MW)	435 MW
Construction start date (planned or actual)	1998
Commercial operations date (planned or actual)	2003
Annual average generation (GWh / year)	808 GWh from 2013 (when the re-regulating pond became available) to 2023
Associated infrastructure: road(s) (length)	16.2 km
Transmission lines and sub-stations (names, lengths and capacities)	9 km double circuit 230 kV to San Manuel substation, under the National Grid Corporation of the Philippines (NGCP)
Total cost (USD m)	USD 1.2 billion (without the re-regulating pond and other irrigation- or flood control-related infrastructure downstream)
Annual operating costs (USD m)	USD 13.8 m
Specific investment cost (USD m / MW)	USD 2.76 m / MW
Levelised energy cost (USD / kWh)	Not available
Dam type	Central clay core rockfill embankment dam
Dam height (m)	200 m
Dam length at crest (m)	1,130 m at 295 masl (plus 2 m additional fill/camber)
Units (number, type, MW)	3 x 145 MW Francis
Reservoir area at Full Supply Level (FSL) (km^2)	12.8 km^2 at Normal Maximum Pool level (280 masl)
Average net head at FSL (m)	Gross head between 125-180 m, rated head 150.4 m
Average flow (m^3 / s)	83.6 m^3/s
Design flow (m^3 / s)	270 m^3/s at full load at rated head (max)
Load factor	21.2%
Number of physically displaced households	344 from Pangasinan and 44 from Benguet
Power density (W / m^2)	34

Emissions intensity (gCO_2e / kWh)	Unknown
Contacts / website	https://sanroquepower.ph

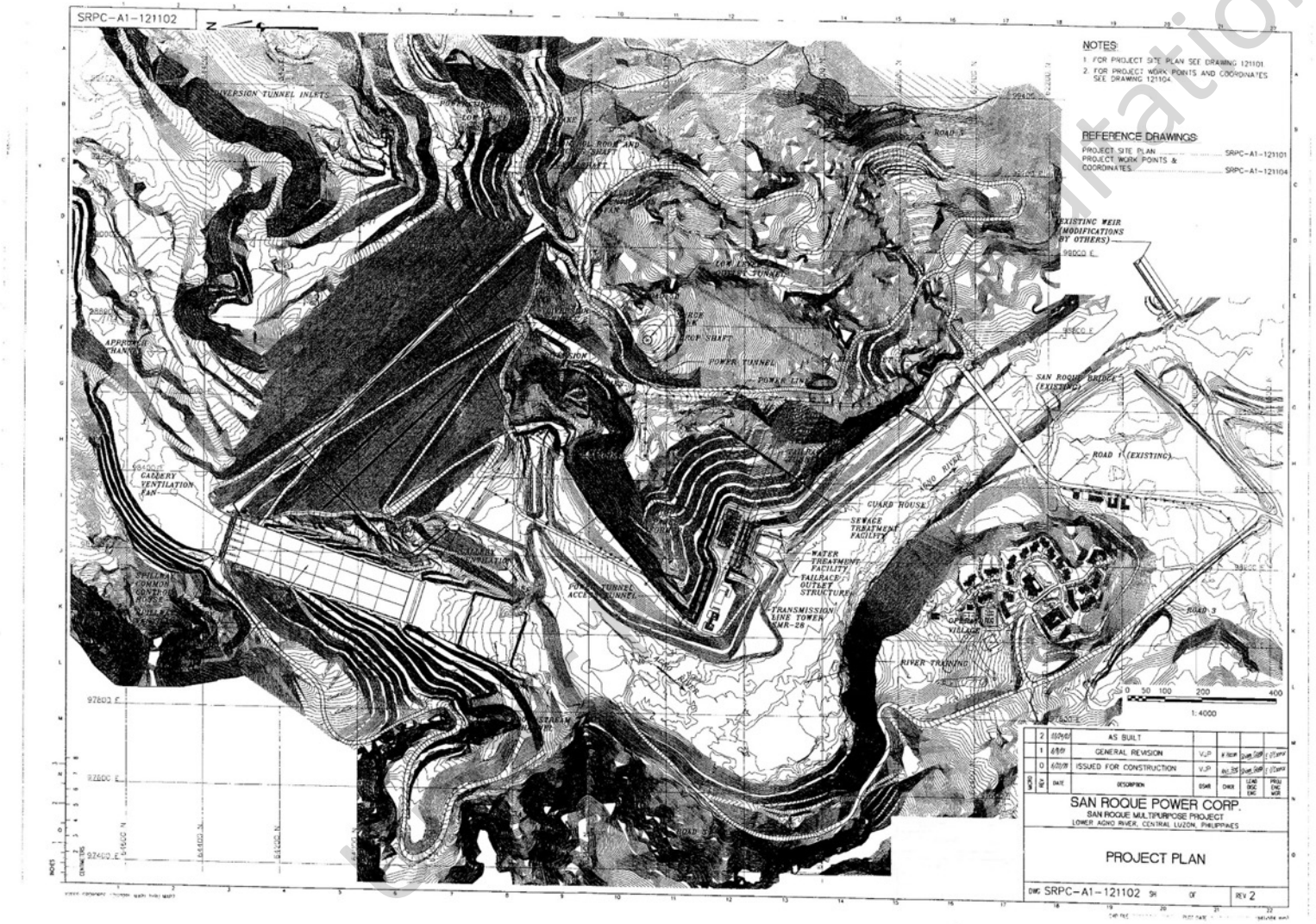

Figure 1 – As-built layout of the SRMP dam, spillway, powerhouse and operators 'village

Operation

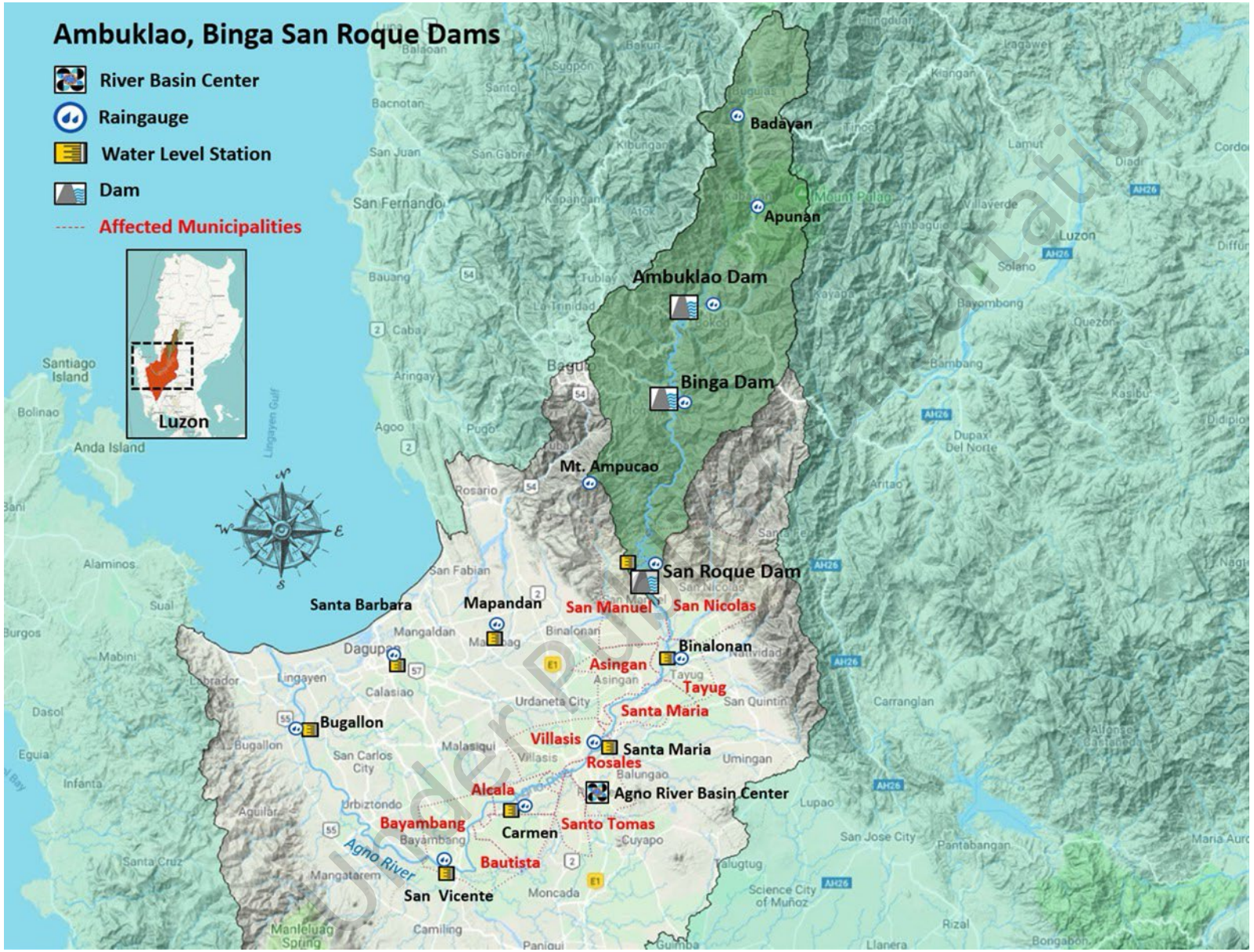

Figure 2 – Map of Agno River catchment from weather forecasting agency PAGASA, showing the three main dams upstream and municipalities in the floodplain downstream

Operation

C. Performance against Minimum Requirements

This section is not used since all Minimum Requirements are met.

D. Performance against Advanced Requirements

	Sections											
	1. Environmental and Social Assessment and Management	2. Labour and Working Conditions	3. Water Quality and Sediments	4. Community Impacts and Infrastructure Safety	5. Resettlement	6. Biodiversity and Invasive Species	7. Indigenous Peoples	8. Cultural Heritage	9. Governance and Procurement	10. Communications and Consultation	11. Hydrological Resource	12. Climate Change Mitigation and Resilience
TOTAL NUMBER OF REQUIREMENTS	6	5	11	21	5	6	8	5	6	15	16	15
NUMBER OF REQUIREMENTS MET	2	5	7	21	3	3	6	n.r.	5	13	10	12
PERCENTAGE OF REQUIREMENTS MET	33%	100%	64%	100%	60%	50%	75%	n.r.	83%	87%	63%	80%

Note:

- A project must meet all Minimum Requirements on all relevant sections to achieve HS Certified label.
- To receive the HS Silver label, a project must meet all Minimum Requirements on all relevant sections AND meet at least 30% of the Advanced Requirements on each relevant section.
- To receive the HS Gold label, a project must meet all Minimum Requirements on all relevant sections AND meet at least 60% of the Advanced Requirements on each relevant section.

E. Environmental and Social Action Plan (ESAP)

This section is not used. SRPC is planning to take the results of the assessment into account during operations.

F. Abbreviations and Acronyms

BFAR	Bureau of Fisheries and Aquatic Resources
CLRP	Comprehensive Livelihood and Rehabilitation Plan
CRO	Community Relation Officer
CSR	Corporate Social Responsibility
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DOH	Department of Health
DOLE	Department of Labor and Employment
DSWD	Department of Social Welfare and Development
ECC	Environmental Compliance Certificate
ER 1-94	Energy Regulations No. 1-94
ERC	Energy Regulatory Commission
EMB	Environment Management Bureau
GRI	Global Reporting Initiative
FPIC	Free Prior and Informed Consent
IEC	Information Education Communication
IPDP	Indigenous People Development Plan
MMT	Multi-Partite Monitoring Team
NCIP	National Commission on Indigenous People
NDCC	National Disaster Coordinating Council
NGCP	National Grid Corporation of the Philippines
NIA	National Irrigation Administration
NPC	National Power Corporation
NWRB	National Water Resources Board
NRDC	Natural Resources Development Corporation
OCD	Office of Civil Defence
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PPA	Power Purchase Agreement
PSALM	Power Sector Assets and Liabilities Management
SPDC	Strategic Power Development Corporation (now San Roque Hydropower, Inc. [SRHI])
SRPFI	San Roque Power Foundation Inc
SRPC	San Roque Power Corporation

SRMP	San Roque Multipurpose Project
SRWR	San Roque Watershed Reservation
SSIP	Strategic and Social Investment Program

1 Environmental and Social Assessment and Management

Scope and Principle
This section addresses the plans and processes for environmental and social issues management. The principle is that negative environmental and social impacts associated with the hydropower facility are managed; avoidance, minimisation, mitigation, compensation and enhancement measures are implemented; and environmental and social commitments are fulfilled.

Background	
Identify the main environmental and social issues during operation	Changes to river flows and water quality downstream of plant; allocation of storage space in reservoir and water releases between different purposes/users; sediment trapping in reservoir; watershed management; local livelihoods, procurement, employment and benefit sharing
Identify the environmental regulator	Department of Environment and Natural Resources (DENR)
Identify other regulators (e.g. on land, water use, Indigenous Peoples)	National Water Resources Board (NWRB), Department of Labor and Employment (DOLE), Energy Regulatory Commission (ERC). An Agno River Basin Development Commission (ARBDC) was created by presidential order in 1997 to prepare a masterplan for the basin, but has since been dissolved. The National Power Corporation (NPC) is now the primary organization tasked with coordination of basin management, since it owns three major dams in the basin.
Summarise the ESIA regulatory requirements	An Environmental Compliance Certificate was issued in 1985 and updated in 1998, with a number of conditions. SRPC issues bi-annual compliance reports as well as quarterly self-monitoring reports. There are also secondary permits e.g. from DENR for wastewater discharge, generator sets, and business permits from the local municipalities San Nicolas and San Manuel.
Describe the non-physical cultural heritage in the project area	The project area has a long history of indigenous peoples, primarily in the upper watershed, some of which were affected by the SRMP. Colonial history in the province of Pangasinan dates back to 1571. Today the area is among the more developed parts of the Philippines, with higher incomes and standards of living than the average.
Other relevant information	The focus of this section is environmental and social management by SRPC and to a lesser extent, by NPC. Efforts by the National Irrigation Administration (NIA), upstream dam operators, mining companies and other related organizations are outside the scope of this assessment.

Minimum Requirements		Advanced Requirements	
Requirement is met: yes (✔) or no (✘)	Findings and Observations	Requirement is met: yes (✔) or no (✘)	Findings and Observations
ASSESSMENT			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
Systematic processes are in place to identify any ongoing or emerging environmental and social issues associated with the operating hydropower facility	✓	The original ESIA from 1984 was updated in 1997 to account for changes such as a lower dam, the 1990 earthquake, and the build-operate-transfer (BOT) structure of the project with a split in responsibilities between the operator SRPC (mostly environmental management) and the owner NPC (mostly social management). An Environmental Management and Monitoring Plan was prepared by SRPC in 1998, and a Resettlement Plan updated by NPC in 1999. Almost all of the originally planned measures are concluded. Progress and impact of measures was well tracked (e.g. through a series of post-relocation reports on resettlees) and closure was well documented (e.g. through the final Borrower's Environmental Monitoring Report at the end of construction, 2004). Ongoing and emerging issues are identified by SRPC's E&S team, NPC's watershed management team, and NIA.	Processes to identify ongoing and emerging environmental and social issues take into account broad considerations, and both risks and opportunities	✓	There has been significant discussion on evolving E&S management requirements primarily within SRPC, with NPC, and, while it was functional, with the Multi-Partite Monitoring Team (MMT). This discussion has taken into account lessons learnt such as the initial disagreements with affected people and mixed success of livelihood restoration measures, operational experiences such as the 2009 floods and 2012 tailings dam spill upstream, and more modern sustainability expectations than those reflected in the original E&S assessments and management documents. These discussions are reflected, for example, in the revision of the project's operating rules, the creation of the SRP foundation, SRPC's sustainability reports, and the company's sustainability roadmap. The project's complex institutional set-up or lack of attention from some stakeholders has left some E&S risks or opportunities without clear responsibilities or follow-up, at least temporarily. These include livelihoods programs for resettlees, releases for 'river maintenance' downstream of NIA's re-regulating weir, greenhouse gas emissions from the reservoir, final
The processes utilise appropriate expertise	✓	The expertise is adequate for the assessment and management of the type of issues currently encountered. Where required, external expertise is added (for example, for biodiversity management through the Philippine Eagle Foundation).			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Monitoring programmes are in place for identified issues	✓	There are periodic monitoring and reporting exercises for issues such as water quality.			approval of the revised operating rules, rehabilitation of disturbed land, etc. Some of these issues have been resolved. They will be discussed in the respective sections below.
MANAGEMENT					
Environmental and social management system is in place to manage measures to address identified environmental and social issues	✓	E&S responsibilities are largely under SRPC while under the 25-year Power Purchase Agreement with NPC. The Environmental Monitoring and Management Plan (EMMP) was approved by the DENR-EMB in 1998. SRPC has a dedicated E&S unit with significant management attention, resources, and systematic processes. There is an overall program directive as well as specific procedures to address areas such as different waste categories, air quality, and spill prevention.	Processes are in place to anticipate and respond to emerging risks and opportunities	✘	SRPC provides quarterly and semi-annual reports to the environmental authorities, but these are very standardized, refer to long-established license and regulatory conditions, and do not cover emerging issues. Under the license conditions in the Environmental Clearance Certificate, SRPC has established two permanent funds, an Environmental Monitoring Fund for expenses of the MMT, and an Environmental Guarantee Fund for rehabilitation or compensation for any unforeseen damages. The Guarantee Fund was only used once, in 2004 to cover costs related to the breach of a downstream irrigation canal, although the breach was not caused by SRPC's operations. Following the early conflicts over the project, the MMT was instrumental in fostering a consensus with stakeholders about E&S impacts and management measures. Since then, the situation around the project has

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					stabilized, and with changes in MMT regulations in 2017 (which removed proponents such as SRPC which had provided secretariat functions and momentum, from MMT membership) and with the Covid-19 pandemic the SRMP MMT has been largely inactive and no longer plays an important role. There is no other group to coordinate E&S management between stakeholders, and thus no clear process to anticipate and respond to emerging risks and opportunities, which is a **significant gap**. While the MMT has not met for the past years, SRPC still reports issues to MMT members.
This management system is implemented utilising appropriate expertise (internal and external)	✓	See above.	Plans and processes are embedded within an internationally recognised environmental management system which is third party verified, such as ISO 14001	✘	None of the various organizations involved in operating the SRMP (SRPC, NPC, NIA) have third party verified E&S management systems, which is a **significant gap**.
CONFORMANCE AND COMPLIANCE					
Processes and objectives in environmental and social management plans have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for non-compliances. Non-compliances that occurred during construction or the early years of operations have since been resolved. In some cases, SRPC took over responsibilities from other parties (especially NPC) to resolve them.
• no major non-compliances	✓	There are no indications for major non-compliances.			
• no major non-conformances	✓	There are no indications for major non-conformances.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Environmental and social commitments have been or are on track to be met	✓	There are no indications otherwise. SRPC has provided support for communities on multiple occasions, for example for flood relief after the 2009 typhoon Pepeng, for USD 250,000. Voluntary commitments have included programs funded through the SRPC's CSR foundation. During the last publicly reported fiscal year to March 2022, the foundation spent USD 160,000.	There are no non-conformances	×	Non-conformances that occurred during construction or the early years of operations have since been resolved, except the plan to prepare a downstream effects study (committed to in the final borrower's report to JBIC), which is a **significant gap**. There is a commitment in the reservoir operation rules to release a continuous 2 m^3/s for river maintenance (recently updated to 5 m^3/s), but these numbers are not based on any known study and the status of their implementation is uncertain (see section 11).
Environmental and social funding commitments have been or are on track to be met	✓	Funding commitments for the E&S management plans and the funds established by regulations (for monitoring and remediation) and voluntarily (the CSR foundation) have been met.			
OUTCOMES					
Negative environmental and social impacts associated with hydropower facility operations are avoided, minimised and mitigated	✓	All significant negative impacts have been avoided, minimised or mitigated.	Negative environmental and social impacts associated with hydropower facility operations are avoided, minimised, mitigated and compensated	×	In terms of compensation, some forest has been re-established by NPC's long-standing Watershed Management Program, and 746 ha by SRPC's voluntary contributions. However, a number of impacts have not been systematically addressed (e.g. on aquatic biodiversity) and residual impacts have not been fully compensated (e.g. on vegetation cover on disturbed land), which is a **significant gap** at the level of Advanced Requirements.
Land disturbance associated with development of the hydropower project is rehabilitated or mitigated	✓	The dam required 40 m m^3 of materials, 30 m m^3 of which came from 3 clay and 7 alluvial material borrow areas. A borrow area decommissioning and rehabilitation plan was implemented for the 2,600 ha of borrow areas. A final environmental audit in 2019 confirmed rehabilitation and was approved by the competent regulator,			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		the Mines and Geosciences Bureau at DENR. However, there are some unrehabilitated areas like former laydown areas left within the project properties, but outside the control of SRPC (owned by PSALM). While this is a gap, it is not significant at the level of Minimum Requirements because reportedly, there have been discussions about their future use such as for solar farms or for use by local communities.			
The operating hydropower facility or the corporate entity to which it belongs can pay for social and environmental commitments	✓	There are no indications otherwise.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	2

Summary of findings and other notable issues
The economic, social and environmental benefits of current multi-purpose operations of the SRMP are substantial. The reservoir stores water for one of the country's largest irrigation areas, can capture several hundred million m3 of water during typhoons and an excessive load of silt from the catchment, thus protecting the downstream floodplain, and generate valuable power for the Luzon system. However, the initial and some ongoing negative environmental and social impacts were also substantial. The mitigation of most issues has been concluded, and ecosystems and communities in the project area have largely adapted to the SRMP. However, a number of impacts are only partially understood and resolved, and some potential opportunities and benefits have not been realized to the extent possible. This relates to the complex responsibilities for E&S issues of the SRMP, which are only partially under the control of SRPC.

Relevant evidence

Interview	3, 11-14, 21, 43-47
Document	88-120, 129-133
Photo	--

2 Labour and Working Conditions

Scope and Principle
This section addresses labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety. The principle is that workers are treated fairly and protected.

Background	
Labour requirements during operation (full-time equivalent)	105 employees of SRPC, as well as contracted workers through service providers such as local cooperatives. The employees of other organizations related to the SRMP such as the NPC and the NIA are not covered here, but they are public service employees.
Applicable key human resources regulations	Philippines Labor Code – Presidential Decree 442 – May 1st 1974
Applicable key occupational health and safety (OH&S) regulations	Republic Act 11058 – Occupational Safety and Health Standards
Identify the regulator for labour law and OH&S	Department of Labor and Employment (DOLE) Bureau of Working Conditions National Labor Relations Commission National Conciliation and Mediation Board National Wages & Productivity Commission Philippine Health Insurance Corporation Social Security System

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
A periodically updated assessment has been undertaken of human resource and labour management requirements for the operating facility	✓	SRPC has a very comprehensive Safety and Health Program to protect people and property, which is also applicable to all contractors, subcontractors and service providers, and provides for periodic assessments. Department Heads are responsible for the	Identification of ongoing or emerging labour management issues takes broad considerations into account, and both risks and opportunities	✓	A wide range of labour issues are being monitored. An external Human Rights Assessment was also undertaken in 2017 including the following labour-related categories: Forced Labour, Child Labour and Young Workers, Non-Discrimination,

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		identification of employment and training needs. These needs are presented to the Human Resources Department which consolidates the requirements. Results of assessments are also presented during the periodic Working Committee meetings.			Freedom of Association, Workplace Health and Safety, and Conditions of Employment and Work.
The assessment included project occupational health and safety issues, risks, and management measures	✓	The Department Heads and the Safety Officers are jointly responsible for the assessment of OH&S issues, management measures and training needs, as defined in the Safety and Health Program.			
Monitoring is being undertaken to assess if management measures are effective	✓	The Department Heads and supervisors are responsible for safety inspections, and Safety Officers are responsible for oversight and overall coordination of the plant's safety inspections, and any needs to update procedures.			
Ongoing or emerging labour management issues have been identified	✓	No specific ongoing or emerging labour management issues that would require changes in processes have been identified.			
MANAGEMENT					
Human resource and labour management policies, plans and processes are in place to address all labour management planning components	✓	SRPC has a comprehensive set of labour-related policies, plans and procedures. Among these there are policies on non-discrimination, respect for human rights, OH&S, workplace safety, sexual harassment, mental health, drug-free workplace, HIV-AIDS, TB, and Hepatitis B. There	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	SRPC has several programs to give opportunities to students from local communities and attract potential employees, including an Internship Agreement with the Pangasinan State University; Senior High School Work Immersion Program for 30 days during summer vacation; and a

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		are multiple process documents, for example on recruitment, training, leave, disciplinary action, retirement, employee loans. An Employee Handbook is given to each new staff member covering all human resources policies and procedures. There is also a detailed and systematic Safety Manual. Department Heads plan the training program as result of the training need analysis, and coordinate with HR nominations to training programs, and post training evaluations. These are reviewed regularly by HR to identify which training has led to improvements, to be able to plan for new training and consolidate the training needs analysis. SRPC has a Working Committee to coordinate labour-related issues between all departments, and the CSR foundation. The roles of the Committee are the planning, overseeing, evaluation and dissemination of employee programs. HR act as secretariat of the Working Committee and is the facilitator of the year-round employee program. Employees are covered by health, accident and life insurance as well as a			Cadetship Program to engage engineers of various fields for a 6-months O&M training. For vacancies and new positions, if internal sourcing is not possible, candidates are sourced externally with a priority for local residents. An inspection and safety review program has been established to identify, correct and control risks by monitoring the overall conditions and the effectiveness of policies and procedures, with 1) planned safety inspections, 2) unplanned safety inspections, and 3) special safety Inspections that require special qualifications. Inspections are conducted at least on an annual basis. Levels of risk are determined using the Risk Assessment Guidelines, and recorded in the Registry of Hazards. Critical issues and improvement opportunities are immediately brough to the attention of the Safety Officer. In addition, third-party safety inspections are conducted as necessary, and certificates of compliance and permits to operate have been issued by DoLE for electrical and other equipment.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		retirement plan and an employee loan program.			
Human resource and labour management policies, plans and processes of contractors, subcontractors and intermediaries are in place	✓	See above.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives relating to human resource and labour management have been and are on track to be met with:					
• no major non-compliances	✓	There are no indications for major non-compliances.	There are no non-compliances	✓	SRPC presented the following certificates: *No pending Actual Strike/Lockout, Notice of Strike/Lockout, Preventive Mediation and Voluntary Arbitration and Notice to Arbitrate case,* issued by the National Conciliation and Mediation Board of the Department of Labor and Employment on April 3rd 2024; *No non-compliance with the mandatory IBIG Fund Member's Savings of its official employees,* issued by the Home Development Mutual Fund on January 23rd 2024; *No non-compliance with the Certificate of Remittance for Employer*, issued by the Philippine Health Insurance Corporation, December 2023; and for the year 2023 *No non-compliance with the contributions for the Social Security Commission, with no complaints and/or cases filed against the employer with this office, the Prosecutor's Office, Courts and/or Social Security Commission*, issued by

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					the Republic of Philippines Social Security System, December 2023.
• no major non-conformances	✓	There are no indications for major non-conformances.	There are no non-conformances	✓	There are no non-conformances. Although SRPC has a free association policy, the employees are not associated with any union and there is no collective bargaining.
Any labour related commitments have been or are on track to be met	✓	All labour related commitments have been met. The commitment to a safe workplace has resulted in a safety record of 4.4 m man-hours without a lost-time accident, since 2010. Voluntary commitments have been recognized externally, for example through a 'Mother-Baby Friendly Workplace' certificate by the local Department of Health.			
OUTCOMES					
There are no identified inconsistencies of labour management policies, plans and practices with internationally recognised labour rights	✓	The Philippines has ratified all fundamental ILO labour rights conventions. There are no indications of any inconsistencies with rights including equal opportunities, fair treatment, non-discrimination, rights of employees including free association, and equal remuneration, as stated in SRPC's policies and procedures.	Labour management policies, plans and practices are demonstrated to be consistent with internationally recognised labour rights	✓	The 2017 Human Rights Assessment by the Center for Social Responsibility at the University of Asia and the Pacific was based on the 'Quick check' approach developed by the Danish Institute for Human Rights. While it is unclear how to interpret divergent responses of online survey participants on some labour rights-related questions, a majority confirmed that SRPC's labour policies, plans and practices are consistent with internationally recognised labour rights. This is confirmed by the high labour standards as observed by the assessment team and by a number of certificates of compliance and

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					recognition issued by labour and health authorities.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	5

Summary of findings and other notable issues
SRPC has inclusive human resource policies and a comprehensive OH&S program. Risks and opportunities for improvement are identified through a well-planned safety inspection program, and the safety record is exemplary. SRPC has several programs to give opportunities to students from local communities and attract local workers. Compliance with a number of regulatory labour and OH&S requirements has been certified. An external Human Rights Assessment was undertaken which confirmed consistency with internationally recognized labour rights.

Relevant evidence	
Interview	11-20, 37-41, 43, 48, 52
Document	1-6, 27-54, 76, 77, 114, 115, 122, 123, 205-209, 212-217, 220-236
Photo	18, 35, 36, 38-42, 56, 57, 77

3 Water Quality and Sediments

Scope and Principle
This section addresses the management of water quality, erosion and sedimentation issues associated with the operating hydropower facility. The principle is that water quality in the vicinity of the operating hydropower facility is not adversely impacted by activities of the operator, that erosion and sedimentation caused by the project are managed responsibly and do not present problems with respect to other social, environmental and economic objectives, and that commitments to address water quality, erosion and sedimentation issues are fulfilled.

Background	
Water Quality	
Description of water quality	The quality of Agno River waters is impaired but generally within Class C limits, according to the Philippine classification. Class C is acceptable for fisheries, recreation (boating, fishing or similar activities), and agriculture, irrigation and livestock watering.
Key water quality issues	Water quality upstream, in the reservoir, and downstream is affected by organic and inorganic pollutants including toxic heavy metals, as well as high turbidity. The average flow at the dam is 83.6 m^3/s, and in the dry season (November-June) inflows can drop to less 5 m^3/s, with limited capacity to dilute pollution.
Main influences on water quality	Upstream of San Roque reservoir: principally high erosion, both natural and anthropogenic; mining and mineral processing (both large- and small-scale) Downstream of San Roque reservoir: principally domestic and industrial wastewaters, agricultural chemicals, solid waste, waste from aquaculture. Most of the 2.5 m people in the basin live downstream of the dam.
Sedimentology	
Key sediment issues	The Cordillera Central upstream of San Roque is a geologically young mountain range with steep slopes and high erosion rates due to geology, topography, deforestation, seismicity and typhoon rains. Major typhoons can produce over 500 mm of precipitation within a 24-hour period, resulting in peak flows of several thousand m^3/s within hours, carrying large sediment loads. Sediment was naturally deposited in the wide and flat Pangasinan plain downstream, but is now largely trapped in reservoirs. While sediment transport is a natural process, the unnaturally high levels of suspended sediments in the Agno River were considered a major water quality problem, and water quality improvements were one the purposes of the San Roque project. Excessive sediment damages fish gills, interferes with the photosynthetic processes of irrigated crops, as well as recreational activities and aesthetic enjoyment, carries nutrients and toxic chemicals, and sediment accumulation blocks irrigation canals and the main river course and thus requires dredging and increase flood risks

	downstream. The reservoir traps typhoon debris, slope erosion materials, and mining tailings, and the significant reduction of sediment loads downstream of the dam is seen as a success.
Sediment load (tonnes/year)	Load estimates have varied widely, and preparatory studies for the SRMP measured extreme rates of over 1 m tons/day. Over the long term, average loads into San Roque reservoir were estimated at 8.2 m m^3/a, with sediment sources 48% from upstream of Ambuklao Dam, 18% from between Ambuklao Dam and Binga Dam, and 34% from downstream of Binga Dam. The total sediment from the three sub-basins over 70 years was estimated to be 644 million m^3 while the total sediment inflow to San Roque over that period would be 487 million m^3. These estimates have been largely confirmed by bathymetry studies.
Catchment area at the dam	1,250 km^2
Other information	The highest elevation in the Agno River is at 2,926 masl in the Cordillera Central. Binga and Ambuklao dams are located approximately 30 km and 38 km upstream of the San Roque dam, on the Agno mainstream. They were commissioned in 1960 and 1956, and have major sedimentation issues. A large tailings dam (TSF-3) is located at Philex mines on a tributary (Balog Creek) that enters the Agno River just upstream of the San Roque reservoir. Failures of other tailings dams in the catchment have occurred and may occur again, but would not have a major impact on the SRMP. San Roque dam has a gated 5.5 m diameter concrete lined low-level outlet tunnel (1.3 km long, flow range 90-480+ m^3/s), which could be used to release water when the powerhouse is not operating, to help regulate reservoir levels, and to remove sediment and debris from power tunnel intake area; however it has only been tested and not actively used. The power tunnel intake is located 20 m below the minimum normal water level of 225 masl, or 75 m below the maximum normal water level of 280 masl.

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Ongoing or emerging issues have been identified in the following areas:			Identification of ongoing or emerging water quality issues takes into account both risks and opportunities	✓	In addition to parameters directly influenced by SRPC's operations and reported in their Sustainability Reports, other parameters regularly monitored by the MMT include cyanide and heavy metals such as mercury, arsenic, copper, cadmium, chromium and lead, largely resulting from upstream mining and mineral
• water quality	✓	Water quality and erosion and sedimentation issues were one of the key reasons for the SRMP, well understood before the project was built, and fundamentally still the same. With increased population and economic growth some stressors have continued to increase, but practices in			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		some sectors have also improved (such as wastewater treatment, tailings dam management, and reforestation upstream).			processing. These have generally been within the DENR Class 3 Water Quality Criteria (except directly after a 2012 tailing dam failure in the Philex mine on an upstream tributary, which deposited up to 20 m tons of tailings into the watercourse). Copper concentrations in sediment at the tail end of the reservoir exceeded US National Oceanic and Atmospheric Administration (NOAA) guidelines. Copper was also the focus of studies previous to the SRMP, estimating that copper levels on irrigated land downstream would reach recommended limits within a several decades. Arsenic levels in tissues of reservoir tilapia exceeded EU guidelines, and consumption has been prohibited by the Bureau of Fisheries and Aquatic Resources (BFAR) since 2019. More recently levels have dropped below thresholds, but the ban has not yet been lifted. The risk of stratification and of releasing cold or anoxic water from deeper layers of the reservoir has been recognized; data show no pronounced thermocline and a minor gradual cooling of water with depth.
• erosion and sedimentation	✓	See above. Additionally, two studies were undertaken on sediment transport downstream, namely (1) Characterization of Sediments in the Agno River Flood Plain from San Roque Dam Downstream to the Agno River Bridge at Sta. Maria-Asingan (2006), and (2) River Hydraulics Study to Assess Potential Impact of Alluvial Borrow Area Development to the Downstream Reach of Agno River (2007).			
If management measures are required then monitoring is being undertaken to assess if management measures are effective for:			Identification of ongoing or emerging erosion and	✓	Project stakeholders are generally aware of erosion and sedimentation

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• water quality	✓	SRPC has standard procedures for water quality monitoring and reporting, including data on physical, chemical, and biological variables to determine the general state of the water bodies directly affected and their seasonal dynamics. Monitoring and reporting status/updates on environmental compliance are done quarterly, semi-annually, and annually to the regulatory agencies. SRPC also reports quality data to the project's MMT. Academic researchers, mining companies and regulators, irrigation and municipal utilities also contribute to the collective knowledge about water quality in the basin.	sedimentation issues takes into account both risks and opportunities		issues since sediment retention was an important motivation for the project. There is ongoing monitoring of turbidity and bathymetry, and identification of needs for dredging or excavation of sediment (e.g. over the last years, to increase the capacity of the re-regulating pond downstream). Sediment trapping in the reservoir was evaluated during preparatory studies and through a comprehensive 2008 Reservoir Sedimentation/ Backwater Effects Study and Sediment Management Plan, which addressed issues such as sources of sediment (including sediment passed through upstream dams), effectiveness of watershed management, stability of upstream slopes and tailings dams, changes in trapping efficiency over time, loss of dead vs. active storage, backwater effects etc.
• erosion and sedimentation	✓	Turbidity and bathymetry in the river and reservoir as well as sediment deposition downstream are regularly monitored.			
MANAGEMENT					
Measures are in place to manage the following identified issues:			Processes are in place to anticipate and respond to emerging risks and opportunities relating to:		
• water quality	✓	At the level of SRPC, approximately 20,000 m^3/a are treated at the sewage treatment plants and oil and water separator. Potable water systems and wastewater treatment units are maintained and monitored	• water quality	✘	Water quality monitoring is comprehensive with a range of monitoring locations and parameters, including biomonitoring (fish tissue). Mining in the catchment is controlled, and the Philex mine which caused major pollution after 2012 was

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		regularly. Employees are trained on water use guidelines. At the level of the catchment, efforts are underway to control discharges from mining and to protect and rehabilitate the natural vegetation cover.			temporarily closed. The DENR-EMB has been monitoring activities in the watershed and coordinating with the Mines and Geosciences Bureau (DENR-MGB) on measures that will prevention major pollution of the Agno River. However, the effectiveness of pollution control is uncertain, which is a **significant gap**.
• erosion and sedimentation	✓	See above regarding catchment protection. The NPC-Watershed Department are continuously implementing reforestation projects within the watershed and all reforestation projects include two-year maintenance interventions and budget (e.g., firebreaks, green breaks, patrolling, monitoring, etc.). The loss of storage space in the reservoir has been accepted as an inevitable side effect of one of the project purposes, water quality improvements. As long as the reservoir is able to trap most sediment there will be no need to manage siltation downstream, e.g. in irrigation canals.	• erosion and sedimentation	✘	Turbidity (suspended sediment) is one of the regularly monitored water quality parameters. Bathymetry of the reservoir is monitored periodically by NPC; the last survey was from 2018 and the next one is due shortly and being prepared by NPC. Between 2013 and 2018 the reservoir lost 33.5 m m^3 or 4.5% of its storage capacity. The effectiveness of the two key measures to slow down sedimentation (protection and reforestation of the catchment, and stabilization of upstream tailings dams) is uncertain, which is a **significant gap**.
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage each of the following have been and are on track to be met:			There are no non-compliances relating to:		
• water quality, with no major non-compliances	✓	There are no indications for major non-compliances.	• water quality	✓	Although a minor issue compared to the scale to the project, SRPC was considered by EMB to be out of compliance regarding wastewater
• water quality, with no major non-conformances	✓	There are no indications for major non-conformances.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					treated at the operator's village. This is not considered a significant gap, however, because SRPC contested the notice of violation and explained the reason for the anomalous sample, and the issue is unresolved until EMB responds.
• erosion and sedimentation, with no major non-compliances	✓	There are no indications for major non-compliances.	• erosion and sedimentation	✓	There are no indications for non-compliances.
• erosion and sedimentation, with no major non-conformances	✓	There are no indications for major non-conformances.			
Commitments related to the following have been or are on track to be met:			There are no non-conformances relating to:		
• water quality	✓	There are no indications otherwise.	• water quality	✓	There are no indications for non-conformances.
• erosion and sedimentation	✓	There are no indications otherwise.	• erosion and sedimentation	✓	There are no indications for non-conformances.
OUTCOMES					
Negative water quality impacts arising from activities of the operating hydropower facility are avoided, minimised and mitigated	✓	There are no indications otherwise. Potential pollution from operational activities has been prevented through measures such as very good chemicals storage, use of food-grade oils at the spillway hydraulics (considering the use of water for irrigation downstream), wastewater collection and treatment., among others.	Water quality in the area affected by the operating hydropower facility is of a high quality	✘	Almost all water quality parameters have improved between 2003 and 2020, both upstream and particularly downstream of the project, and all are now in compliance with the DAO 2016-0 Guidelines. However, there are two public health concerns regarding the accumulation of metals from the upper catchment, 1) arsenic in fish from the reservoir, which led to a tilapia ban and 2) copper in irrigated soils downstream, see also section 4. These are a

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
					significant gap because the SRMP increases the exposure of people to these pollutants, and there are no feasible short-term mitigation options. Arsenic concentrations in fish tissue exceeded the threshold of 2ppm between August 2019 and July 2023 and have since fallen below the threshold.
			The facility has contributed or is on track to contribute to addressing water quality issues beyond those impacts caused by the operating hydropower facility	✓	Water quality downstream of the dam is significantly better than upstream, especially in terms of turbidity/clarity and total solids (dissolved and suspended). Some of the heavy metal pollutants are trapped in the reservoir sediment and can no longer affect areas downstream.
Erosion and sedimentation issues are avoided, minimised and mitigated	✓	The project area has been largely rehabilitated and revegetated, and the project is not causing erosion upstream nor (through the 'hungry river' syndrome) downstream. Even with the trapping of sediment in the reservoir, there are massive deposits of silt and gravel downstream and large amounts of sediment contributed by other rivers to the floodplain.	Erosion and sedimentation associated with operating facility do not present ongoing problems for environmental, social and economic objectives of the facility or the project-affected areas	✘	As expected, the sedimentation of the reservoir is progressing rapidly and will start affecting the operations at some stage. There is no conceptual approach for maintaining storage and usability of the power intake once sediment deposits reach the dam. The loss of storage space could eventually turn the Ambuklao, Binga and San Roque projects into run-of-river projects with no ability to contribute to flood control, irrigation, or sediment/water quality control, and a reduced load factor for power generation, which is a **significant gap**. Maintaining operability of the power

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
					intake might require frequent use of the low-level outlet for sediment flushing, with loss of water for generation, or a new intake might need to be constructed at a higher level.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	7

Summary of findings and other notable issues
Water quality, erosion and sedimentation are important issues in the SRMP. Water quality in terms of turbidity is improved and downstream areas are protected from excessive sediment loads for several decades, however at the price of sedimentation of the reservoir and future loss of services from the SRMP. Arsenic, copper and potentially other metals from the catchment are public health risks, and while a part of them is removed from the river system by trapping in reservoir sediment, another part becomes more available as the SRMP enables increased fishing and irrigation.

Relevant evidence	
Interview	3, 11-14, 22-24, 43-47
Document	84, 86, 88-120, 129-133, 202, 203, 244-248, 268
Photo	1-15, 44-50, 52-54, 87, 88

4 Community Impacts and Infrastructure Safety

Scope and Principle
This section addresses how impacts of development of the hydropower facility on project-affected communities have been addressed, in cases where these commitments are well-documented against a pre-project baseline. These impacts include economic displacement, impacts on livelihoods and living standards, public health impacts, impacts to rights, risks and opportunities of those affected by the project, infrastructure safety risks and additional benefits that can arise from a hydropower facility. The principle is that livelihoods and living standards impacted by the project have been improved relative to pre-project conditions for project-affected communities, that commitments to project-affected communities have been fulfilled, and that life, property and community assets and resources are protected from the consequences of dam failure and other infrastructure safety risks. This section does not address requirements that relate to physical displacement or to Indigenous Peoples, which are addressed in Section 5 and 7. Other interested parties and groups are addressed in Section 10. In the case of older projects, commitments to project-affected communities and project benefits refer to commitments made at the time of project development (if they were well-documented) as well as to more recent commitments.

Background
In the case of older projects, commitments to project-affected communities and project benefits refer to commitments made at the time of project development (if they were well-documented) as well as to more recent commitments.

Community Impacts and Benefits	
Description of project-affected communities and how they are affected (distinguish between physically displaced (addressed in Section 5), economically displaced and other project-affected communities and include estimated number of people and households)	Compared to other regions in the Philippines, the Cordillera and Ilocos regions where the project is located have among the lowest poverty rates and highest human development indices. The project affects six barangays (villages or neighbourhoods; Ampucao, San Roque, San Felipe East, San Bonifacio, Narra and San Felipe West) in three municipalities (San Manuel, San Nicolas and Itogon) in two provinces (Pangasian and Benguet). The coverage area for the CSR program was later expanded to 4 additional barangays (Dalupirip, San Vicente, Calanutlan and Camindoroan). The construction of the dam required the displacement of some 660 families (see section 5) and affected the livelihoods of some 1,140 additional families. The SRMP provides irrigation to downstream farmlands, can store inflows during heavy rains and release them gradually downstream, thus attenuating the perennial flooding in the Pangasinan lowlands, and trap sediments, thus reducing sedimentation and improving water quality for downstream users. These project purposes are discussed elsewhere (primarily section 1, 3, 11). The local population receives benefits from the project's CSR programs and payments required by regulation (ER 1-94), employment and procurement.
Agencies relevant to land acquisition	Land Management Bureau of the Department of Environment and Natural Resources (DENR)

	Right of Way Management Department
Agencies relevant to livelihood restoration and project benefits	Department of Social Welfare and Development Department of Agriculture Department of Labor and Employment
Infrastructure Safety and Public Health	
Type of dam	1,130 m long clay core, zoned rockfill dam
Dam height (m)	200
Probable maximum flood (m^3 / s)	13,000
Design flood (expressed as estimated flood with return period)	7,000 for a 500 year return
Spillway capacity (m^3 / s)	12,800 m^3/s (designed to pass PMF with 1 of 6 gates inoperative)
Spillway height (masl)	720
Headrace length (m)	1,300
Headrace width (m)	Power tunnel 8.5 m diameter
Headrace capacity (m^3 / s)	270 m^3/s with reservoir at 280 masl
Seismicity	Need some
Geology	The Cordillera Central is geologically a young mountain range with morphology characterized by steep slopes and narrow gorges. The dam foundation consists of diorite in the upstream part of the foundation, mixed with metavolcanic sediments in the downstream part. Both the diorite and metavolcanic are fractured but sound.
Dam safety regulatory authorities	NPC; National Disaster Risk Reduction and Management Council (NDRRMC); Dams Management Department (DMD)
Local presence/capacity of emergency services	The Pangasinan Province region has a strong presence of emergency services. Several agencies linked to public safety and security. The SRMP is accessible via paved highways. At the site of the San Roque dam there is a large national police unit as the project is one of the most important infrastructure assets in the country, as well as a coast guard detachment on the reservoir. There is also a health unit on the dam site that is maintained by SRPC, in addition to the health infrastructure of the municipalities in the region.
Potential safety risks in this context	Heavy typhoon rain floods, earthquakes, upstream dam failure
Degree of risk of dam failure and in what way	Identified failure modes are shear deformation, shear failure, arching of the core with respect to its shoulders, safety against cracking, settlements and horizontal strains are determined. There is enough local and global factor of safety against shear failure.
Population at risk of dam break (locations, numbers)	Population living in the densely populated floodplain in an area of approximately 3,500 km^2 downstream
Dam safety standards followed	Australian National Committee on Large Dams (ANCOLD), Japan International Standards (JIS), US Bureau of Reclamation (USBR) Standards, and International Commission on Large Dams (ICOLD) Dam Safety Standards and Procedures

Agencies relevant to dam safety	Flood Forecasting and Warning System for Dam Operation (FFWSDO); Dams Reservoirs and Waterways Division (DRWD); Provincial Disaster Risk Reduction and Management Office (PDRRMO); Regional Disaster Risk Reduction Office (RDRRMO); Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
Other infrastructure safety issues	In case of a cascade failure with both upstream dams Ambuklao and Binga failing and the San Roque reservoir level at the Normal Maximum Pool level of 280 masl, its level would increase to approximately 292 masl, still below the 295 masl crest level.
Description of key public health issues	Public health issues related to the project include arsenic contamination of fish, and copper contamination in sediments, likely caused by mining activity in the upper Agno River basin. Contamination of tilapia tissues reached levels that required health authorities to issue a ban on tilapia. Copper is carried downstream and spread with irrigation water on soils, where it accumulates over time.
Agencies relevant to public health	Department of Health

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Community Impacts and Benefits					
Monitoring is being undertaken to assess if the following commitments have been delivered and if management measures are effective:			Identification of ongoing or emerging issues for project-affected communities takes into consideration both risks and opportunities, and interrelationships among issues	✓	The internal and external monitoring reports, the activity reports of the SRPFI, and reporting on the SRPC website regarding the SRPFI and the ER 1-94 benefits present detailed information on measures implemented and their results. The reporting includes examples where risks and opportunities were identified, through dialogue with communities and their organizations.
• commitments to project-affected communities	✓	Monitoring of the social mitigation measures was or is being done at the level of SRPC as well as through a Multi-Partite Monitoring Team (MMT, see section 1), whose task is to oversee compliance with the ECC conditions, the EMP, and all applicable laws rules and regulations. Funds to support the monitoring and guarantee the implementation of the commitments were established as condition of the ECC.			
• commitments to project benefits	✓	The two key current delivery mechanisms for benefits are the San Roque Power Foundation Inc. (SRPFI) and the ER 1-94 funds, required by			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		regulations. The SRPFI's commitments are monitored internally while the ER 1-94 funds are also reported to and monitored by government.			
Ongoing or emerging issues relating to the following have been identified:			Identification of ongoing or emerging issues relating to project benefits takes into account both risks and opportunities	✓	See above.
• issues that affect project-affected communities	✓	Some issues have been identified over the years, mainly through the MMT and were discussed and resolved during the periodic MMT meetings.			
• delivery of project benefits	✓	No issues regarding delivery of project benefits have been identified.			
Infrastructure Safety and Public Health					
Ongoing or emerging issues relating to the following have been identified:			Identification of ongoing or emerging safety issues takes into account a broad range of scenarios and both risks and opportunities	✓	SRPC has identified safety issues through in-house and external consulting services including the regulatory authorities and third-party assessors. This led to the identification of several risk factors such as growing vegetation on the dam body, leakage from the concrete linings, seepage through the dam body, etc. Among the scenarios considered were low-probability ones such as cascade failure. Opportunities to update flood operation rules have been taken, such as after a major typhoon.
• dam and other infrastructure safety	✓	Safety concerns related to the dam and other facilities including the power tunnel, inspection galleries, surge shaft, vertical tunnels, have been identified periodically. Issues related to instrumentation monitoring the dam's vertical and horizontal displacement are also noted.			
• public health issues associated with the operating hydropower facility	✓	The only relevant health issue related to the SRMP is contamination of reservoir fish and sediment by heavy metals mainly related to upstream mining.			
Routine monitoring of dam and infrastructure safety is being undertaken to identify risks and assess the	✓	SRPC has continuously engaged in routine monitoring of the dam with several methods including daily inspections, weekly inspections of installed instrumentation (including			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
effectiveness of management measures		calibration), third party risk assessments, independent expert review, and periodic monitoring by NPC. Following major events such as typhoons and earthquakes, dam safety is evaluated in detail and reports are sent to the independent experts for their review.			
If public health issues require management measures then monitoring is being undertaken to assess if management measures are effective	✓	As a result of fish tests a ban on Tilapia catch and consumption is currently in effect by the Bureau of Fisheries and Aquatic Resources (BFAR). Monthly monitoring of fish and water quality is being undertaken.	Identification of ongoing or emerging public health issues takes into account public health system capacities, access to health services, and health needs, risks and opportunities for different community groups	✓	There are no specific issues related to health system capacities, access to health services, or the health situation of different community groups. BFAR has been consistently updated regarding fish sample results as received from the laboratory.
MANAGEMENT					
Community Impacts and Benefits					
Measures are in place to deliver commitments:			Processes are in place to anticipate and respond to emerging risks and opportunities relating to project-affected communities and project benefits	✓	The SRPFI was established by SRPC and registered with the Securities and Exchange Commission in 2011, as its CSR arm. SRPC and its SRPFI are in close contact with beneficiary communities and their organizations such as cooperatives. Community Relations Officers are dedicated to specific projects and communities and to support the Information Communication Education Program; and the Vice President and head of the CSR Unit is a member in several
• to project-affected communities	✓	Commitments to affected communities were defined by the PPA signed between NPC and SRPC, the 1995 resettlement action plan (RAP) and the 1996 Memorandum of Agreement between NPC, the two provinces, three municipalities and six barangays. A Social Development Program was implemented including education, health and infrastructure support to affected. A needs-based program in coordination with			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		concerned local agencies (DSWD and DOH) included social services for children, youth, women, the elderly and people with disabilities. A livelihoods program initially focused on directly affected families; this is still ongoing since Livelihood and Enterprise Development is one of the focal areas of SRPC's CSR programs. For program implementation and to meet the requirement defined in the ECC, SRPC established an Environment Unit in 2006, and since 2010 the San Roque Power Foundation Inc. (SRPFI). SRPFI continues to support livelihood, enterprise, education, environmental, institutional development and other efforts in the area. At this stage, more than 20 years into operations, it is difficult to distinguish between impact mitigation and benefit sharing. Programs such as RANG-AY (Resource Access to Nurture Growth and Accelerate Development in the Community) had their origin in impact mitigation and livelihood restoration, but now have a much wider scope and ambition.			interagency and management committees. In the past, these relationships were also supported by the MMT as a coordination group, however this is less active today. SRPC has responded to local emergency funding needs such as after the 2009 typhoon, the Covid-19 pandemic and the breach of an irrigation dike. SRPC is mandated by the Department of Energy (DOE) as other generating companies under the ER 1-94 regulations to provide funds (one centavo per kilowatt-hour of the power plant's total electricity sales) to mobilize/facilitate the implementation of projects in coordination with the host beneficiaries. Within eligibility limits, communities themselves chose how to prioritize the use of ER 1-94 funds. If unanticipated negative social impacts arise, a response mechanism is already established. The Environment Guarantee Fund (EGF) is a readily available and replenishable fund to compensate for damage that may be caused by the project; for the rehabilitation and/or restoration of affected areas; failure to conclude development as planned; the future abandonment / decommissioning of
• to project benefits	✓	Several benefits are being delivered to local communities such as supporting livelihoods, education, roads, sports facilities, water supply and electrical systems, and micro finance through			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		the Baro A Namnama Multipurpose Cooperative, as well as local preferences in employment and procurement. These efforts are partly financed through SRPC's voluntary CSR programs and partly through the ER 1-94 program, a financial benefit to host communities under the Electric Power Industry Reform Act, paid by generating companies (one centavo per kwh of electricity sales).			project facilities; and other activities related to the prevention of possible negative impacts. The Strategic Social Investment Program (SSIP) was formulated by SRPC in 2014 and is basically the integrated version of the IPDP (for Benguet) and Comprehensive Livelihood and Rehabilitation Plan (CLRP) (for Pangasinan). Since 2015, funding and implementation is channelled through the SRPFI. Following the SSIP, the SRPFI started the Project RANG-AY with a participatory approach based on community consultations on concerns that need to be addressed, prioritization of said concerns, and exploration of possible sources of support.
Measures are in place to manage any identified issues relating to these commitments:					
• to project-affected communities	✓	Commitments to affected communities and to project benefits have been extended and/or revised a number of times, through consultation processes (including the Information Education Communication Program), to respond to identified issues or new opportunities.			
• to project benefits	✓	See above.			
If there are any formal agreements with project-affected communities, these are publicly disclosed	✓	The original MoAs with project affected communities were public. Curent formal commitments, including project benefits, have been disclosed through a number of channels including the ECC Monitoring reports, Sustainability Report, the Information			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		Communication Education Program, and the SRPC website.			
Commitments to project benefits are publicly disclosed	✓	See above.			
Infrastructure Safety and Public Health					
Dam and other infrastructure safety management plans and processes have been developed in conjunction with relevant regulatory and local authorities	✓	Safety management plans are in place and regular updates are circulated with all relevant regulators and local authorities. SRPC maintains a close coordination with NPC, Philippine Institute of Volcanology and Seismology (PHIVOLCS) and Philippine Atmospheric, Geophysical & Astronomical Services Administration (PAGASA) for data acquisition and updates of operation rules in the safety management plans.	Processes are in place to anticipate and respond to emerging infrastructure safety risks and opportunities	✓	The site technical staff conducts scheduled day-to-day monitoring of the project's infrastructure and prepares monitoring reports which are submitted to the dam safety experts for their review and check for any abnormalities. If any issues are identified, prompt action are taken in coordination especially with NPC, and other concerned authorities. For instance, after observing a crack in the spillway chute a photogrammetry was conducted to ensure safety. The lower spillway apron was repaired and remodeled by NPC to avoid erosion. A climate resilience study is underway which will, among other issues, look at the sufficiency of the spillway capacity under climate change (see section 12).
These plans and processes provide for communication of public safety measures	✓	A siren system to notify downstream users prior to peaking operations of the plant is installed. Safe assembly points are prepared for emergency evacuations. SRPC has appointed a number of employees from among local residents who directly interact	Public safety measures are widely communicated in a timely and accessible manner	✓	Other platforms such as social media and radio stations are also used to effectively communicate about natural disasters. Campaigns are organized to prepare the general public in a systematic manner for emergency situations.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		with these local communities regarding updated safety measures.			
Emergency response plans and processes include awareness and training programmes and emergency response simulations	✓	Emergency response drills are being organized from time to time. IEC activities regarding safety awareness and training are conducted with Local Government Units.			
Measures are in place to manage identified public health issues	✓	Water quality, sediment analysis and fish tissues analysis are consistently being updated and the results are sent to the responsible governmental agencies as received from the laboratory.	Processes are in place to anticipate and respond to emerging public health risks and opportunities	✓	The BFAR (Regional Field Office 1) ban on catching, selling, and eating tilapia from the San Roque reservoir is still in effect due to the high concentrations of heavy metals, particularly arsenic and mercury, in fish tissues. Due to this concern, also no eel elvers have been released for fish stock enhancement. Similar bans were imposed in the past when contamination levels were high, e.g. after the 2012 upstream tailing dam failure, and later lifted. Although recent samples show declining levels, the BFAR has been cautious about lifting the ban.
CONFORMANCE AND COMPLIANCE					
Community Impacts and Benefits					
Processes and objectives in place to manage the following have been and are on track to be met:			There are no non-compliances relating to:		
• delivery of commitments to project-affected communities, with no major non-compliances	✓	No major non-compliances have been identified.	• project-affected communities	✓	No non-compliances have been identified.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• delivery of commitments to project-affected communities, with no major non-conformances	✓	No major non-conformances have been identified.			
• project benefits, with no major non-compliances	✓	No major non-compliances have been identified.	• project benefits	✓	No non-compliances have been identified.
• project benefits, with no major non-conformances	✓	No major non- conformances have been identified.			
Commitments have been or are on track to be met relating to:			There are no non-conformances relating to:		
• project-affected communities	✓	All commitments have been or are on track to be met.	• project-affected communities	✓	No non-conformances have been identified.
• project benefits	✓	All commitments have been or are on track to be met.	• project benefits	✓	No non-conformances have been identified.
Infrastructure Safety and Public Health					
Processes and objectives in place to manage the following have been and are on track to be met:			There are no non-compliances relating to:		
• dam and other infrastructure safety, with no major non-compliances	✓	SRPC has continuously updated the Emergency Action Plan as required to remain in compliance with the environmental compliance certificate.	• dam and other infrastructure safety	✓	There are no non-compliances in relation to dam and other infrastructure safety.
• dam and other infrastructure safety, with no major non-conformances	✓	There are no indications for major non-conformances.			
• public health issues, with no major non-compliances	✓	No major non-compliances have been identified.	• public health	✓	No non-compliances have been identified.
• public health issues, with no major non-conformances	✓	No major non-conformances have been identified.			
Commitments have been or are on track to be met relating to:			There are no non-conformances relating to:		
• dam and other infrastructure safety	✓	There are no specific commitments, other than operating the SRMP in a safe and responsible manner.	• dam and other infrastructure safety	✓	There are no indications for any non-conformances.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• public health	✓	There are no indications otherwise. Commitments have been and continue to be delivered, and infrastructure and equipment funded by SRPC have been accepted by recipients.	• public health	✓	No non-conformances have been identified.
OUTCOMES					
Community Impacts and Benefits					
Livelihoods and living standards impacted by the project have been or are on track to be improved	✓	Communities have experienced broad-based improvements in living standards and in livelihoods, relative to the pre-project baseline from 1998. This is due to the combination of economic growth in the Philippines, the operation of the project with its multiple benefits such as irrigation, and the social mitigation, compensation and benefits sharing programs.	The measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term	✓	Some of the livelihood programs have been quite successful and will likely have long-lasting effects on incomes, in particular the micro-finance cooperatives (mainly the Baro A Namnama Multipurpose Cooperative) which are already profitable and distributing dividends to members.
Economic displacement has been fairly compensated, preferably through provision of comparable goods, property or services	✓	There are no indications for any unfairness in compensation, and most compensation has been in kind.			
Communities directly affected by the development of the hydropower facility and any other identified beneficiary of the facility have received or are on track to receive benefits	✓	A wide range of benefits has been provided to local communities, besides the direct purposes of the project. Benefits include local employment and procurement, livelihoods programs, economic and social infrastructure, and initiatives to	Benefits are significant and sustained for communities affected by the project	✓	Communities in the area are now permanently less exposed to floods and have higher incomes from irrigation. A number of community benefits such as the funds provided under the ER 1-94 mechanism are also permanent. There has been some dramatic improvement in the quality

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		improve the quality of housing and services, particularly education.			of public services in all municipalities in terms of access to utilities, with presence of electricity, access to potable water, and improvement of roads. The local government units have committed to the continued operation and maintenance of new infrastructure. SRPC is still supporting cooperative and community-led livelihoods initiatives such as the Rang-ay project and the BANMPC and has been expanding its network outreach to help access more support for PAPs and the seven established community organizations, aiming to eventually empower them to access projects/support on their own. SRPC has also developed an exit plan, "Project Rang-ay Inception to Exit" (2017) to prepare the community for our exit, and is conducting a socio-economic survey that focuses on the returns to social capital of the Strategic and Social Investment Program (SSIP).
Infrastructure Safety and Public Health					
Safety risks have been avoided, minimised and mitigated with no significant gaps	✓	Safety issues have been identified and mitigated appropriately. SRPC and stakeholders have prepared plans to safely evacuate floods when reservoir inflows rapidly increase. Safety risk	Safety risks have been avoided, minimised and mitigated with no identified gaps	✓	See under Minimum Requirements. There has been an argument whether a different reservoir management during typhoon Pepeng in 2009 could have minimized flood damage

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		associated with the infrastructure itself is also continuously monitored and management actions taken as required.			downstream, and as a consequence, flood operation rules were updated.
			Safety issues have been addressed beyond those risks caused by the operating facility itself	✓	The San Roque reservoir has made a major contribution to flood safety downstream by storing significant flood volumes during every typhoon since commissioning. The cooperation with PHILVOCS regarding seismic monitoring at the dam and with PAGASA for flood forecasting is very comprehensive.
Negative public health impacts arising from activities of the operating hydropower facility are avoided, minimised and mitigated	✓	There are no indications for any negative public health impacts arising from operations. Impacts from Tilapia contamination are mitigated through the ban (although this is not strictly enforced and not followed by all community members).	Where opportunities have been identified, measures to address public health issues beyond those impacts caused by the operating hydropower facility have been or are on track to be achieved	✓	The main contributions of the project to the health status in the area has been the significant upgrade of the living conditions for local communities, including access to modern sanitation as well as health services and infrastructure.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	21

Summary of findings and other notable issues
The SRMP was built to deliver multiple social and economic benefits, but also required the displacement of several communities. Displacement has been fairly compensated and multiple initiatives have been implemented to improve the lives of local stakeholders. Since the transformation of the SRPC Environment Unit to San Roque Power Foundation Inc (SRPFI) in 2010, this organisation is responsible for implementation and monitoring of all CSR programs (regulatory such as the ER 1-94 program, obligatory under the ECC, and voluntary ones). Project RANG-AY is the current flagship program for all development interventions. There has been significant improvement in all affected municipalities, in the quality of life in terms of access to utilities and housing, and livelihoods. The safety management of the SRMP's dam and associated infrastructure is thorough and proactive. Emergency preparedness and response is robust, and the reservoir has been able to mitigate the floods from major typhoons since commissioning.

Relevant evidence	
Interview	3, 9, 12, 14, 15, 17, 21, 41, 44, 49-51, 54, 57
Document	16-88, 96, 100, 102, 107, 108, 115, 125-203, 237, 244-248, 250, 258-267
Photo	6, 16, 17, 18, 19, 21-27, 30-33, 35-45, 49-51, 56-57, 61-67, 76-77, 84-88, 91-93, 96

5 Resettlement

Scope and Principle
This section addresses how the physical displacement arising from development of the hydropower facility has been addressed, in cases where resettlement occurred and commitments are well-documented against a pre-project baseline. The principle is that the dignity and human rights of those physically displaced have been respected; that these matters have been dealt with in a fair and equitable manner; that livelihoods and standards of living for resettlees and host communities have been improved; and that commitments made to resettlees and host communities have been fully fulfilled. This section does not address those that are only economically displaced, who are addressed in Section 4.

Background	
Did the project require or result in any physical displacement of people? Please state the evidence on which this determination is made.	
Yes, this section is relevant (for older projects, see note below)	Yes, the project required physical displacement of people, and the resettlement program is still active.
No, this section is not relevant	Click here to enter text.
In the case of older projects, commitments to resettlees and host communities refer to commitments made at the time of project development (if they were well-documented) as well as to more recent commitments.	

Description of physically displaced communities and how they are displaced (distinguish between permanently vs temporarily and include number of people and households)	The project physically displaced 658 families permanently: 449 in San Manuel, Pangasinan; 148 in San Nicolas, Pangasinan; and 61 in Itogon, Benguet. Resettlees in Itogon are comprised of indigenous peoples (IPs), mostly Ibaloi clans, and a few Kankana-ey or Kalanguya.
Name and number of settlements	Two resettlement sites were developed by NPC in Pangasinan: one in San Manuel, Barangay San Roque, Sitio Camanggaan, and the other in San Nicholas, Barangay San Felipe East, Sitio Lagpan. Each resettlee in Pangasinan had the choice of self-relocation or relocating with NPC assistance to one of the resettlement villages. 187 families, mostly from San Manuel, relocated to Camanggaan while 39 families, mostly from San Nicholas, relocated to Lagpan. The rest chose self-relocation. The 61 IP resettlee families moved to two sites (Daynet, 37 families and Batic, 24 families) in the municipality of Itogon.
Agencies relevant to land acquisition	Land Management Bureau of the Department of Environment and Natural Resources Right of Way Management Department

Agencies relevant to livelihood restoration	Department of Social Welfare and Development Department of Agriculture Department of Labor and Employment
Other relevant information	Because of the complexities of the resettlement program, more detailed background information is provided here. Households choosing relocation to a resettlement community could choose an NPC-built house measuring 33 m^2 on a 200 m^2 lot. If so, they were not compensated for their existing residential unit, unless its replacement cost exceeds the cost of the NPC-built house, in which case they were paid the differential. Alternatively, they could construct their own home on the lot and utilize the common utilities for the community, which include potable water, electricity, septic system and roads. Those building their own homes were paid full replacement value of their existing homes, as were those who chose to self-relocate outside the resettlement communities. Each relocating household received disturbance compensation in the amount of P7,500. Self-relocating households also received financial assistance in the amount of P17,000. The Itogon resettlees, resettled in Daynet and Batic, are comprised of IPs so their resettlement (although not different regarding entitlements) is covered in section 7. The resettlement to Lagpan was done in 2001 but the one to Camanggaan was done in two phases, first with a temporary relocation, and after two years a relocation to the permanent house. At the beginning of the first phase the families did not want to move temporarily because this step was not included in the RAP, and they were afraid that this could be permanent. For this reason, they started to receive an allowance of P 4,000 monthly as compensation. After two years NPC had difficulties convincing the resettlees to transfer to the permanent housing, since they had become used to receiving monthly compensation, which would stop when moving to the permanent site. A Community Development Plan (CDP) was discussed with resettlees and concerned local government units. Basic infrastructure and other projects were included in the 1996 multipartite MoA. Livelihood projects were identified for the affected communities, aiming to restore the incomes of resettlees and maintain or improve the quality of life of project-affected people. Several People's Organizations were set up with the support of the Department of Social Welfare, with capacity building to implement the projects. To continue and finalize the implementation of the Livelihood Program of the RAP, a Comprehensive Livelihood and Rehabilitation Program (CLRP) was developed in 2004, whereby SRPC assumed the post-RAP socioeconomic commitments of the project. For consultation and monitoring purposes of the CLRP, affected people were divided in 6 groups: farmers, charcoal producers, gold panners, fisherfolk, microfinance group, and IPs. Later in 2011, following a request from the lender JBIC, another group was formed for monitoring the self-relocatees. Some of the livelihoods projects succeeded but several did not prosper because of inadequate managerial skills or inadequate preparation of beneficiaries, mainly the ones involving trading, cooperative stores and association-operated projects. Livelihood activities that the groups consider successful are the traditional resource-based activities that they are still doing at present, even if there are considerable limitations today compared to the conditions before the dam. The self-relocatees also indicated that livelihood projects have better outcomes when pursued by individuals or by members of the same family, instead of an association.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Monitoring is being undertaken to assess if commitments made to resettlees and host communities have been delivered and if management measures are effective	✓	Monitoring has been undertaken continuously since the beginning of the resettlement project. A post relocation survey was conducted in 2002 to assess the "end of construction" status of the affected families and the effectiveness of implementation of NPC's RAP. Post Relocation surveys were also performed in 2005 and 2010. In 2016 a study of the 'Beneficiary Impact of the Strategic Social Investment Program of SRPC' was undertaken with a survey of livelihood activities and the level of satisfaction with the livelihood projects in the resettlement sites (Camanggaan, Lagpan, Daynet and Bantic). Since the establishment of SRPFI, which took the place of the SRPC Environmental Unit as a post-RAP implementing entity, annual reports are published with accomplishments and results of the CLRP, regarding commitments to host communities and affected people. Additionally resettlement-related issues are included in SRPC's and (in the past) in the MMT's periodic reports.	Identification of ongoing or emerging resettlement issues takes into account both risks and opportunities	✓	The monitoring program has been comprehensive and has evolved in various stages since the start of the resettlement and livelihoods restoration programs. The social survey reports in 2002, 2005, and 2010 and the 2016 impact study included recommendations for possible changes in the livelihood restoration activities. These reports were also discussed during the regular meetings of the MMT.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Ongoing or emerging issues relating to resettlement have been identified	✓	Monitoring activities identified some issues related to resettlement, such as the fact that some of the original livelihood restoration projects did not succeed.			
MANAGEMENT					
Measures to address resettlement are documented in a Resettlement Action Plan	✓	The original RAP was presented by NPC to ERB in 1995. In 1998 a first update was required because of additional working areas needed by the EPC contractor. In 1999 a new update was required with an expanded definition of project-affected people to include landowners, houseowners, tenants/tillers, and resource users (like fishermen and gold panners). The RAP included resettlement procedures, options, site selection and development, livelihood restoration, compensation package and benefits, public participation, and community development programs.	Processes are in place to anticipate and respond to emerging risks and opportunities	✘	There are some processes related to resettlement (such as reports on the results of the Livelihood Restoration Programs, the Environmental Guarantee Fund, and in the past, the MMT meetings). The new formal grievance mechanism could also be analysed to detect trends in grievances and potentially emerging risks. However, these are largely reactive when stakeholders bring up issues, and not proactive in the sense of anticipating risks and opportunities. Also, since the Covid-19 pandemic no MMT meetings have been held, also due to the long distance that many of its members would have to travel to participate. The absence of functional mechanisms to deal proactively with resettlement issues is a **significant gap** against advanced requirements**.**
Measures are in place to deliver commitments to resettlees and host communities	✓	According to the SRPFI Annual Accomplishment Report, which presents results of the CLRP regarding the commitments made with the host communities, and the semi-annual ECC Compliance Monitoring Report, measures are in place to deliver commitments to resettlees and host communities.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
Measures are in place to manage any issues relating to resettlement, including provision of grievance mechanisms	✓	As required under the ECC and MoA with DENR, SRPC set up an Environmental Guarantee Fund (EGF) to compensate for issues that may be caused by the project (see section 1); however there has been no need to activate it. The RAP included a conflict resolution process with a complaints section to be manned by the project staff or community relations officer. Complaints from project affected people were forwarded to the Project Office to be resolved, escalated to higher management of NPC, or to the MMT. This framework was used during the early phases of the resettlement. Now, more than 20 years into the operation stage, affected people are still encouraged to voice their concerns to SRPC staff, and a systematic grievance mechanism has recently been put in place.			
Formal agreements with resettlees and host communities are publicly disclosed	✓	NPC began consultations with affected communities in late 1994, which also culminated in a Host Community MoA signed by stakeholders in December 1996 and, subsequently, resolutions endorsing the SRMP from each local government unit. Project affected people and and concerned local			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		governments actively participated in the conceptualization and implementation of community development projects, and resettlement site selection. An Information, Education and Communication Program has been implemented since 1999 to disclose all formal agreements.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in the Resettlement Action Plan have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for non-compliances with the RAP at this time. There were some delays in resettlement implementation and some unsuccessful livelihoods projects, but these have been resolved.
• no major non-compliances	✓	The RAP has been largely concluded except for some follow-up activities such as monitoring and livelihoods support. There are no indications for major non-compliances.			
• no major non-conformances	✓	There are no indications for major non-conformances.	There are no non-conformances	✓	There are no indications for non-conformances with the RAP at this time. While several of the RAP and CLRP livelihood restoration activities were unsuccessful, SRPFI is continuing to support host and resettlement communities with the implementation of livelihood and entrepreneurship projects, social investment projects and other donations, as described in section 4.
Any resettlement related commitments have been or are on track to be met	✓	NPC's RAP included some livelihood restoration programs, and its current Watershed Management Plan includes provisions on livelihood support to relocatees. Annually, budgets for identified livelihood activities are requested for funding via NPC's "petition proposal" and submitted to the Energy Regulatory Commission (ERC). SRPC's post RAP CLRP was intended as a livelihood restoration framework. Several livelihood projects, according			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		to the 2010 socio economic survey, were not successful. The situation is now improved mostly due to the success of the microfinance project and the continued support of the SRPFI and the ER 1-94 funding for affected communities.			
OUTCOMES					
Resettlement has been and is being treated in a fair and equitable manner	✓	There are no indications for unfair or inequitable resettlement during the initial phase. Today there is widespread participation in CLRP projects in the Lagpan and Camanggaan resettlement villages, with consultation meetings in the resettlement associations when livelihood activities are discussed and decided in a fair and equitable manner.	The measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term	×	The participation in CLRP projects from those resettlees living outside the resettlement villages is limited, perhaps related to the initial failure of several livelihoods projects. There is not enough specific household-level data to confirm that their livelihoods and living standards are self-sustaining. This is a gap but it is not considered significant, given 1) the general improvements in the area and 2) the lack of concern from local representatives, indicating that self-relocatees are likely to participate equally in economic growth. The success rate of livelihood activities has improved mostly due to the success of the microfinance project, with people able to choose their own livelihood strategies, and the continued support of the SRPFI. In the perspective of a majority of resettlees in Lagpan and Camanggaan, life appears better than before resettlement.
Resettlees and host communities have experienced or are on track to experience a timely improvement in livelihoods and living standards relative to the pre-project baseline	✓	Based on the post relocation reports and socio-economic surveys elaborated in 2002, 2005, 2010, and the 2016 impact study, resettlees and host communities have experienced an improvement in livelihoods and living standards relative to the 1998 pre-project baseline. Housing conditions and access to utilities (electricity, potable water, roads, education and health infrastructure) are definitely better. Average cash incomes (in real terms) rose during construction, then fell until the 2010			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		survey (which noted many livelihoods problems) and then rose again due to the persistence of SRPC in supporting suitable livelihoods options, supported by the general economic growth in the Philippines (with GDP per capita doubling between 2000 and 2023).			Households clearly acknowledge the various project-related benefits that they receive. While the homeowner's associations and cooperatives have reached a degree of maturity, they are still quite dependent on support from the project, however, and project funds are also important sources of local government budgets (through the ER 1-94 program). The ER 1-94 program is a regulatory requirement and will continue, but the SRPFI's funding will only continue as long as SRPC is the operator of the SRMP. Overall, this continued dependency on SRPC's support implies that livelihoods measures have not yet become self-sustaining, despite the best efforts of the project, which is a **significant gap** against advanced requirements.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	3

Summary of findings and other notable issues
The resettlement program was delivered as planned in the RAP by NPC, and then continued in some aspects by SRPC. Resettled and host communities on the whole are better off today, especially in terms of their housing conditions and access to utilities. Livelihoods support had a more mixed success, with significant initial adjustment problems and several failed initiatives, and a continued need for support from NPC and SRPC, which means that not all livelihoods are yet self-sustaining.

Relevant evidence	
Interview	11, 12, 21, 25, 31, 33, 34, 37-41, 51, 54
Document	124-126, 128-131, 138, 141, 145, 148-169, 236
Photo	70-81

6 Biodiversity and Invasive Species

Scope and Principle
This section addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the operating hydropower facility. The principle is that there are healthy, functional and viable aquatic and terrestrial ecosystems in the area that are sustainable over the long-term; that biodiversity impacts arising from the operating hydropower facility are managed responsibly; that ongoing or emerging biodiversity issues are identified and addressed as required; and that commitments to implement biodiversity and invasive species measures are fulfilled.

Background	
Short description of the ecological region in the project area	For purposes of section 6, the project area is defined as the San Roque Watershed Reservation (SRWR) with a total area of 9,500 ha, managed by the NPC. The SRWR covers the SRMP as well as its immediate catchment, and is the lower part of the Lower Agno Watershed Forest Reserve (LAWFR) with a total area of 39,300 ha, the upper part of which is managed by DENR. The LAWFR extends along 35 km of the Agno River, from just below the Binga dam upstream to just below the San Roque dam. The Agno River downstream is heavily modified and of limited interest for biodiversity. 84% of the SRWR is classified as forestland and 14% is covered by the reservoir. Below 800 masl elevation and near the Pangasinan flatlands, the area is covered by broad-leafed species in patches mostly of dipterocarp species, while above 800 masl the natural habitat is pine forest. Much of the area is degraded, through repeated burning, mining, grazing, charcoal production and other uses, and covered by grasses and other drought and fire-resistant species. Forest cover appears to be gradually increasing through protection and reforestation.
Protected areas (national parks and reserves etc) and their distance from the project	There are a number of protected areas in the Central Cordillera, at a considerable distance from the project. The LAWFR was created specifically to protect the watershed around and upstream of the SRMP, in 1983.
Critical habitats in the project area, including important bird areas, hotspots of endemism etc.	None identified
# threatened species in the directly affected area: terrestrial	A significant number of endemic and threatened species were identified in a 2012 flora survey of the San Roque watershed, including 23 species listed under the Philippine and IUCN red lists. Several listed mammals such as the Luzon montane striped shrew-rat and white-winged flying fox and 11 species of raptors have also been identified.

# threatened species: aquatic	The lower Agno River has comparatively low levels of aquatic biodiversity. The dominating fish species is the non-native Nile tilapia (*Oreochromis niloticus*). The project area is one of the most important habitats for the Philippine Duck (*Anas Luzonica*) – Vulnerable.
Any other species of conservation importance	It was thought that the watershed might be suitable habitat for the critically endangered Philippine Eagle (*Pithecophaga jefferyi*). SRPC supported surveys and while the species was not found in the area, SRPC has continued to support the Philippine Eagle Foundation.
Migratory pathways	Pre-project data on migratory fish are inconclusive and there is no fish passage upstream of NIA's re-regulating pond.
Invasive species: terrestrial	None identified
Invasive species: aquatic	Nile tilapia (*Oreochromis niloticus*)
Key threats to biodiversity	Land use change and forest degradation
Agencies involved in biodiversity conservation	NPC; DENR; Local Government Units; SRPC

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✓) or no (✕)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✕)**		**Findings and Observations**
Assessment					
Ongoing or emerging biodiversity issues have been identified	✓	A number of surveys have been undertaken as part of the original ESIA, for the NPC watershed management plan, for reservoir fish (surveys among fishermen), for the 2012 and 2013 terrestrial flora and fauna surveys with support from the Philippine Eagle Foundation, by bird watching groups, and by independent researchers particularly for aquatic species in the Agno River system. Key areas for hunting, illegal logging and fishing have also been identified.	Identification of ongoing or emerging biodiversity issues takes into account both risks and opportunities	✕	The surveys mentioned above have not systematically addressed project impacts and in particular, there has been limited research and monitoring of aquatic biodiversity. For example, there has been no follow-up on a migratory fish species (Banak) identified in 1984 research for the EIA, as well as other potential migratory species blocked by the SRMP, on fish response downstream to improved water quality/reduced turbidity and siltation and to minimum releases from the re-regulating weir, and on the response of native species to the dominance of tilapia. The lack of knowledge on aquatic biodiversity is a **significant gap**. Reportedly, NPC-WMD intends to enter into an arrangement
If management measures are required, then monitoring is being undertaken to assess if management measures are effective	✓	A monitoring program has been established to track the condition of the San Roque watershed and reservoir, with a team comprising members from NPC, SRPC, the			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✕)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✕)**		**Findings and Observations**
		Philippine Coastal Guard, and the Philippine Army.			to undertake related aquatic biodiversity studies.
Management					
Measures are in place to manage identified biodiversity issues	✓	Key management measures are the protection and reforestation activities by NPC and SRPC in the watershed. Annual surveys, workshops, and Information Education Communication (IEC) campaigns raise community awareness about watershed ecosystem services. Forest and fruit trees are being planted to provide habitat and food sources to wildlife. SRPC supports the National Greening Program, adopting 500 hectares for reforestation and habitat restoration, including establishing a native 'tree library'. 'Fish Stock' and 'Grow a Tree for the San Roque Watershed' are other biodiversity enhancement programs. A partnership with the Philippine Eagle Foundation facilitates habitat assessment for Philippine Eagles, fostering research and conservation efforts in Luzon's mountain ranges.	Processes are in place to anticipate and respond to emerging risks and opportunities	✕	While there are a number of monitoring mechanisms for biodiversity, management measures are not clearly linked to monitoring and evaluation. For example, the release of non-native species fingerlings into the reservoir (tilapia and carp) and environmental flow volumes are not linked to research on aquatic biodiversity, and the watershed reforestation is primarily oriented towards increasing biomass and vegetation cover to reduce erosion, not on optimizing conditions for biodiversity. The lack of adaptive management mechanisms is a s**ignificant gap**. Reportedly, the NPC Watershed Department is currently updating their Watershed Management Plan with updated provisions on biodiversity conservation and monitoring.
Conformance and Compliance					
Processes and objectives in place to manage biodiversity issues have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.
• no major non-compliances	✓	There are no major non-compliances. NPC and SRPC have continuously conducted watershed restoration			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✕)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✕)**		**Findings and Observations**
		programmes as required in license conditions and stated in environmental management plans. Compliance reports are prepared in accordance with regulations.			
• no major non-conformances	✓	There are no major non-conformances.	There are no non-conformances	✕	A commitment from the ESIA to maintain a systematic biodiversity information system for monitoring the status and trends of wildlife has not been implemented, which is a s**ignificant gap**.
Biodiversity related commitments have been or are on track to be met	✓	A number of commitments by the project such as supporting watershed reforestation, wildlife surveys and the Philippine Eagle Foundation are met.			
Outcomes					
Negative biodiversity impacts arising from activities of the operating facility are avoided, minimised, mitigated, and compensated	✓	Adequate management measures such as restoration/reforestation and monitoring of the watershed have been implemented to compensate for the loss of habitats to the reservoir and other project infrastructure. The compensation of impacts on aquatic biodiversity is less clear, but the improved water quality and river conditions downstream may at least partially compensate for the fragmentation of the river system.	There are healthy, functional and viable aquatic and terrestrial ecosystems in the area affected by the hydropower facility that are sustained over the long-term	✓	Both terrestrial and aquatic ecosystems in the project area were severely degraded before the SRMP, and the project initially contributed to additional habitat loss and fragmentation. There is still significant pressure on habitats, from a variety of causes such as toxic metal pollution, droughts, (illegal) resource extraction, and grazing. However, there are now indications for improvements in watershed conditions, and no recently cleared forest was visible from the reservoir. The impacts from the mining tailing dams failure have largely subsided, toxicity levels in fish tissue have fallen under thresholds, rare waterbirds such as Philippine ducks are using the reservoir in large numbers, and habitat conditions in the downstream river have improved.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✕)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✕)**		**Findings and Observations**
					These positive trends have now been sustained for a number of years.
			The facility has contributed or is on track to contribute to addressing biodiversity issues beyond those impacts caused by the operating hydropower facility	✓	SRPC has partnered with the Philippine Eagle Foundation to aid in the conservation of the critically endangered Philippine eagle. Conservation efforts in the watershed are partially voluntary and go beyond regulatory requirements, resulting in increased vegetation cover. The reservoir has also attracted a significant share of the few thousand remaining Philippine ducks.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	3

Summary of findings and other notable issues
The SRMP actively contributes to restoring and enhancing biodiversity in the project area, particularly the rich terrestrial biodiversity in the Cordillera Central mountains, where SRPC and government bodies conduct collaborative reforestation efforts. While ecosystem health is still impaired, there are no notable emerging threats for aquatic and terrestrial habitats, and trends are generally pointing in the right direction.

Relevant evidence	
Interview	9-13, 42, 43
Document	88- 89, 98, 100, 102, 109-113, 120, 129-133, 137, 164, 167, 244, 251-256, 258-259
Photo	4, 12, 14, 15, 46, 47

7 Indigenous Peoples

Scope and Principle
This section addresses the rights at risk and opportunities of Indigenous Peoples with respect to the hydropower facility, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalized and vulnerable segments of the population. The principle is that the operating facility respects the dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resource-based livelihoods of Indigenous Peoples in an ongoing manner throughout the project life.

Background	
Are any of the affected people Indigenous Peoples? Please state the evidence on which this determination is made.	
Yes, this section is relevant	Yes, this section is relevant. IPs are not direct beneficiaries of some of the project purposes such as irrigation, flood control and sediment retention, since they live upstream of the reservoir. Around 400 members of indigenous communities living in the barangays Ampucao and Dalupirip in the municipality of Itogon, province of Benguet were directly affected and had to be resettled before the impoundment of the San Roque reservoir, and others were economically affected.
No, this section is not relevant	Click here to enter text.

Brief description of the peoples and their culture, lands, and representation	The Municipality of Itogon lies within the traditional homelands of several ethnolinguistic groups that live in the Cordillera Central mountains, and still observe many customs and traditions, often related to their land. The affected IPs in the Municipality of Itogon are ethnically classified as Ibalois, Kalanguyas, and Kankana-eyes. The communities were represented by two Indigenous People's Organizations (IPOs, DATACA and BILDRACA) but with assistance of the NGO Veritas which was facilitating the formulation of the Indigenous People Development Plan (IPDP), the two groups in a Grand Assembly merged and formed the IPO *Sebang Ni Pansegshan.*
Directly affected communities and how they are affected	Two barangays were directly affected by the reservoir, barangay Dalupirip with a majority of Ibalois IP and barangay Ampucao with a majority of Kalanguyas and Kankana-eys. Their key rights at risk are access to land and natural resources, and self-determination.
Other affected indigenous communities	n/a
# households physically displaced	61 households physically displaced
# households economically displaced	484 persons classified as landowners, structure owners, seasonal resource users, and tenants/tillers

Agencies relevant to Indigenous Peoples	National Commission on Indigenous People (NCIP)
Other relevant information	The Indigenous People Rights Act (IPRA) of the Philippines became effective in 1997, during the preparation of the SRMP. It recognizes four major rights of IPs: Right to Ancestral Domains/Lands, Right to Self-Governance and Empowerment, Right to Social Justice and Human Rights, and Right to Cultural Preservation. In the case of the SRMP, the NCIP deemed that FPIC for the project could not be required, since the SRMP resolution was passed before the IPRA and FPIC could not be required retroactively. NPC developed and implemented an Indigenous People Development Plan (IPDP) following World Bank guidelines on IPS and involuntary relocation. The IPDP was prepared through a consultative process between 2001 and 2004, with a Technical Working Group including IP representatives and a Support Group (formed by NCIP, NPC, SRPC and DENR). A General Assembly approved the final Sebang ni Pansegshan Development Plan (IPDP) through a Resolution dated February 19th, 2004 and an MOA was executed on February 23rd, 2004, by NCIP, NCP, SRPC, DENR, DSWD and the IPO.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Ongoing or emerging issues relating to the operating hydropower facility that may affect Indigenous Peoples' rights have been identified	✓	For Itogon IPs represented by the Oling-Bantic-Lawigen Livelihood Association (OBLLA) and Daynet Community Livelihood Association (DCLA), for the two resettlement sites, emerging issues that may affect IPs rights have been identified, such as the need for reforestation of the reservoir watershed. As this is considered a traditional IP activity, they agreed with SRPC that they would implement the reforestation program.	Identification of issues that may affect Indigenous Peoples' rights is undertaken with the free, prior and informed participation of Indigenous Peoples	✓	Although FPIC for the construction of the project was deemed not necessary, NPC ensured that the IPDP took into consideration the indigenous customs, traditions, and practices, and the protection of their original rights. Consultations have been extensive, participatory and comprehensive, and IP representatives participate in monitoring activities.
If management measures are required, then monitoring is being undertaken to assess if management measures are effective	✓	Monitoring has been undertaken since the beginning of the implementation of IP resettlement and the IPDP. IP relocation started later than the relocation of other	Identification of issues that may affect Indigenous Peoples' rights takes into account both risks and opportunities	✓	As the process for development of the IPDP was extensive with the participation of several governmental and non-governmental agencies, and was discussed with the indigenous

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		affected people, because of the extensive development process of the IPDP, which is not part of the CLRP and includes different activities. The monitoring approach is the same, however. One of the obligations of the IPOs was to establish an environmental unit (or at least an officer) to represent IPs in the monitoring activities. From 2005 the socio-economic surveys and the SRPC monitoring reports included results from the two IP resettlement sites (Bantic and Daynet).			people, risks (like losing fishing traditional methods) and opportunities (like using traditional knowledge to plant trees) were identified.
MANAGEMENT					
Measures are in place to address the Indigenous Peoples' rights at risk	✓	Physically displaced IPs were compensated and resettled through the same process as other resettlees. The IPDP with specific measures for the IPs was approved in an IP General Assembly, and an MoA was concluded defining responsibilities of different agencies for implementation.	Measures to address ongoing or emerging issues that may affect Indigenous Peoples' rights at risk have been developed with the free, prior and informed participation of Indigenous Peoples	✓	As described above, there was an extensive, participatory and comprehensive consultation process with IPs.
Formal agreements are publicly disclosed	✓	The IPDP and MoA were presented to the concerned Local Government Units (LGUs) to be adopted and incorporated into their Development Plans, and copies of the IPDP were distributed to stakeholders.	Processes are in place to anticipate and respond to emerging risks and opportunities	✕	The processes are essentially the same as for non-indigenous resettlees (see section 5). They are largely reactive when stakeholders bring up issues, and not proactive in the sense of anticipating risks and opportunities. Also, since the Covid-19 pandemic no MMT meetings have been held, also due to the long distance that many of its members would have to travel to

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					participate. The absence of functional mechanisms to deal proactively with IP issues is a **significant gap** against advanced requirements**.**
CONFORMANCE AND COMPLIANCE					
Processes and objectives relating to Indigenous Peoples' rights at risk have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.
• no major non-compliances	✓	There are no indications for major non-compliances.			
• no major non-conformances	✓	There are no indications for major non-conformances.	There are no non-conformances	✘	Though the commitments under the IPDP and the MOA are on track to be met (with delay), the IPOs require further development to achieve desired outcomes, like organizational sustainability and sustainable livelihoods. The dependency on continued SRPC support means that investments into IP resettlement have not yet become self-sustaining, which is a **significant gap**. This is despite the best efforts of SRPC to link the IP organizations with concerned local government units and government line agencies for access of support projects aligned with their needs.
Commitments made to Indigenous Peoples have been or are on track to be met	✓	Commitments made to IPs under the IPDP and the MOA have been met or are on track to be met, although with delays.			
OUTCOMES					
Processes provide for negative impacts of the project to Indigenous Peoples' rights to be avoided, minimised, mitigated or compensated	✓	The risk of loss of access to land and natural resources was the most important impact on IPs, related to economic and physical displacement by the reservoir. It was managed adequately, in the same way as for	Opportunities for positive impacts have been identified and maximised as far as practicable	✓	Opportunities for positive impacts have been identified initially during the participatory preparation of the IPDP and subsequently, through the planning processes for the allocation of ER 1-94 and SRPFI funds.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		non-indigenous people. The risk of affecting the right to self-determination was addressed by participatory planning of the use of compensation and benefit sharing resources.			
Processes provide some practicable opportunities for positive impacts to be achieved	✓	IPs benefited from some of the same programs as non-indigenous people as described in sections 4 and 5, plus specific activities under the IPDP. IPs were also contracted by NPC to implement the reforestation of watershed areas, using their traditional knowledge, and for cleaning debris in the reservoir.	Opportunities for positive impacts have been or are on track to be achieved	✓	A number of positive opportunities have been achieved through investments under the IPDP, RE-94 funds, the Strategic Social Investment Program, mainly in health, education and accessibility (roads, tracks and harbor facilities), and additional ones that are on track to be achieved, responding to needs identified by SRPFI jointly with IPs. Already in 2010, the affected IPs had higher incomes and were more satisfied on average than affected non-indigenous people.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	6

Summary of findings and other notable issues
While IPs did not have an opportunity for FPIC prior to the project decision, they have been fully involved in planning, implementing and monitoring a development plan for their communities, besides participating as all other affected people in resettlement and livelihoods restoration programs and in benefit sharing.

Relevant evidence	
Interview	1, 2, 12, 28-36, 37-41
Document	124, 128, 134-136, 147, 154, 170, 237, 249-252

Photo	3, 7-9

8 Cultural Heritage

Scope and Principle
This section addresses cultural heritage, with specific reference to physical cultural resources, associated with the hydropower facility. The principle is that physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance. This section does not address non-physical cultural resources, which are addressed in Section 1 and/or in Sections 5 and 7 when relevant.

Background	
Does the project affect any physical cultural resources? Please state the evidence on which this determination is made.	
Yes, this section is relevant	Click here to enter text.
No, this section is not relevant	This section is not relevant as no significant physical cultural heritage was damaged by or lost to the SRMP. Some disturbed archaeological sites at the Operator's village (Sitio Camanggaan, Barangay San Roque) were identified and salvage excavations recommended in the ESIA process. However, these sites were deemed of minor importance and salvage excavations were not included in the conditions of the Environmental Compliance Certificate (ECC) issued to the project in 1985 (7 conditions) and 1998 (26 additional conditions).

9 Governance and Procurement

Scope and Principle
This section addresses corporate and external governance considerations for the operating hydropower facility. The principle is that the owner/operator has sound corporate business structures, policies and practices; addresses transparency, integrity and accountability issues; can manage external governance issues (e.g. institutional capacity shortfalls, political risks including transboundary issues, public sector corruption risks); and can ensure compliance.

Background	
Key information on political context and public sector risks	The Philippines is a lower middle-income country and presidential democracy. According to the World Bank's Worldwide Governance indicators, it performs better than the average lower middle-income country on most indicators, except for political stability and absence of violence/terrorism. However, there is no clear progress over the past ten years, with several indicator values declining. In terms of corruption, the Philippines are ranked 115th out of 180 countries on Transparency International's CPI index 2023.
Key information on corporate ownership and governance	The project is a public-private hybrid where the non-power infrastructure is owned by the public NPC and the power-related infrastructure by the private SRPC, owned by Marubeni, Kansai and Mizuo from Japan). SRPC also acted as the overall project manager during construction and client for the EPC contractor, and is now the operator for the entire project. This section on governance focuses on SRPC and its regulatory and contractual relations with other stakeholders. Other important organizations are: • NPC, the former national energy utility for generation and transmission, which is now limited to a number of remaining activities such as the management of 11 watersheds and 22 dams; • PSALM, the owner of NPC's remaining assets and contractual partner of the Independent Power Producer Administrator s (IPPAs). PSALM was created to sell both government-owned power sector assets and the rights to control capacity contracted to the government by the private sector under long-term PPAs; • NGCP, the privatized owner and operator of the power grid, including the transmission line between the powerhouse and the San Manuel substation, and contractual partner of SRPC for past ancillary services agreements; • the IPPA SMC (a private company contracted by PSALM to market the energy from the SRMP); • ERC, the energy regulator; • NIA, the government agency that owns the downstream re-regulating pond and irrigation works.

Details of the concession, if applicable	The project has a Build-Operate-Transfer structure with the Power Purchase Agreement (PPA) as the key contractual instrument. SRPC is responsible for O&M of the SRMP for a 25-year Cooperation Period that began on May 1, 2003. Under the PPA SRPC receives payments from NPC.
Key licenses or permits	Besides the ECC from DENR-EMB, SRPC's permits include business permits from local municipalities and from the EMB for wastewater discharges and gensets.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✗)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✗)**		**Findings and Observations**
ASSESSMENT					
Ongoing or emerging political and public sector governance issues have been identified	✓	SRPC was incorporated in 1997, has gained significant experience operating in the evolving regulatory and market environment, and is well aware of external governance issues.	There are no significant opportunities for improvement in the assessment of political and public sector governance issues and corporate governance requirements and issues	✓	SRPC has maintained close contact with and a good understanding of local and central government issues. Changes in responsibilities on the government side (e.g. related to the creation of PSALM through the 2001 energy reform act), the power sales arrangements (e.g. related to the introduction of IPPAs and ancillary services agreements), environmental regulations (e.g. related to MMTs) or corporate ownership have not affected the basic governance of the project.
Corporate governance requirements and issues have been identified	✓	SRPC's governance structure is aligned with Philippine regulations as well as the requirements of its shareholders.			
Monitoring is being undertaken to assess if corporate governance measures are effective	✓	The shareholders, board, and auditors (internal and external) of SRPC are responsible for monitoring corporate governance and compliance.			
MANAGEMENT					
Processes are in place to manage the following:			Processes are in place to anticipate and respond to emerging risks and opportunities	✓	The processes listed above are adequate to anticipate and respond to emerging risks and opportunities.
• corporate, political and public sector risks	✓	SRPC maintains several risk management processes, including the internal audit function which selects audit issues based on risks to the business.			
• compliance	✓	One of SRPC's administrative policies is a compliance manual. There is a vice president for internal audit and compliance, a compliance committee,			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		compliance officer(s), and a legal and tax manager. Reporting requirements are tracked through a database. A Certificate of Compliance from the ERC is valid until August 2024. Semi-annual compliance reports on the environmental license conditions are sent to DENR.			
• social and environmental responsibility	✓	Several policy statements have been established over the years regarding human and labour rights, environmental protection, no tolerance for corruption, discrimination or sexual harassment, and a number of other sustainability principles. Related processes are described in the internal Program Directive for environmental management, approved by the Environmental Review Committee, and the associated procedures. They also include the environmental monitoring and guarantee funds, CSR foundation, and 'greening goals' and commitments for each department from the Sustainability Roadmap.			
• procurement of goods and services	✓	SRPC maintains a budgeting process including departmental procurement plans, and a detailed purchasing policy. A Bids and Awards committee is convened for larger purchases, including a compliance officer.	Contractors are required to meet or have consistent policies as the developer	✓	At the time of the assessment, contractual requirements included legal obligations but not the developer's policies, which were only covered during contractor briefings, in particular related to safety and

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• grievance mechanisms	✓	A grievance mechanism has been in place for SRPC staff and one for other stakeholders such as contractor staff or communities was recently put in place.			security. In the future, references to SRPC policies will be included in all contracts with suppliers and service providers.
• ethical business practices	✓	Among the administrative policies of SRPC there are a code of ethics, compliance manual, code of conduct, anti-bribery policy, and policies on giving and receiving gifts and entertainment.			
• transparency	✓	The two main processes for transparency are the sustainability reports and the cooperative monitoring through the MMT, although the latter has been inactive.	Procurement processes include anti-corruption measures as well as sustainability and anti-corruption criteria specified in pre-qualification screening	✓	SRPC maintains a list of approved suppliers and service providers, some of which are local cooperatives that have been supported for years (see section 4). Contractors are required to confirm generally that they will comply with all laws and regulations, and specifically that they have not and will not make payments or gifts to SPRC staff. Issues related to bribery and relations with contractors were included in the 2017 Human Rights Assessment.
Policies and processes are communicated internally and externally as appropriate	✓	Internal policies and processes are communicated to staff appropriately. The SRPC website communicates policies and commitments to the general public, through the sustainability roadmap and sustainability reports.			
In case of capacity shortfalls, appropriate external expertise is contracted for additional support	✓	SRPC regularly uses external expertise such as the external panel for the sustainability roadmap and independent dam safety experts.			
CONFORMANCE AND COMPLIANCE					
The project has no major non-compliances	✓	There are no indications for any major non-compliances.	The project has no non-compliances	✓	There are no indications for any non-compliances.
OUTCOMES					

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
There are no significant unresolved corporate and external governance issues identified	✓.	There are no indications for significant unresolved governance issues.	There are no unresolved corporate and external governance issues identified	×	The EMB has commented that the recent lack of activity and reporting by the MMT will need to be resolved. This is not considered a non-compliance (since SRPC is no longer a MMT member and maintains its willingness to provide information and funding) but it is an unresolved governance issue since the MMT now depends on the initiative of government agencies, and hence a **significant gap**. The EMB is discussing with stakeholders (including project owners such as SRPC) the option of bringing owners back into MMTs, to make them more operational, but this is not yet decided.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	5

Summary of findings and other notable issues
The SRMP was set up as a hybrid structure or public-private partnership, which allowed it to be financed, built and operated by a private entity (SRPC) while still delivering its multiple purposes in the public interest. SRPC is a well-structured company with significant experience operating in and adapting to the evolving Philippine regulatory framework and market.

Relevant evidence	
Interview	11, 14, 21, 44, 46, 52, 55, 56
Document	1-17, 210-214, 218, 219, 238
Photo	12, 20, 68, 89

10 Communications and Consultation

Scope and Principle
This section addresses ongoing engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The principle is that stakeholders are identified and engaged in the issues of interest to them, and communication and consultation processes maintain good stakeholder relations throughout the project life.

Background	
Directly affected community-level stakeholders	Directly affected community-level stakeholders include resettlees and other affected people such as fishermen, charcoal producers, gold panners, irrigated and dryland farmers, and other residents of the municipalities of San Manuel and San Nicolas in Pangasinan Province, and Itogon in Benguet Province. Internally: employees.
Directly affected institutional-level stakeholders	NPC, EMB, DENR, NRDC, NCIP, NIA, DA, DSWD, DOH, OCD, NDCC, SPDC, NGCP, PSALM, as well as local government administrations (barangay, municipal and provincial level), NGOs., Business partners such as lender Japan Bank for International Cooperation (JBIC), suppliers, service providers, insurers etc. Internally: owners Marubeni and Kansai.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
ASSESSMENT					
Ongoing or emerging issues relating to hydropower facility communications and consultation have been identified	✓	The various purposes and impacts of the SRMP and related communication and consultation issues are well understood.	The stakeholder mapping takes broad considerations into account	✓	The mapping covers a broad range of internal and external stakeholders, including shareholders, SRPC officers and employees, local government units, partner communities and organizations, national government agencies and regulators, and private organizations and service providers.
Requirements and approaches are determined through a periodically updated assessment process involving stakeholder mapping	✓	The stakeholder mapping is periodically updated following a GRI-recommended process in order to identify stakeholders relevant for environmental, social and governance matters. The objectives of these updates include preparing			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		Sustainability Reports and maintaining the Emergency Preparedness Plan up to date.			
Effectiveness is monitored	✓	The members of the Executive Management Team are responsible in conducting periodic consultation using the updated mapping, with their respective internal and external stakeholders. These consultations are used to update and review the materiality of issues; assess level of criticality; determine current performance; recognize stakeholders needs; and set targets and objectives.			
MANAGEMENT					
Communications and consultation plans and processes are in place to manage communications and engagement with stakeholders	✓	SRPC maintains an Information Education Communication (IEC) Program which is also a requirement of the ECC. Each new initiative considered for local communities, including IPs, is presented and discussed in open meetings. For each resettlement village there is a Community Relation Officer (CRO) to manage engagement in the field. CROs also support the implementation of the IEC Program and the engagement with local governments and other local organizations. To engage with the national agencies, representatives of the technical team and the head of the CSR unit are usually appointed as	Communication and consultation plans and processes show a high level of sensitivity to communication and consultation needs and approaches for various stakeholder groups and topics	✓	There are a number of examples for a high level of sensitivity to the needs of different groups, particularly the use of CROs dedicated to specific projects and communities; the appointment of the Vice President and head of the Corporate Affairs and CSR Unit as member in several committees; and internally the “Voice Out” initiative, an annual program of direct dialogue between the SRPC President and small groups of staff.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		SRPC representatives and members in various inter agency committees. Consultations with internal stakeholders are conducted regularly. Management meetings, group head meetings, monthly general assemblies, daily toolbox meetings, and working committee meetings are regularly conducted to ensure participation in decision-making.			
They include an appropriate grievance mechanism	✓	Systematic grievance mechanisms are in place for SRPC staff and for other stakeholders such as contractor staff or communities.	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	Some processes are in place to identify and respond to risks, both internally within the organization and externally in the form of a systematic grievance mechanism.
They outline communication and consultation needs and approaches for various stakeholder groups and topics	✓	Approaches are outlined specifically for various stakeholder groups and topics as indicated in the IEC Program. The use of CRO, open house meetings, and plant tours for various groups such as students and educators, governmental officials, business organizations, professional organizations, religious organizations, media, employee's family and the general public, are examples of stakeholder approach and engagement.			
STAKEHOLDER ENGAGEMENT					
The project operation stage involves engagement with directly affected stakeholders	✓	The IEC Program includes engagement activities with directly affected stakeholders.	Engagement is inclusive and participatory	✓	Engagement activities include participatory meetings, open houses, a walk-in policy, communications
Engagement is:					

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
					campaigns and presentations where monitoring results are shared.
• appropriately timed and scoped	✓	The IEC Program and stakeholder mapping are updated periodically, and the timing and scope of communication activities are adjusted according to stakeholder needs.	Negotiations are undertaken in good faith	✓	Negotiations with stakeholders are open and transparent. SRPC readily shares information and monitoring results with central and local government agencies and partner organizations.
• often two-way	✓	Engagement activities allow for two-way communication.			
• undertaken in good faith	✓	Engagement activities are transparent and carried out in good faith.			
The business interacts with a range of directly affected stakeholders to understand issues of interest to them	✓	Project staff interact with a range of directly affected stakeholders on a regular basis, for example with NPC, PAGASA, and NIA regarding reservoir operations.	The assessment and management process for downstream flow regimes has involved appropriately timed and two-way engagement with directly affected stakeholders	✓	The assessment of water availability, water needs and other parameters for managing downstream releases is done in a collaborative manner through regular dry and wet season planning meetings. There is a 'Coordination Protocol in the Operation of SRMP' for an interagency group formed by SRPC, SPDC, NIA, NGCP, NPC and PSALM (see also section 11).
Ongoing processes are in place for stakeholders to raise issues and get feedback	✓	A number of communication channels and other ongoing processes are in place, including systematic grievance mechanisms for SRPC staff and for other stakeholders.	Ongoing processes are in place for stakeholders to raise issues with downstream flow regimes and get feedback	✓	The interagency group that manages the reservoir through the Coordination Protocol discusses issues with downstream flows, and local communities and stakeholders interested in river maintenance flows can raise issues through the SRPC grievance mechanism, the irrigation agencies and other institutions.
Ongoing processes are in place for:				✕	

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• environmental and social issues	✓	Communication channels include meetings with external stakeholders under the IEC program and the CROs that work in the field directly with the communities.	Feedback on how issues raised have been taken into consideration has been thorough and timely		Some processes for feedback are in place and the new grievance mechanism includes targets on response times. However, there is no experience yet regarding actual response times (through the grievance database), which is a **significant gap**.
• project-affected communities	✓	See above	Project-affected communities have been involved in decision-making around relevant issues and options	✓	Local communities have been involved through various mechanisms, for example in the formulation of plans like the IPDP, in the implementation of livelihood programs, and in deciding on the use of ER 1-94 funds. Options for decision making are discussed in open meetings, often organized through the IEC program and facilitated by CROs.
• resettlees and host communities	✓	See above	Resettlees and host communities have been involved in decision-making around relevant issues and options	✓	See above
• Indigenous Peoples	✓	See above; the CRO designated to work with the IP resettled communities is indigenous from the same ethnic group (Ibaloi).			
• employees and contractors on human resources and labour management issues	✓	There are feedback processes for employees and a recently established systematic grievance mechanism for contractors and contractor staff.			
• management of climate risks	✓	A risk and resilience analysis is now being prepared (see section 12), and there is no established process yet to discuss and manage longer-term			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		climate risks. However, the inter-agency meetings on reservoir management and release schedules have started to look at climate variability, and a document was prepared regarding the "Projected / Potential Contribution of the Project to Adaptation to Climate Change". While this refers to the capacity of the SRMP to mitigate droughts and attenuate floods, not to future changes in climate (see section 12), it is a step in the right direction and the reservoir operations coordinating mechanism may be the best forum for these discussions; hence the absence of an established engagement on climate risks is seen as a non-significant gap.			
Channels of communication with Indigenous Peoples are maintained	✓	As IPs are treated as resettled (despite having a specific community development plan) channels of communication are maintained as for other affected communities, through the IEC program and the CRO assigned to work with them.	Directly affected Indigenous Peoples have been involved in decision-making around relevant issues and options	✓	See above
These channels are:					
• appropriately timed	✓	Yes, see above			
• culturally appropriate	✓	Yes, see above			
• two-way	✓	Yes, see above			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
A mutually agreed disputes procedure is in place with Indigenous Peoples	✓	Yes, the same process defined in the IEC program			
Public disclosure:			The business publicly reports on project performance in sustainability areas of high interest to its stakeholders	✓	The Sustainability Reports follow GRI standards including materiality analysis. They are very comprehensive and have won numerous awards. There are also reports on the SRPC website on project performance in areas such as Education and Health Care, Environmental Protection, and Livelihood and Community / Enterprise Developments.
• the business makes significant project reports publicly available	✓	On the SRPC website there is some information on Strategic Social Investment, ER 1-94 projects and CSR programs, environmental protection, and about the SRPFI.			
• the business publicly reports on project performance, in some sustainability areas	✓	SRPC's Sustainability Roadmap and the last four Sustainability Reports are publicly available.			
• power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment are publicly disclosed	✓	No power density calculations or estimate of GHG emissions from the reservoir are disclosed (see section 12). This gap is non-significant since the power density can easily be calculated from publicly available information, and is high enough to make a site-specific estimate not required under this Standard.	The assessment of project resilience is publicly disclosed	✘	The absence of an assessment of project resilience is a **significant gap**
CONFORMANCE AND COMPLIANCE					
Processes and objectives relating to communications and consultation have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.
• no major non-compliances	✓	No major non-compliances have been identified.			
• no major non-conformances	✓	No major non-conformances have been identified.	There are no non-conformances	✓	No non-conformances have been identified.
Communications related commitments have been or are on track to be met	✓	Communication commitments have been met and continue to be met through the ongoing IEC Program.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	13

Summary of findings and other notable issues
SRPC has used a number of communications and consultation strategies, throughout the different phases of the SRMP and for different target stakeholder groups including resettlees, other affected communities upstream and downstream, IPs, government entities, and employees. A comprehensive consultation and disclosure process have been implemented since the start of the project, including a FPIC process for the support projects to be implemented in the IP communities. Communication channels are in place to attend the various stakeholder groups in an appropriate manner. Engagement activities include participatory meetings with community relations officers, open houses, walk in policy, project tours, communications campaigns and presentations where monitoring results are presented. The SRPC website provides a number of reports on project performance including SRPC's GRI-compliant Sustainability Reports. Stakeholder mapping is updated periodically. There is a systematic grievance mechanism.

Relevant evidence	
Interview	3, 12, 13, 21-41, 48-51, 54
Document	11, 17-21, 26, 30, 32, 43, 45, 50, 54, 86, 124-137, 141, 155, 158, 200, 201, 228
Photo	40-42, 70

11 Hydrological Resource

Scope and Principle
This section addresses hydrological resource availability and reliability, reservoir management, and downstream flow regimes in relation to the operating hydropower facility. The principle is that power generation planning and operations take into account hydrological resource availability and reliability in the short- and long-term, that the reservoir is well managed taking into account power generation operations, environmental and social management requirements, and multi-purpose uses where relevant, and that issues with respect to downstream flow regimes are identified and addressed.

Background	
Hydrology and flows	
Average flow at dam (m^3 / s)	83.6 m^3/s
Minimum monthly average flow (m^3 / s)	20.5 m^3/s (March)
Maximum monthly average flow (m^3 / s)	185.1 m^3/s (September)
Lowest observed flow (m^3 / s)	5.5 m^3/s (average for the month of April 1977)
Highest observed flow (m^3 / s)	484.6 m^3/s (average for the month of September 1990)
Design flow (m^3 / s)	40 to >270 m^3/s with reservoir @ 280 masl
Affected river reaches (start/end and how affected)	From the tail end of the reservoir to the estuary of the Agno River
Proposed downstream flow regimes for environmental or social objectives	2013 Operation Rule: River maintenance flow 2 m^3/s (year-round); water supply requirement 8 m^3/s (year round); irrigation requirement between 0 m^3/s (May) and 73 m^3/s (August). An updated operation rule has been agreed but not yet officially approved. It removes the water supply requirement and increases the river maintenance flow to 5 m^3/s.
Reservoir	
Reservoir length (km)	18 km
Minimum operating level MOL (masl)	225 masl
Normal operating level (masl)	225-280 masl
Full supply level FSL (masl)	280 masl Normal Maximum Pool, 290 masl Flood Surcharge
Reservoir area at FSL (km^2)	12.8 km^2
Reservoir area at MOL (km^2)	Not available

Volume at FSL (million m^3)	835 m m^3 at Normal Maximum Pool level, with 525 m m^3 active storage and 310 m m^3 dead storage, plus an additional 120 m m^3 of flood storage capacity to 290 masl, and under extreme conditions another 75 m m^3 above 290 masl (not planned or expected to be used)
Volume at MOL (million m^3)	The dead storage volume below the level of the intake was initially estimated at 310 m m^3 (now reduced by sedimentation).
Average retention time in days	At average inflows of 83.6 m^3/s and an active storage volume at FSL of 525 m m^3: 73 days. Note that some active storage has been lost to sedimentation and the reservoir is on average at a lower level, so the average real retention time is lower. Also inflows vary widely, and under typhoon conditions the reservoir can fill up very rapidly, within days.
Number of days for filling	For the full reservoir storage volume of 835 m m^3, 116 days on average.
Other relevant information	Spillway gate operations initially followed NPC's 2002 "Flood Operation Rule for the San Roque Dam" manual, with spilling initiated when the reservoir level exceeds 280 masl (Normal Maximum Pool), under instructions from NPC's Flood Forecasting and Warning System for Dam Operations (FFWSDO). The flood operation rules were updated after the 2009 typhoon, with some provisions for earlier lowering of the reservoir level when flood inflows are anticipated. Power station operations as well as low-level outlet tunnel operations follow the reservoir operating rules and instructions from dispatch (National Control Center of the National Grid Corporation of the Philippines). The PPA stipulates that the power plant is a peaking plant that operates daily for eight hours at its contracted capacity of 95 MW (currently 115 MW). The designated peaking hours are between 9:00am and 3:00pm and 6:00-8:00pm. Before the re-regulating pond for the irrigation component of the project was built in 2013, with a storage capacity of 5 m m^3, the power plant ran continuously 24 hours a day to sustain downstream irrigation requirements. After the pond was built, the rule curve was updated and made consistent with the PPA. During the rainy season, when the reservoir elevation is above the Rule Curve and water inflow is high, the plant is required to operate at full load or on a "Must-Run" mode. During the dry season, the plant is normally dispatched at its contracted capacity only during peak hours and at minimum capacity of 45 MW during off-peak hours to provide for the irrigation, water supply and river maintenance requirements. For as long as the reservoir is managed within the Rule Curve, the energy produced above the contracted capacity and during the off-peak period is sold as secondary energy. Another update of the reservoir operating rules is currently being approved.

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Ongoing or emerging issues in the following areas have been identified:			Issues that may impact on water availability or reliability have been comprehensively identified	✓	Such issues are well understood with the exception of climate change. A study on climate resilience, including
• hydrological resource availability and reliability	✓	Hydrological resource availability is well understood, with long term			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		records and short-term forecasting. There is limited water abstraction upstream.			possible future changes in water availability and reliability, is now being launched (see also section 12).
• reservoir management	✓	Reservoir management is well understood and the subject of rules, coordination mechanisms and monitoring.			
• downstream flow regimes	✓	The key downstream flow requirement that has been identified and is frequently re-evaluated is irrigation. Requirements for municipal water supply (initially estimated at 8 m^3/s) were removed from the operating rules as no such demand materialized. So-called 'river maintenance' requirements have been agreed (initially at 2 m^3/s, later at 5 m^3/s) but not been analysed in any detail. SRPC recently introduced a downstream flow monitoring procedure, with the explicit aim of maintaining releases at agreed levels even when the power plant is not operating, through the low level outlet. The upcoming climate resilience study will also address the impacts of climate change, by 1) assessment of changes in downstream river ecosystems due to climate change, and 2) assessment of the sufficiency of SRPC releases to maintain	Scenarios, uncertainties and risks for water availability and reliability are routinely and extensively evaluated over the short- and long-term	✓	Between rainfall forecasting by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and inflow forecasting and operations planning by NPC (including its operational teams and FFWSDO system) and SRPC, there is a significant amount of analysis regarding uncertainties and risks.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		downstream ecology within the context of climate change.			
If management measures are required then monitoring is being undertaken to assess if management measures are effective:					
• reservoir management	✓	Because of the key role of the reservoir for irrigation, flood control and power generation, there are a number of monitoring and evaluation mechanisms between the concerned parties.			
• downstream flow regimes	✓	Requirements are agreed and delivery is monitored. The effectiveness of releases for irrigation and for flood control is regularly evaluated. The requirements for 'river maintenance have not been assessed in detail, but this gap is not significant at the level of Minimum Requirements given the lack of specific flow objectives or concerns in the river reach downstream of the irrigation intakes.			
Monitoring is being undertaken of hydrological resource availability and reliability	✓	Inflows and water levels are measured continuously, and forecasts are produced at different time scales.	Identification of ongoing or emerging reservoir management issues takes into account both risks and opportunities	✓	Risks related to reservoir management are primarily related to dam safety, i.e. protecting the dam from overtopping by timely releases before and during floods, for which there are specific flood warning processes and operation rules.
Inputs to this monitoring include:			Issues identification relating to downstream flow regimes takes	✕	There is some consideration of risks and opportunities in the semi-annual coordination meetings between the

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
			into account both risks and opportunities		concerned parties, and occasional communication in between those meetings, for example when NIA requests additional irrigation releases because of weather conditions or other factors. However, there has been no process to identify risks or opportunities related to river maintenance flows, which is a **significant** gap. The upcoming study on climate resilience may address part of these issues.
• field measurements	✓	Levels of and releases from upstream dams as well as inflows, water levels and outflows at San Roque are measured.	An assessment has been undertaken that includes identification of the flow ranges and variability to achieve different environmental, social and economic objectives based on field studies as well as relevant scientific and other information	✘	The current environmental flows rule is simply a minimum flows role, and no such detailed assessment has been undertaken, which is a **significant gap**.
• appropriate statistical indicators	✓	Hydrological data are analysed to derive increasingly long time series.			
• issues which may impact on water availability or reliability	✓	Weather forecasts including long-range forecasts based on characterization of hydrological years as El Niño, La Niña or neutral years are produced by PAGASA, and also made publicly available.			
• a hydrological model	✓	There is no hydrological model of the catchment but this is not considered a gap since the empirical relationships between rainfall, operations of upstream dams, and runoff are well understood.			
MANAGEMENT					
Measures are in place to guide generation operations that are based on:				✓	

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
• analysis of the hydrological resource availability	✓	Past inflows are analysed for patterns and trends. Reservoir levels and inflow forecasts (related to weather and upstream dam operations) are monitored independently by SRPC's operations team and by NPC's Flood Forecasting and Warning System for Dam Operations.	Planning of generation operations has a long-term perspective		Generation is planned over at least a one-year horizon. Maintenance is scheduled for the low-flow season when there are also no irrigation requirements, i.e. typically in May between two cropping cycles.
• a range of technical considerations	✓	Technical considerations such as plant maintenance requirements (with an annual shutdown at the end of the dry season when there is no irrigation demand) or repairs of the spillway (when reservoir levels were lowered to reduce the risk of spilling) are taken into account in generation planning.	Planning of generation operations fully optimises and maximises efficiency of water use	✓	There are no indications otherwise. Among the aims of reservoir management are to minimize spilling and to keep reservoir levels high to increase the head, as long as compatible with other project purposes.
• an understanding of power system opportunities and constraints	✓	The plant has been subject to a number of different power sales and dispatch arrangements. Currently there is no separate ancillary services contract. Government has contracted a specialised private entity to market the power generated (SMC Global Power, an IPPA or Independent Power Producer Administrator).	Planning of generation operations has the flexibility to adapt to anticipate and adapt to future changes	✓	The reservoir operating rules, irrigation requirements and power sales arrangements have already been updated several times. The operation rules will be reviewed *'every two years or whenever necessary to incorporate the long-term changes in hydrological and climatic conditions, increase in water demand and to improve the operation'*.
Measures are in place to manage identified reservoir management issues	✓	The reservoir is managed through the rule curve which was developed jointly by the NPC, NIA, and SRPC, and approved by the National	Processes are in place to anticipate and respond to emerging risks and opportunities for reservoir management	✓	See above.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		Water Resources Board (NWRB). The curve is based on historical reservoir levels and guides the agencies involved in the dispatch of the plant for power generation, spillway operations and irrigation water deliveries. The importance of an appropriate balance between the different purposes of the project is also recognized in SRPC's Sustainability Roadmap, which includes the 'right mix of water utilization' as a 'greening goal'. There are some additional management measures related to public access and use of the reservoir.			
Measures are in place to address identified downstream flow issues	✓	River maintenance requirements are recognized in principle and a uniform 5 m^3/s is the latest agreed release for this purpose. With a storage volume of 5 m m^3 in the re-regulating pond this flow could in principle be sustained for close to 10 days, which is about the typical time for annual maintenance shutdowns of the hydropower plant. The recently introduced Downstream Flow Monitoring Procedure clarifies responsibilities and processes for monitoring and releasing sufficient flows into the river channel downstream of the	Processes are in place to anticipate and respond to emerging risks and opportunities for downstream flow regimes	✘	See above. While there are processes to respond to some downstream risks and opportunities (irrigation and flood control), there are none for river maintenance, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		pond, including releasing water from the San Roque reservoir through the low-level outlet before the pond is depleted.			
Where formal commitments have been made to downstream flow regimes, these are publicly disclosed	✓	The reservoir operating rules and irrigation delivery plans, while not formally disclosed, are widely known and accessible for any downstream stakeholders through organizations such as irrigators' associations.	Commitments are made in relation to downstream flow regimes that include the flow objectives; the magnitude, range and variability of the flow regimes; the locations at which flows will be verified; and ongoing monitoring	✕	Such detailed commitments are not available, which is a **significant gap**.
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage each of the following have been and are on track to be met:			There are no non-compliances relating to:		
• reservoir management, with no major non-compliances	✓	There are no indications for major non-compliances.	• reservoir management	✓	There are no indications for non-compliances.
• reservoir management, with no major non-conformances	✓	There are no indications for major non-conformances.			
• downstream flow regimes, with no major non-compliances	✓	There are no indications for major non-compliances.	• downstream flow regimes	✓	There are no indications for non-compliances.
• downstream flow regimes, with no major non-conformances	✓	There are no indications for major non-conformances. The recently introduced Downstream Flow Monitoring Procedure will help clarify rules and ensure conformance with minimum release rules.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		See SRPC Policy Eng-50-01, Water Management, Downstream Flow Monitoring			
Commitments relating to the following have been or are on track to be met:			There are no non-conformances relating to:		
• reservoir management	✓	There are no indications otherwise.	• reservoir management	✓	There are no indications for non-conformances.
• downstream flow regimes	✓	There are no indications otherwise.	• downstream flow regimes	✘	There is a lack of monitoring data for river maintenance releases, and thus it is not possible to confirm that releases always conform with the reservoir operating rules, which is a **significant gap**.
OUTCOMES					
Downstream flow regimes take into account environmental, social and economic objectives	✓	The reservoir and flood operating rules take multiple objectives into account.	Downstream flow regimes and commitments are an optimal fit amongst environmental, social and economic objectives within practical constraints of the present circumstances	✘	In the absence of a detailed assessment of river maintenance objectives and flow needs, it is impossible to state with any certainty that operating rules are an optimal fit, which is a **significant gap**. However, there are verbal assurances that river maintenance flows are almost or almost always maintained, that the next tributary is only 5 km downstream of the pond, and that no particular flow-dependent ecological or social values are known in that 5 km reach. The upcoming Climate Resilience Study will also look into river maintenance flows.
Where relevant, they also take agreed transboundary objectives into account	✓	Not applicable.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	10

Summary of findings and other notable issues
The San Roque reservoir and the associated downstream re-regulating pond are operated under rules for multiple objectives including power generation, irrigation, flood control and sediment retention while maintaining dam safety and river maintenance flows. These rules are largely accepted and based on a good understanding of their hydrological basis and effectiveness, with the exception of river maintenance flows in the main river channel downstream of the re-regulating pond.

Relevant evidence	
Interview	4-14, 43-47
Document	21, 22, 30, 65, 86, 88, 172-203, 239-243, 257-267
Photo	1-15, 21-29, 37, 38, 46-48, 51, 53, 54, 62-69, 82-84, 87

12 Climate Change Mitigation and Resilience

Scope and Principle
This section addresses the estimation and management of the project's greenhouse gas (GHG) emissions, analysis and management of the risks of climate change for the project, and the project's role in climate change adaptation. The principle is that the project's GHG emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and the project contributes to wider adaptation to climate change.

Background	
Climate Change Mitigation	
Capacity (MW)	435 MW
Average reservoir area (representing area of flooded land, net of pre-impoundment water body) (km^2)	12.8 km^2 at full supply level, including the pre-impoundment river surface
Power density (W / m^2)	435,000,000 / 12,800,000 = 34
Emissions intensity (gCO_2e / kWh)	Unknown
National and regional policies, plans and commitments relevant to mitigation	In its 2021 Nationally Determined Contribution, the Philippines government committed to a 75% reduction of GHGs by 2030, almost all of it conditional on international support, for the sectors of agriculture, wastes, industry, transport, and energy.
Climate Change Resilience	
Hydrological data available for the project site and the basin, and observed climate trends	Long term data for the Agno River basin are available, since the basin has long been identified for development and the first large dams were built in the 1950s. The Philippines has experienced a warming trend with a rise of 0.62°C in annual average mean temperature between 1958–2014 and an increase in precipitation including more tropical cyclones of typhoon intensity.
Regional and basin-level climate models relevant to the project location, if any	Climate models for the country are available through sources such as the World Bank's Climate Change Knowledge Portal and summarized in the World Bank and ADB Climate Risk Country Profile.
Any climate change predictions for the project location, and degree of consistency	15 out of 16 models reported in the climate change portal show increased precipitation for the Philippines, and all show increased temperature, for the RCP8.5 simulations. The Cordillera Central, which includes the San Roque catchment, is predicted to have particularly high rates of rainfall increase.
National policies, plans and commitments relevant to adaptation and resilience	The Philippines is already a country highly exposed to climate vulnerability and natural disasters. A number of general adaptation and resilience plans have been produced by the Philippines government, including the National Climate Change Action Plan 2011 – 2028.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Climate Change Mitigation					
If power density is below 5 W/m2, net GHG emissions (gCO2e) of electricity generation are calculated, independently verified and periodically updated	✓	Not applicable, as power density is above 5 W/m^2.	If a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks	✓	Not applicable. Although not required under the HSS, SRPC is starting to review reservoir emissions, initially through staff training.
If power density is below 5 W/m2 and estimated emissions are above 100 gCO2e/kWh, a site-specific assessment of GHG emissions is undertaken and periodically updated	✓	Not applicable, as power density is above 5 W/m^2.			
Climate Change Resilience					
An assessment of the project's resilience to climate change is undertaken and periodically updated	✓	A first climate resilience study for the SRMP is ongoing, with a team from the University of the Philippines at Los Baños. The proposal for the study is comprehensive, addressing all criteria under Minimum Requirements.	Assessment of resilience incorporates sensitivity analysis, project specific hydrological modelling using recognised climate models	✓	The ongoing climate resilience study for SRMP will include hydrological modelling as well as modelling of water demand (primarily in irrigation) and power demand (which could change due to increased cooling).
The assessment:					
• incorporates an assessment of plausible	✓	See above			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
climate change at the project site					
• identifies a range of climatological and hydrological conditions at the project site	✓	See above			
• applies these conditions in a documented risk assessment or stress test	✓	See above			
The risk assessment or stress test encompasses:					
• dam safety	✓	The study will look at reservoir inflows, reservoir operating rules and sufficiency of spillway capacity.			
• other infrastructural resilience	✓	The study will look at some infrastructure components other than the dam (e.g. irrigation and local government-operated infrastructure).	The project's opportunities to provide adaptation services are considered on an ongoing basis	✓	At a general level, it is recognized that the large reservoir already serves as a buffer against climate variability, which will become even more relevant if climate variability should increase as expected.
• environmental and social risks	✓	The study will look at climate change impacts on forests, erosion, water quality, biodiversity, and downstream ecology, among others.			
• power generation availability	✓	The study will look at the impact of potential flow changes on generation.			
MANAGEMENT					
Climate Change Mitigation					
If GHG emissions estimates assume design	✓		Management measures are in place to respond to risks and	✓	The last Sustainability Report estimated transport emissions of

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
and management measures, these measures are in place		Not applicable. No design or management measures are assumed.	opportunities including offsetting emissions		969 tons CO_2e/a, 764,909 tons CO_2e/a of avoided emissions compared to coal, and 4,716 tons CO_2e/a sequestered through reforestation activities. The emissions intensity was estimated as 0.397 g CO_2e/kWh (however, without reservoir emissions). In April 2023, a new environmental procedure was put in place regarding monitoring and reporting of GHG emissions (still without reservoir emissions), GHG sequestration, and GHG emissions avoidance. The opportunity to install a floating solar PV farm on the reservoir or a terrestrial solar PV farm on disturbed land is being investigated.
			Plans are in place to monitor parameters used in GHG emissions estimates or to monitor GHG stocks	✓	See above. Plans in place are very general at this stage.
Climate Change Resilience					
Measures are in place to avoid or reduce identified climate risks	✓	Measures are not yet in place but the climate resilience study will include an analysis of existing programs of SRMP and local governments, and a list of potential additional interventions required	Measures take account of a broad range of risks and interrelationships	✘	At this stage, before findings of the climate resilience study are available, it is not yet possible to confirm that measures will take account of a broad range of risks and interelationships, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		to enhance the resilience of the SRMP.	Processes are in place to respond to unanticipated climate change	✘	At this stage, before findings of the climate resilience study are available, it is not yet possible to confirm that future processes will enable rapid responses to unanticipated climate change, which is a **significant gap**.
			Plans are in place to provide adaptation services if necessary	✓	At a very general level, plans are in place. They will be updated annually in terms of irrigation water requirements and projected inflows, both of which are dependent on the climate.
CONFORMANCE AND COMPLIANCE					
Climate Change Mitigation					
Processes and objectives relating to mitigation have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for any non-compliances.
• no major non-compliances	✓	There are no indications for any major non-compliances.			
• no major non-conformances	✓	There are no indications for any major non-conformances.	There are no non-conformances	✓	There are no indications for any non-conformances.
Mitigation-related commitments have been or are on track to be met	✓	There are no indications otherwise.			
Climate Change Resilience					
Processes and objectives relating to resilience have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for any non-compliances.
• no major non-compliances	✓	There are no indications for any major non-compliances.			
• no major non-conformances	✓	There are no indications for any major non- conformances.	There are no non-conformances	✓	There are no indications for any non- conformances.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Resilience-related commitments have been or are on track to be met	✓	There are no indications otherwise.			
OUTCOMES					
Climate Change Mitigation					
The project's GHG emissions are demonstrated to be consistent with low carbon power generation	✓	Given the relatively high power density, the low level of non-reservoir emissions and the high percentage of fossil fuels in the country's power generation, there is a high likelihood that the project's emissions are consistent with low carbon power generation.	Project net emissions are minimised or project operations facilitate system emissions reductions	✓	The energy mix in the Philippines is dominated by fossil fuels. The ability of the SRMP to provide peaking power will support the transition to variable renewables (solar PV and wind) if the operating rules and PPA are updated for that purpose.
Climate Change Resilience					
Findings of the climate change assessment indicate that the project is resilient to climate change	✓	As described above, the first climate resilience study for the SRMP is only beginning, so no findings are available at this point. This gap is not considered significant as 1) the project has already proved to be resilient in the context of very large climate variability (including typhoons), compared to which future climate change is likely to be more gradual, 2) management of the multi-purpose reservoir has already been adapted and can continue to be adapted, and 3) the resilience study is comprehensive and will	The project is resilient under a broad range of scenarios	✘	At this stage, before findings of the climate resilience study are available, it is not yet possible to confirm that the project is resilient under a broad range of scenarios, which is a **significant gap**.
			The project will contribute to climate change adaptation at a local, regional or national levels	✓	Through continued evolution of operating rules for irrigation, flood control, power generation and river maintenance, the SRMP will contribute to adaptation at the river basin level.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		identify any measures required to make the project resilient.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	12

Summary of findings and other notable issues
The SRMP has a relatively high power density and is therefore likely to have relatively low reservoir and total emissions. Its large reservoir can support adaptation to climate change. The resilience of the SRMP to climate change, i.e. the ability under future climate conditions to safely provide the various services such as power generation, flood control and irrigation, is currently being analysed.

Relevant evidence	
Interview	8-10, 43-46
Document	93, 121, 177, 257
Photo	--

Appendix 1 – Interviews

Ref	Interviewee/s	Position and Organisation	Date	Location
1	Lorna Bruno	Gold panner	April 16, 2024	Silsilag, Ampucao, Itogon, Benguet (reservoir upstream)
2	Danilo Padilla, Jr.	Gold panner	April 16, 2024	Silsilag, Ampucao, Itogon, Benguet (reservoir upstream)
3	Bartolome Salcedo	Member, Multipartite Monitoring Team	April 17, 2024	SRPC
4	Cipriano Yabut	Section Chief, Agno-Sinocalan River Irrigation System, NIA	April 17, 2024	SRPC
5	Agapito Yamat, Jr.	Section Chief, Ambayoan-Dipalo River Irrigation System, NIA	April 17, 2024	SRPC
6	William Opilas	Principal Engineer A, NIA	April 17, 2024	SRPC
7	Harry VIllanueva	Principal Engineer A, NIA	April 17, 2024	SRPC
8	Valeriano Barro	Principal Engineer A & Flood Operation Manager, Flood Forecasting and Warning Systems for Dam Operation, NPC	April 17, 2024	SRPC
9	Jose Estrada, Jr.	Chief Meteorological Officer, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)	April 17, 2024	SRPC
10	Gregorio De Vera	Meteorological Officer, PAGASA	April 17, 2024	SRPC
11	1 T. Valdez	Vice President, Corporate Affairs, SRPC	April 17-18, 2024	SRPC
12	Arzel Manalili	Community & Environment Manager, SRPC	April 17 & 19, 2024	SRPC
13	Zarah Ednalaguim	Environment Management Supervisor, SRPC	April 17-18, 2024	SRPC
14	Raymund Mariano	Senior Vice President, Operations & Maintenance (O&M), SRPC	April 17, 2024	SRPC
15	Allan Villegas	Assistant Vice President, O&M, SRPC	April 17, 2024	SRPC
16	Cornelio Ustari, Jr.	Plant Performance Engineer, O&M, SRPC	April 17, 2024	SRPC
17	Jeric Codiñera	Engineering Manager, O&M, SRPC	April 17-18, 2024	SRPC
18	Laurence Camuyot	Maintenance Manager, O&M, SRPC	April 17, 2024	SRPC
19	Emiliano Dictaan	Senior Safety Engineer, O&M, SRPC	April 17 & 19, 2024	SRPC
20	Frederick Go	Maintenance Planner, O&M, SRPC	April 17, 2024	SRPC
21	Crescencio Pacalso	Former Governor, Provincial Government of Benguet	April 17, 2024	SRPC
22	Winie Bautista	Fish buyer, San Felipe East, San Nicolas	April 17, 2024	SRPC
23	Larry Albay	Fisherman, San Felipe East, San Nicolas	April 17, 2024	SRPC
24	Silvano Trinidad	Fisherman, San Felipe East, San Nicolas	April 17, 2024	SRPC
25	Jaime Onia	Vice President, Lagpan Agricultural Livelihood Association	April 17, 2024	SRPC
26	Paulino Orbito	President, Lagpan Resettlement Association	April 17, 2024	SRPC
27	Melodia Jurado	Community Representative, Lagpan Resettlement	April 17, 2024	SRPC

28	Rufino Santiago	Elder, Indigenous Peoples (IP), Daynet Resettlement (DR)	April 17, 2024	SRPC
29	Jerico Mendoza	Community Representative, IP, DR	April 17, 2024	SRPC
30	Myrna Kimo	Vice President, IP, Daynet Community Livelihood Association	April 17, 2024	SRPC
31	Rudy Wakit	Barangay Councilor, IP, Bantic Resettlement	April 17, 2024	SRPC
32	Abilene Cerilo	Community Relations Officer, National Commission on Indigenous Peoples	April 17, 2024	SRPC
33	Ram Abad	Vice President, Camanggaan Homeowners Association (CHA)	April 17, 2024	SRPC
34	Liza Gonzales	Assistant Treasurer, CHA	April 17, 2024	SRPC
35	Romulo Endrada	Quarry Operator, Sta. Maria, Pangasinan	April 17, 2024	SRPC
36	Giovanni Perez	Municipal Tourism Officer, San Manuel, Pangasinan	April 17, 2024	SRPC
37	Rochelle Idanan	Community Programs Supervisor	April 17, 2024	SRPC
38	Charlene Tokpil	Project Officer, San Roque Power Foundation, Inc. (SRPFI)	April 17, 2024	SRPC
39	Oliver Cariño	Project Officer, SRPFI	April 17, 2024	SRPC
40	Albert Madarang	Project Officer, SRPFI	April 17, 2024	SRPC
41	Irineo Ganapin	Project Officer, SRPFI	April 17, 2024	SRPC
42	Jayson Ibañez	Director for Research, Philippine Eagle Foundation	April 17, 2024	Via Zoom
43	Ellenor Perez	Section Chief, San Roque Watershed Area Team, NPC	April 17, 2024	SRPC
44	John Molano	Acting Division Manager, Provincial Irrigation Management Office, NIA	April 18, 2024	National Irrigation Administration, Urdaneta City
45	Maria Theresa Flores	Section Chief, Environmental Management Bureau, Department of Environment and Natural Resources	April 18, 2024	SRPC
46	Wilfredo Senadrin	Division Manager, Dams and Reservoir Division, NPC	April 18, 2024	SRPC
47	Benigno Resurreccion	Principal Biologist, Environmental Division, NPC	April 18, 2024	SRPC
48	Leslie Ann Ancheta	Labor & Employment Officer, DOLE	April 18, 2024	SRPC
49	Gabriel Cardinoza	Correspondent, Manila Times Newspaper	April 18, 2024	SRPC
50	Sanny Ferrer	Principal, Sto. Domingo Elementary School, Department of Education	April 18, 2024	SRPC
51	Margie Guillermo	Vice President, Baro a Namnama Multipurpose Cooperative	April 18, 2024	SRPC
52	Rhona Apil	Vice President, Human Resources & Administration	April 18, 2024	SRPC
53	Michael Sese	Human Resources Supervisor	April 18, 2024	SRPC
54	Mina Evanoso	Communications & Public Relations Manager	April 18-19, 2024	SRPC
55	Pia Talosig	Vice President, Internal Audit & Compliance, SRPC	April 19, 2024	SRPC
56	Rheena De Guzman	Vice President, Finance, SRPC	April 19, 2024	SRPC
57	Homer Galang	Division Manager, Dams Management Department, NPC	April 17, 2024	SRPC

Appendix 2 – Documents

Ref	Author	Year	Title	Notes / links / language
1	SRPC	2015	ADM 03-05 Code of Conduct/Rules and Regulations on Disciplinary Action rev. 02 09.03.2015	Evidence Register/Corporate Business Policies
2	SRPC	2021	ADM 04-06 Medical Reimbursements rev. 05 04.15.2021	Evidence Register/Corporate Business Policies
3	SRPC	2023	ADM 04-10 Employee Loan Program R5 signed (1)	Evidence Register/Corporate Business Policies
4	SRPC	2005	ADM 04-13 Training Policy-Local rev. 00 03.01.2005	Evidence Register/Corporate Business Policies
5	SRPC	2010	ADM 04-22 Recruitment and Staffing rev. 00 02.16.2010	Evidence Register/Corporate Business Policies
6	SRPC	2022	ADM 04-23 Leaves Policy rev. 04 7.28.2022	Evidence Register/Corporate Business Policies
7	SRPC	2023	ADM 05-12 Anti Bribery and Anti-Corruption Policy rev. 03 dtd.19.09.2023	Evidence Register/Corporate Business Policies
8	SRPC	2014	ADM 05-11 Policy on Giving Gifts and Entertainment rev. 01 01.01.2014	Evidence Register/Corporate Business Policies
9	SRPC	2014	ADM 05-11A Policy on Receiving Gifts and Entertainment rev. 01 01.01.2014	Evidence Register/Corporate Business Policies
10	SRPC	2015	ADM 03-06 Code of Ethics rev. 00 08.25.2015	Evidence Register/Corporate Business Policies
11	SRPC	2015	ADM 03-07 Compliance Manual rev. 01 08.2015	Evidence Register/Corporate Business Policies
12	SRPC	2023	ADM 05-03 Purchasing Policy rev.#13 07.07.2023-Effective July 14, 2023	Evidence Register/Corporate Business Policies
13	SRPC	2020	ADM 05-08 Bids and Awards Committee BAC Purchasing Procurement Policy rev. #1 07.28.2020	Evidence Register/Corporate Business Policies
14	SRPC	2023	ADM 05-12 Anti Bribery and Anti-Corruption Policy Rev 03 dtd 19 Sept 2023	Evidence Register/Corporate Business Policies
15	Municipalities of San Nicolas & San Manuel	2024	Business Permits	Evidence Register/Corporate Business Policies
16	Energy Regulatory Commission	2020	Certificate of Compliance	Evidence Register/Corporate Business Policies
17	SRPC	2023	Monitoring of Reportorial Requirements (CY 2023)	Evidence Register/Corporate Business Policies
18	SRPC	2023	Weekly Report 12-29-2023 End of CY 2023.pdf	Evidence Register/Dam and other Infrastructures
19	SRPC	2023	Weekly Report 12-29-2023 End of CY 2023	Evidence Register/Dam and other Infrastructures

20	SRPC	2024	Weekly Report 4-3-2024 wk 13	Evidence Register/Dam and other Infrastructures
21	SRPC	2024	Summary of Spilling Operations	Evidence Register/Dam and other Infrastructures
22	SRPC	2024	SRPC_EAP_Ver 3.0	Evidence Register/Dam and other Infrastructures
23	SRPC	2023	San Roque HEPP Survey Report 2023 Rev2.pdf	Evidence Register/Dam and other Infrastructures
24	SRPC	2023	San Roque Dam Nov 2023 Report_fin	Evidence Register/Dam and other Infrastructures
25	SRPC	2024	San Roque Dam EQ Summary	Evidence Register/Dam and other Infrastructures
26	SRPC	2024	San Roque Dam 2023 Second Semi Annual Inspection Report	Evidence Register/Dam and other Infrastructures
27	SRPC	2015	SAFETY POLICY STATEMENT	Evidence Register/Dam and other Infrastructures
28	SRPC	2002	SAF-90-02 Security Control Measures (Bomb Threats)	Evidence Register/Dam and other Infrastructures
29	SRPC	2002	SAF-90-01 General Requirements	Evidence Register/Dam and other Infrastructures
30	SRPC	2008	SAF-70-03 Emergency Response Guidelines	Evidence Register/Dam and other Infrastructures
31	SRPC	2008	SAF-70-02 Incident Command Organization Structure	Evidence Register/Dam and other Infrastructures
32	SRPC	2008	SAF-70-01 Non Operational Emergencies Procedure	Evidence Register/Dam and other Infrastructures
33	SRPC	2002	SAF-50-07 Fire Extinguishers	Evidence Register/Dam and other Infrastructures
34	SRPC	2002	SAF-50-04 Combustibles and Flammable Liquids	Evidence Register/Dam and other Infrastructures
35	SRPC	2002	SAF-50-03 Equipment or System Impairment	Evidence Register/Dam and other Infrastructures
36	SRPC	2002	SAF-50-02 Fire Prevention	Evidence Register/Dam and other Infrastructures
37	SRPC	2002	SAF-50-01 General Fire Safety	Evidence Register/Dam and other Infrastructures
38	SRPC	2002	SAF-40-10 Safe Driving	Evidence Register/Dam and other Infrastructures
39	SRPC	2002	SAF-40-08 Welding, Cutting, Brazing	Evidence Register/Dam and other Infrastructures
40	SRPC	2002	SAF-40-06 Compressed Gas, Industrial Gas	Evidence Register/Dam and other Infrastructures
41	SRPC	2011	SAF-40-04 Safety Signs and Color Coding rev. 1	Evidence Register/Dam and other Infrastructures
42	SRPC	2002	SAF-30-01 General Electrical Safety	Evidence Register/Dam and other Infrastructures
43	SRPC	2008	SAF-20-01 Incident Reporting and Investigation	Evidence Register/Dam and other Infrastructures
44	SRPC	2010	SAF-10-08 Safety Observation Ticket Guideline	Evidence Register/Dam and other Infrastructures
45	SRPC	2002	SAF-10-06 Hazard Communication Program	Evidence Register/Dam and other Infrastructures
46	SRPC	2002	SAF-10-05 Hearing Conservation	Evidence Register/Dam and other Infrastructures
47	SRPC	2002	SAF-10-04 Confined Space Entry	Evidence Register/Dam and other Infrastructures
48	SRPC	2002	SAF-10-03 Respiratory Protection	Evidence Register/Dam and other Infrastructures
49	SRPC	2002	SAF-10-02 Personal Protection Equipment	Evidence Register/Dam and other Infrastructures
50	SRPC	2002	SAF-10-01 General Safety Practices	Evidence Register/Dam and other Infrastructures
51	SRPC	2002	SAF-01-06 Training & Certification Requirements	Evidence Register/Dam and other Infrastructures

52	SRPC	2012	SAF-01-04 Hazardous Work Permits rev. 2	Evidence Register/Dam and other Infrastructures
53	SRPC	2006	SAF-01-03 Safety Inspections and Audits	Evidence Register/Dam and other Infrastructures
54	SRPC	2004	SAF-01-02 Accidents, Injury, Bloodborne Exposure Reports	Evidence Register/Dam and other Infrastructures
55	SRPC	2020	Progress Slope Protection at Road 5D near OSP 8 - 1.6.2020	Evidence Register/Dam and other Infrastructures
56	SRPC	2020	Progress Restoration Works at the Left River Training - February 17, 2020	Evidence Register/Dam and other Infrastructures
57	SRPC	2018	Progress at the PH slope erosion (26DEC2018) Drone Photos	Evidence Register/Dam and other Infrastructures
58	SRPC	2024	OPS-20-01 DMCP 03.27.24	Evidence Register/Dam and other Infrastructures
59	Swiss Re / PSALM	2023	Microsoft PowerPoint - Site Survey PSALM Rev B	Evidence Register/Dam and other Infrastructures
60	SRPC	2024	InstMonitManual 1.5	Evidence Register/Dam and other Infrastructures
61	SRPC	2023	Functional Test of Spillway Radial Gates 3A & 3B 2023	Evidence Register/Dam and other Infrastructures
62	SRPC	2023	Functional Test of Spillway Radial Gates 2A & 2B 2023	Evidence Register/Dam and other Infrastructures
63	SRPC	2023	Functional Test of Spillway Radial Gates 1A & 1B 2023	Evidence Register/Dam and other Infrastructures
64	SRPC	2023	Functional Test of Spillway Radial 2023	Evidence Register/Dam and other Infrastructures
65	SRPC	2002	Flood Operation For San Roque Dam (July 2002)	Evidence Register/Dam and other Infrastructures
66	SRPC	2023	FCBP-ADM003 Road Maintenance July 1 2023 to June 30 2026 notarized	Evidence Register/Dam and other Infrastructures
67	SRPC	2024	EQ event Mag 4.9 at Tadian Mountain Province (02.06.24)	Evidence Register/Dam and other Infrastructures
68	SRPC	2023	Dam Instrumentation Supplemental Report (December 2023)	Evidence Register/Dam and other Infrastructures
69	SRPC	2023	Consulting agreement with Takano (Independent Engineer) March 17, 2023	Evidence Register/Dam and other Infrastructures
70	SRPC	2024	Consultancy Agt - Sekino 2024_signed and notarized	Evidence Register/Dam and other Infrastructures
71	SRPC	2023	Agreement Y. Kobayashi May 2023 notarized	Evidence Register/Dam and other Infrastructures
72	NPC	2023	4108_SRO_23-02781 San Roque Dam 2023 First Semi Annual Inspection Report	Evidence Register/Dam and other Infrastructures
73	SRPC	2023	2023 Spillway Chute Inspection	Evidence Register/Dam and other Infrastructures

74	SRPC	2023	2023 Quick Report of Plant Shutdown (6.14.23)	Evidence Register/Dam and other Infrastructures
75	SRPC	2023	2023 Power tunnel and 2024 Spillway Chutes Remedial works by ACC	Evidence Register/Dam and other Infrastructures
76	DOLE	2023	2023 DOLE Permits to Operate	Evidence Register/Dam and other Infrastructures
77	DOLE	2023	2023 DOLE Certificate of Electrical Inspection	Evidence Register/Dam and other Infrastructures
78	Kanso Technos Co., Ltd.	2021	2021 Report_spillway chute	Evidence Register/Dam and other Infrastructures
79	Kanso Technos Co., Ltd.	2021	2021 Report_Power Tunnel Photogrammetry	Evidence Register/Dam and other Infrastructures
80	SRPC	2020	2020 Spillway Chutes Remedial Works	Evidence Register/Dam and other Infrastructures
81	SRPC	2019	2019 Table Top Simulations for EAP v 2.8	Evidence Register/Dam and other Infrastructures
82	Explorer Underwater Services Inc.	2018	2018 Trashrack Inspection Report - EUSI	Evidence Register/Dam and other Infrastructures
83	Independent Engineers	2018	2018 Inspection Report of Hydro Mechanical Works for O&M	Evidence Register/Dam and other Infrastructures
84	NPC	2018	2018 Bathymetric Survey Report - NPC	Evidence Register/Dam and other Infrastructures
85	The General Environment Technos Co. Ltd.	2016	2016 Spillway Chute Photogrammetry	Evidence Register/Dam and other Infrastructures
86	NPC	2013	2013 San Roque Reservoir Operation Rule	Evidence Register/Dam and other Infrastructures
87	Independent Engineers	2023	[First Time Report] Inspection Report of Dam Civil Works for Maintenance and Operation	Evidence Register/Dam and other Infrastructures
88	NPC	n.d.	Chapter 3 Watershed Master Plan	Evidence Register/Environment/NPC/ English
89	NPC	n.d.	Chapter 2_A.1.2 SRWAT Profile.edit1	Evidence Register/Environment/NPC/ English
90	SRPC	2023	Env 04-02 Hazardous Waste	Evidence Register/Environment/Envi S&Ps
91	SRPC	2023	Env 04-01 Solid Waste	Evidence Register/Environment/Envi S&Ps
92	SRPC	2023	Env 03-01 Spill Prevention Control and Countermeasures Plan	Evidence Register/Environment/Envi S&Ps
93	SRPC	2023	Env 02-06 Carbon Offsetting	Evidence Register/Environment/Envi S&Ps
94	SRPC	2023	Env 02-05 Waterborne Diseases	Evidence Register/Environment/Envi S&Ps
95	SRPC	2023	Env 02-04 Air and Noise Quality	Evidence Register/Environment/Envi S&Ps

96	SRPC	2023	Env 02-03 Erosion and Slope Stability	Evidence Register/Environment/Envi S&Ps
97	SRPC	2023	Env 02-02 Water Quality	Evidence Register/Environment/Envi S&Ps
98	SRPC	2023	Env 02-01 Multipartite Monitoring Team	Evidence Register/Environment/Envi S&Ps
99	SRPC	2023	Env 01-02 Hazardous Materials Inventory & Risk Analysis	Evidence Register/Environment/Envi S&Ps
100	SRPC	2023	Env 01-01 Environmental Review Committee	Evidence Register/Environment/Envi S&Ps
101	SRPC	2023	Env 00-00 Program Directive	Evidence Register/Environment/Envi S&Ps
102	SRPC	2021	Waste Discharge Permits	Evidence Register/Environment/Discharge Permits
103	SRPC	2023	SMR 4Q23	Evidence Register/Environment/2023 SMRs
104	SRPC	2023	SMR 3Q23	Evidence Register/Environment/2023 SMRs
105	SRPC	2023	SMR 2Q23	Evidence Register/Environment/2023 SMRs
106	SRPC	2023	SMR 1Q23	Evidence Register/Environment/2023 SMRs
107	SRPC	2023	ECC Compliance Monitoring 1S CY 2023	Evidence Register/Environment/2023 CMRs
108	SRPC	2023	ECC Compliance Monitoring (2S 2023)	Evidence Register/Environment/2023 CMRs
109	SRPC	2023	SRPC Flora Survey Report	Evidence Register/Environment
110	SRPC	1998	SRMP-EMP	Evidence Register/Environment
111	SRPC	2019	SRMP MMT MOA	Evidence Register/Environment
112	SRPC	1997	SRMP EIS	Evidence Register/Environment
113	National Environmental Protection Council	1985	SRMP ECC	Evidence Register/Environment
114	DENR-EMB Region 1	2020	SRMP Air Pollution Source Equipment PTO (2020-25)	Evidence Register/Environment
115	SRPC	n.d.	Sewage Treatment Plant	Evidence Register/Environment
116	Philippine Eagle Foundation	2012	PEF SRPC Terminal Report 2011_2012	Evidence Register/Environment
117	SRPC	n.d.	Oil Spill Procedure rev3	Evidence Register/Environment
118	Geoscience Foundation, Inc.	2019	Final Mine Rehabilitation Report (Geoscience Foundation, Inc.)	Evidence Register/Environment
119	NPC	2018	2018 Bathymetric Survey Report - NPC	Evidence Register/Environment
120	NPC SRPC	2004	Borrower's Environmental Monitoring End of Construction Report	Evidence Register/Environment

121	University of the Philippines Los Baños Foundation, Inc.	2024	Proposal - Climate Resilience Study for SRMP	Evidence Register/Environment
122	DOLE	2023	2023 DOLE Certificate of Electrical Inspection	Evidence Register/Governance
123	DOLE	2023	2023 DOLE Permits to Operate	Evidence Register/Governance
124	SRPC	2020	Template 3. Consolidated Stakeholder Identification and Prioritization	Stakeholder Register/Stakeholder Mapping English
125	University of Asia and the Pacific	August 2017	Materiality Test Results 2017	Stakeholder Register/Stakeholder Engagement English
126	University of Asia and the Pacific	Sept 2017	Stakeholder Materiality Test Results 2017	Stakeholder Register/Stakeholder Engagement English
127	University of Asia and the Pacific	2015	Global Reporting Initiative (GRI) Results of the GRI Stakeholder Consultations 2015	Stakeholder Register/Stakeholder Engagement English
128	SRPC	2024	List of Stakeholders	Stakeholder Register
129	SRPC	2021	18 Years of Seamless Operations Sustainability Report	Evidence Register/Sustainability Reports
130	SRPC	2017	Sustaining Lives Empowering the Future Sustainability Report	Evidence Register/Sustainability Reports
131	SRPC	2017	Sustainability Roadmap	Evidence Register/Sustainability Reports
132	SRPC	2014	The Power of Water Sustainability Report	Evidence Register/Sustainability Reports
133	SRPC	2012	Enhancing Corporate Value Sustainability Report	Evidence Register/Sustainability Reports
134	San Roque Power Foundation, Inc.	2020	Annual Accomplishment Report 2019-2020	Evidence Register/Social/SRPFI Annual Reports
135	San Roque Power Foundation, Inc.	2021	Annual Accomplishment Report 2020-2021	Evidence Register/Social/SRPFI Annual Reports

136	San Roque Power Foundation, Inc.	2022	Annual accomplishment Report 2021-2022	Evidence Register/Social/SRPFI Annual Reports
137	SRPC	2002	The San Roque Multipurpose Project Information Kit	Evidence Register/SRPC Info Kit
138	SRPC	2015	CSR 01-01 Social Investment Program	Evidence Register/Social/CSR Policies
139	SRPC	2016	CSR 01-02 Plant Tours	Evidence Register/Social/CSR Policies
140	SRPC	2023	CSR 00-00 Strategic Social Investment Program	Evidence Register/Social/CSR Policies
141	SRPC	2024	CSR 01-03 External Grievance Mechanism	Evidence Register/Social/CSR Policies
142	NPC	1999	Resettlement Action Plan Update 1999	Evidence Register/Social
143	SRPC	2006	Corporate Social Responsibility Program 2006	Evidence Register/Social
144	Lorelei C. Mendoza et al.	2016	2016 Study of the Beneficiary Impact of the SSIP of SRPC	Evidence Register/Social
145	NPC	2006	Report on Focus Group Discussion	Evidence Register/Social
146	SRPC	2021	Minutes of Meeting	Evidence Register/Social/Minutes of Meeting
147	San Roque Power Foundation, Inc.	2011	Minutes of Meeting San Nicolas Pangasinan Goldpanning Federation, Inc.	Evidence Register/Social/Minutes of Meeting
148	SRPC	2024	Monitoring and Project Completion Report	Evidence Register/Social/Activity Reports
149	SRPC	2023	Monitoring Report	Evidence Register/Social/Activity Reports
150	SRPC	2022	Post Activity Report 1	Evidence Register/Social/Activity Reports
151	SRPC	2023	Post Activity Report	Evidence Register/Social/Activity Reports
152	SRPC	2002	About SRPCRev2	Evidence Register/Social/SRPC Info Kit
153	SRPC	2002	Affected Communities	Evidence Register/Social/SRPC Info Kit
154	SRPC	2002	Indigenous Peoples Revised 1	Evidence Register/Social/SRPC Info Kit
155	SRPC	2002	New Info Kit Cover	Evidence Register/Social/SRPC Info Kit
156	SRPC	2002	SRMP affected peoples rev 3	Evidence Register/Social/SRPC Info Kit
157	SRPC	2002	SRMP FAQ rev2	Evidence Register/Social/SRPC Info Kit
158	SRPC	2002	SRMP Historical Background	Evidence Register/Social/SRPC Info Kit
159	SRPC	2002	The SRMP rev2	Evidence Register/Social/SRPC Info Kit
160	NPC	2002	2002 Post Relocation Report	Evidence Register/Social
161	NPC	2005	2005 Post Relocation SES of PAPs	Evidence Register/Social
162	NPC	2006	2006 FGD Report	Evidence Register/Social

163	Lorelei C. Mendoza	2011	2010 Post Relocation Socioeconomic Study	Evidence Register/Social
164	Lorelei C. Mendoza et al.	2016	2016 Study of the Beneficiary Impact of the SES of SRPC	Evidence Register/Social
165	NPC	1999	Annexes of Resettlement Action Plan Update 1999	Evidence Register/Social
166	SPREAD	2008	Assessment Study of the CLRP of the SRPC	Evidence Register/Social
167	SRPC	2022	SRMP Brochure	Evidence Register/Social
168	Camanggaan Homeowners Association	n.d.	Camanggaan HOA Projects and Future Plans	Evidence Register/Social
169	SRPC	2004	Comprehensive Livelihood and Rehabilitation Plan	Evidence Register/Social
170	National Commission on Indigenous Peoples Cordillera Administrative Region, NPC ad SRPC	2004	Indigenous Peoples Development Plan	Evidence Register/Social
171	Department of Agriculture Region 1	2023	INSPIRE MOA	Evidence Register/Social
172	SRPC	2015	150525 Volume Captured from Typhoons	Evidence Register/Reservoir Management and Downstream Outflows
173	SRPC	n.d.	Coordination Protocol	Evidence Register/Reservoir Management and Downstream Outflows
174	SRPC	2023	FY 2023 Net Inflows vs Historical Categories (as of Jan_24)	Evidence Register/Reservoir Management and Downstream Outflows
175	NIA	2023	May 3 Interagency Coordination Meeting	Evidence Register/Reservoir Management and Downstream Outflows
176	NIA	2023	October 20, 2023 Interagency Coordination Meeting	Evidence Register/Reservoir Management and Downstream Outflows
177	SRPC	2023	Potential Contribution of Project to Climate Change Adaptation	Evidence Register/Reservoir Management and Downstream Outflows
178	NIA	2024	PPT FOR SRPC MEETING 04182024	Evidence Register/Reservoir Management and Downstream Outflows
179	NIA	2021	sample collaboration 3	Evidence Register/Reservoir Management and Downstream Outflows
180	NIA	2015	sample collaboration 4	Evidence Register/Reservoir Management and Downstream Outflows
181	NIA	2020	sample collaboration 5	Evidence Register/Reservoir Management and Downstream Outflows

182	NIA	2022	sample collaboration 6	Evidence Register/Reservoir Management and Downstream Outflows
183	Regional Disaster Risk Reduction and Management Council	2023	sample collaboration 8 CREATION OF THE REGION 1 EL NINO TEAM	Evidence Register/Reservoir Management and Downstream Outflows
184	Office of Civil Defense	2023	sample collaboration 8	Evidence Register/Reservoir Management and Downstream Outflows
185	Philippine Statistics Authority	2022	sample collaboration 10	Evidence Register/Reservoir Management and Downstream Outflows
186	Pangasinan State University	2021	sample collaboration 11	Evidence Register/Reservoir Management and Downstream Outflows
187	Power Sector Assets and Liabilities Management Corporation	2015	sample collaboration 13	Evidence Register/Reservoir Management and Downstream Outflows
188	Provincial Disaster Risk Reduction and Management Office	2018	sample collaboration 14	Evidence Register/Reservoir Management and Downstream Outflows
189	SRPC	2018	sample collaboration 15	Evidence Register/Reservoir Management and Downstream Outflows
190	SRPC	2024	sample collaboration 16 SRPC Letter to PDRRMO-Pangasinan	Evidence Register/Reservoir Management and Downstream Outflows
191	SRPC	2024	Sample forecasts discussed on monthly meetings.pptx	Evidence Register/Reservoir Management and Downstream Outflows
192	NIA	2021	Sample Inter Agency Collaboration	Evidence Register/Reservoir Management and Downstream Outflows
193	NIA	2015	sample inter agency meeting attendance	Evidence Register/Reservoir Management and Downstream Outflows
194	SRPC	2013	sample Inter-Agency Coordination Meeting (07.31.13)r1	Evidence Register/Reservoir Management and Downstream Outflows
195	SRPC	2015	sample Inter-Agency Meeting Attendance	Evidence Register/Reservoir Management and Downstream Outflows

196	Philippine Atmospheric, Geophysical and Astronomical Services Administration	2022	sample Inter-Agency, Program	Evidence Register/Reservoir Management and Downstream Outflows
197	SRPC	2024	Sample Outflow Monitoring vs NIA IDR and Pond Level Graph (March 31, 2024)	Evidence Register/Reservoir Management and Downstream Outflows
198	Philippine Atmospheric, Geophysical and Astronomical Services Administration	2017	sample PAGASA stakeholders invite	Evidence Register/Reservoir Management and Downstream Outflows
199	SRPC	2024	Sample Reservoir Levels Graph 2003-2024 (04.08.24)	Evidence Register/Reservoir Management and Downstream Outflows
200	NIA		sample stakeholder collaboration 2	Evidence Register/Reservoir Management and Downstream Outflows
201	NIA	2023	Sample Stakeholder Engagement - Inter Agency Meeting WET 2023	Evidence Register/Reservoir Management and Downstream Outflows
202	NPC	2013	San Roque Reservoir Operation Rules	Evidence Register/Reservoir Management and Downstream Outflows
203	SRPC	2024	SRPC Policy Eng-50-01, Water Management, Downstream Flow Monitoring	Evidence Register/Reservoir Management and Downstream Outflows
204	Home Development Mutual Funds	2023	HDMF Certification - Good Standing	Evidence Register/Human Resources
205	DOLE Region 1	2024	DOLE ERS Report – 13th Month Proof of Payment	Evidence Register/Human Resources
206	DOLE Region 1	2024	DOLE Certificate of No Pending Case	Evidence Register/Human Resources
207	DOLE Region 1	2023	DOLE Notice of No Violation	Evidence Register/Human Resources
208	Social Security System	2024	SSS Certification	Evidence Register/Human Resources
209	Philippine Health	2023	PHIC Certification – Good Standing	Evidence Register/Human Resources

	Insurance Corporation			
210	Municipality of San Nicolas	2024	Mayor's Permit San Nicolas 2024_Bus Tax	Evidence Register/Human Resources
211	Municipality of San Manuel	2024	Mayor's Permit San Manuel 2024_Bus Tax	Evidence Register/Human Resources
212	DOLE Region 1	2014	Certificate of Compliance on General Labor Standards	Evidence Register/Human Resources
213	DOLE Region 1	2016	Tripartite Certificate of Compliance	Evidence Register/Human Resources
214	DOLE Region 1	2014	DOLE Certificate of Compliance – OHS 2014	Evidence Register/Human Resources
215	AVEGA	2023	AVEGA Conforme 2023-2024 - Proof of Coverage Health Care Coverage	Evidence Register/Human Resources
216	ETIQA	2023	Renewal Proposal for SRPC	Evidence Register/Human Resources
217	STARR	2023	Group Personal Accident Plan	Evidence Register/Human Resources
218	SRPC	2024	NMC-ADM018 Janitorial and housekeeping Services April 1, 2024 to March 31, 2025	Evidence Register/Human Resources
219	SRPC	2017	NMC-ADM002 Janitorial Services-Mother Contract	Evidence Register/Human Resources
220	SRPC	2023	Employee Handbook	Evidence Register/Human Resources
221	SRPC	n.d.	Policy Statement on Generally Accepted Norms	Evidence Register/Human Resources
222	DOLE Region 1	2019	SPES-Special Program for Employment of Students – Student File 20240415_21483976	Evidence Register/Human Resources
223	International Colleges for Excellence (ICE)	2024	Senior High Work Immersion Program-Student File 20240415_21230120	Evidence Register/Human Resources
224	SRPC	2019	OJT-Internship-Practicum Program-Student File 20240415_21313020240415_22064826	Evidence Register/Human Resources
225	SRPC	2019	FWD-Set for Life Insurance Policy04102022	Evidence Register/Human Resources
226	SRPC	2006	Employee Retirement Plan FP 2006	Evidence Register/Human Resources
227	SRPC	n.d.	SRPC Cadetship Program	Evidence Register/Human Resources
228	SRPC	2008	Voice Out Launch 2008	Evidence Register/Human Resources
229	SRPC	2024	General Assembly-Presentation Material for March 22,2024	Evidence Register/Human Resources
230	SRPC	2024	2024 First Working Committee Minutes of Meeting	Evidence Register/Human Resources

231	SRPC	2018	Provident Fund Loan Policy Guidelines Final (Jan 2018)	Evidence Register/Human Resources
232	DOLE Region 1	2023	DOLE Certificate of Participation Project Angel	Evidence Register/Human Resources
233	DOLE Region 1	2017	DOLE Special Citation 2017	Evidence Register/Human Resources
234	SRPC	n.d	Workplace Policy and Programs – signed KT	Evidence Register/Human Resources
235	SRPC	2020	Mother Baby Friendly Workplace Certificate 2000	Evidence Register/Human Resources
236	SRPC	2024	ICE Certificate Partner School Work Immersion	Evidence Register/Human Resources
237	SRPC	2017	Human Rights Assessment 2017	Evidence Register/Human Resources
238	SRPC	2024	SRPC Organizational Chart April 2024	
239	Cordillera People's Alliance	2001	DAMS IN THE CORDILLERA: The River Systems of the Cordillera and their Watersheds	https://www.irn.org/files/programs_2Fsanroque_2F/021214.corddams.pdf
240	Tabios	2021	Showcasing selected reservoirs and their operations in the Philippines	https://unesdoc.unesco.org/ark:/48223/pf0000380004
241	Ocampo et al	2023	Techno-economic Feasibility Analysis of a Floating Solar Photovoltaic System in San Roque Dam, Philippines	https://www.researchgate.net/publication/375986205_Techno-economic_Feasibility_Analysis_of_a_Floating_Solar_Photovoltaic_System_in_San_Roque_Dam_Philippines
242	JICA	1985	RE-STUDY OF THE SAN ROQUE MULTI-PURPOSE PROJECT: FINAL REPORT	https://openjicareport.jica.go.jp/pdf/10315125_01.pdf
243	Wikipedia	2024	Ambuklao Dam Binga Dam	https://en.wikipedia.org/wiki/Ambuklao_Dam https://en.wikipedia.org/wiki/Binga_Dam
244	PASION	2022	BFAR reiterates ban on San Roque Dam tilapia	https://www.rappler.com/philippines/luzon/bfar-reiterates-ban-tilapia-san-roque-dam/#:~:text=DAGUPAN%2C%20Philippines%20–%20The%20Bureau%20of,its%20first%20prohibition%20in%202019.
245	Baltazar & de Jesus-Abejero	2016	Biota and Overall Health of Agno River within the San Roque Dam Watershed: Post Tailings Pond Spill	https://www.researchgate.net/publication/316989858_Biota_and_Overall_Health_of_Agno_River_within_the_San_Roque_Dam_Watershed_Post_Tailings_Pond_Spill
246	Caluza	2013	Pangilinan: Philex not required to clean up San Roque dam	https://newsinfo.inquirer.net/435043/pangilinan-philex-not-required-to-clean-up-san-roque-dam
247	de Jesus-Abejero	2015	PHYSICO-CHEMICAL CHARACTERIZATION OF AGNO RIVER WITHIN THE SAN ROQUE DAM WATERSHED, PANGASINAN AFTER A MINE TAILINGS SPILL	https://www.researchgate.net/publication/316990259_PHYSICO-CHEMICAL_CHARACTERIZATION_OF_AGNO_RIVER_WITHIN_THE_SAN_ROQUE_DAM_WATERSHED_PANGASINAN_AFTER_A_MINE_TAILINGS_SPILL
248	Geron et al	2018	Water Quality Assessment of Agno River Tributaries in Eastern Pangasinan for Irrigation Purposes	https://psurj.org/wp-content/uploads/2019/01/JONAS_002.pdf

249	Delina	2020	Indigenous environmental defenders and the legacy of Macli-ing Dulag: Anti-dam dissent, assassinations, and protests in the making of Philippine energyscape	https://doi.org/10.1016/j.erss.2020.101463
250	Bengwayan	2010	Dam the Rivers, Damn the People: San Roque Dam, Philippines	https://cordilleraecologicalcenter.wordpress.com/2017/08/10/dam-the-rivers-damn-the-people-san-roque-dam-philippines-an-analysis-published-by-probe-international-by-michael-a-bengwayan-ph-d/
251	IRN	1999	Experts Find Serious Deficiencies in San Roque Dam Studies	https://www.irn.org/files/programs/sanroque/pr990809.html
252	Cordillera People's Alliance	2007	Case Study on the Impacts of Mining and Dams on the Environment and Indigenous Peoples in Benguet, Cordillera, Philippines	UN DESA: INTERNATIONAL EXPERT GROUP MEETING ON INDIGENOUS PEOPLES AND PROTECTION OF THE ENVIRONMENT KHABAROVSK, RUSSIAN FEDERATION AUGUST 27.-29, 2007
253	Dantis & Lacap	2021	Aquatic Macrofauna Assessment Along Agno River in the Province of Pangasinan, Philippines	https://www.sajst.org/online/index.php/sajst/article/view/254
254	Bestre et al	2018	FISHES AND SHELL DIVERSITY IN MAJOR RIVERS OF BENGUET, PHILIPPINES	https://www.researchgate.net/publication/332980134_FISHES_AND_SHELL_DIVERSITY_IN_MAJOR_RIVERS_OF_BENGUET_PHILIPPINES
255	Cardinoza	2015	Forests serving as dam watershed are key habitat	https://newsinfo.inquirer.net/702838/forests-serving-as-dam-watershed-are-key-habitat
256	Birdlife International	2024	Philippine Duck	http://datazone.birdlife.org/species/factsheet/philippine-duck-anas-luzonica
257	College of Forestry and Natural Resources	n.d.	Climate-Responsive Integrated Master Plan for Agno River Basin	https://faspselib.denr.gov.ph/node/1485
258	JICA	1991	STUDY OF AGNO RIVER BASIN FLOOD CONTROL	https://openjicareport.jica.go.jp/pdf/10960649_01.pdf
259	Hydro Review	2022	Assessment reveals Philippine dams, hydro projects not damaged by earthquake	https://www.hydroreview.com/dams-and-civil-structures/canals-tunnels-and-penstocks/assessment-reveals-philippine-dams-hydro-projects-not-damaged-by-earthquake/#gref
260	UP TCAGP	2015	Flood Forecasting and Flood Hazard Mapping for Agno River Basin, Disaster Risk and Exposure Assessment for Mitigation (DREAM) Program	https://dream.upd.edu.ph/assets/Publications/UP-DREAM-River-Reports/FMC/DREAM-Flood-Forecasting-and-Flood-Hazard-Mapping-for-Agno-River-Basin.pdf
261	Monjardin et al	2018	Hazard mitigation using dam breach simulation of lindar data at San Roque dam, Agno River Basin, Pangasinan	https://ui.adsabs.harvard.edu/abs/2018AIPC.2045b0066M/abstract
262	NYT	2009	More than 160 Killed in Landslides in Philippines	https://www.nytimes.com/2009/10/10/world/asia/10phils.html

263	Morales	2012	Napocor: Safety protocols observed in dam water release	https://www.philstar.com/nation/2012/08/11/836990/napocor-safety-protocols-observed-dam-water-release
264	Sagun	2009	Philippines: San Roque dam, flood control projects credited for absence of severe floods in Pangasinan since 2004	https://reliefweb.int/report/philippines/philippines-san-roque-dam-flood-control-projects-credited-absence-severe-floods
265	Escudero	2009	CONFUSION OVER DAM PROTOCOL BOLSTERS CASE VS SAN ROQUE	https://legacy.senate.gov.ph/press_release/2009/1019_escudero1.asp
266	Austria	2018	San Roque Dam ready for rainy season: Napocor	https://www.pna.gov.ph/articles/1036336
267	Cardinoza	2015	San Roque Dam to let off water as rains pound Cordillera	https://newsinfo.inquirer.net/715346/san-roque-dam-to-let-off-water-as-rains-pound-cordillera
268	northwest hydraulic consultants and UPERDFI	2008	RESERVOIR SEDIMENTATION/ BACKWATER EFFECTS STUDY AND SEDIMENT MANAGEMENT PLAN	

Appendix 3 - Photographs

Photo 1: View of reservoir from dam

Photo 2: Philippine coast guard boats on reservoir

Photo 3: Local residents crossing the reservoir

Photo 4: Reservoir bank with protected forest above

Photo 5: Only major landslide visible on reservoir banks

Photo 6: Structure on reservoir bottom, visible at low water (level 233 masl)

Photo 7: Gold miners' temporary camp at reservoir tail end

Photo 8: Gold panners working in river

Photo 9: Gold miners using pumps and hoses

Photo 10: Reservoir tail end with mud- and sand deposits at water level 233 masl

Photo 11: Excavated benches upstream of spillway, with material used for dam rockfill

Photo 12: Sign for Lower Agno Watershed Reservation, managed by NPC

		
Photo 13: Reservoir shore with boat and building used for NPC watershed management activities	Photo 14: Community worker at SRPC nursery	Photo 15: SRPC nursery and 'tree library'
		
Photo 16: Road through SRMP property with gated access to village in San Nicolas municipality	Photo 17: Road over dam crest	Photo 18: Community worker clearing vegetation from upstream dam slope

Photo 19: Philippine Institute of Volcanology and Seismology (PHIVOLCS) seismometer in right dam abutment

Photo 20: Commemorative marker for President Ramos, who was instrumental in the decision to build the SRMP

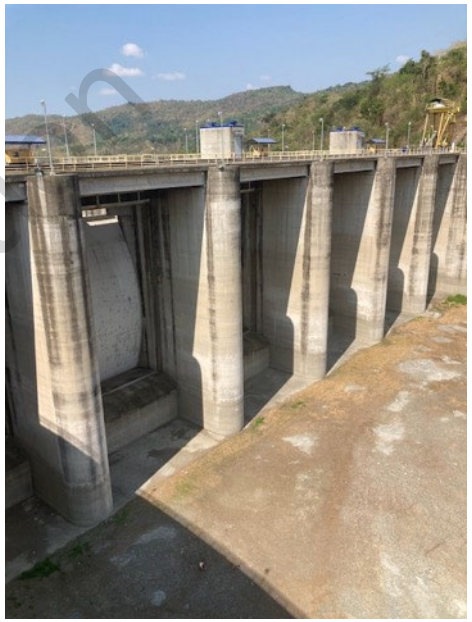

Photo 21: Spillway gates from upstream 1

Photo 22: Spillway gates from upstream 2

Photo 23: Spillway approach with warning sign

Photo 24: Spillway gates backup diesel generator

Photo 25: Spillway gate from downstream

Photo 26: Spillway chutes with aeration lips and skijump at end, powerhouse around river bend to left, floodplain in distance

Photo 27: Spillway from below, with additional apron built 2019 to protect from erosion

Photo 28: Dam with spillway as seen from surge shaft

Photo 29: View from dam to surge shaft, showing drainage and protected forest

Photo 30: Switchyard and powerhouse roof

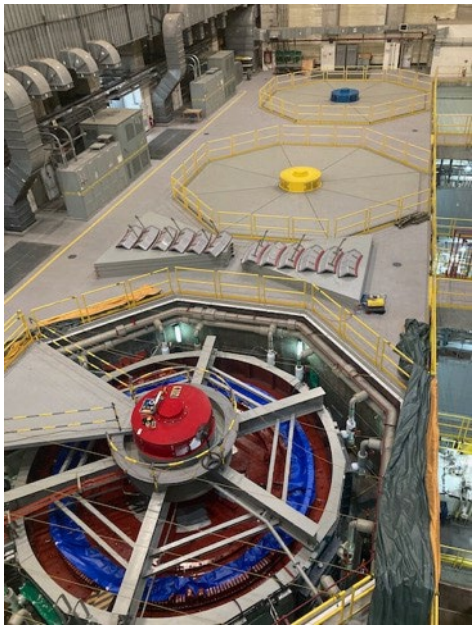

Photo 31: 3 units seen from above, with one undergoing annual maintenance

Photo 32: Unit 2 operating

Photo 33: Turbine runner in good condition during maintenance

Photo 34: Control room

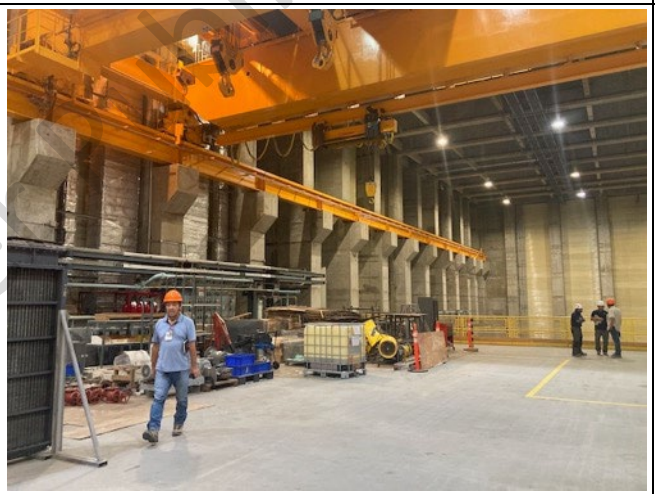

Photo 35: Good housekeeping in powerhouse

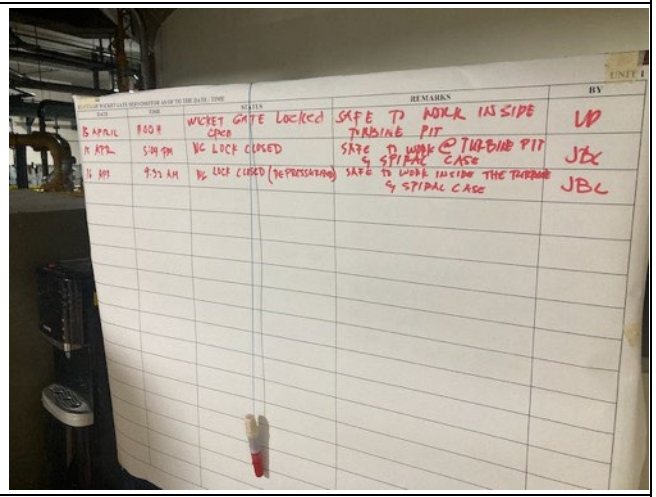

Photo 36: Safety records during turbine maintenance

Photo 37: Scheduling of 3 units in powerhouse control room

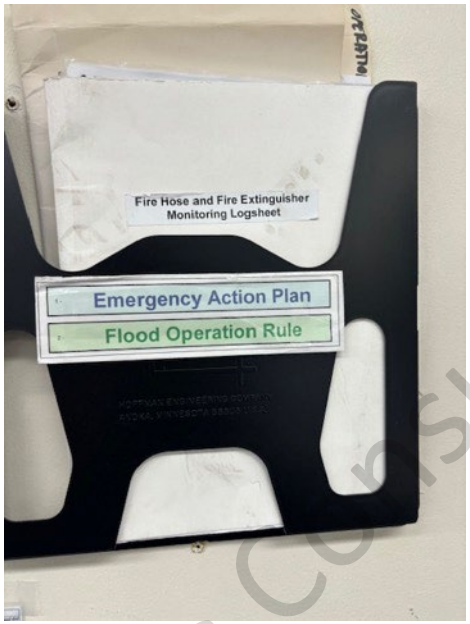

Photo 38: Important emergency documents easily accessible in control room

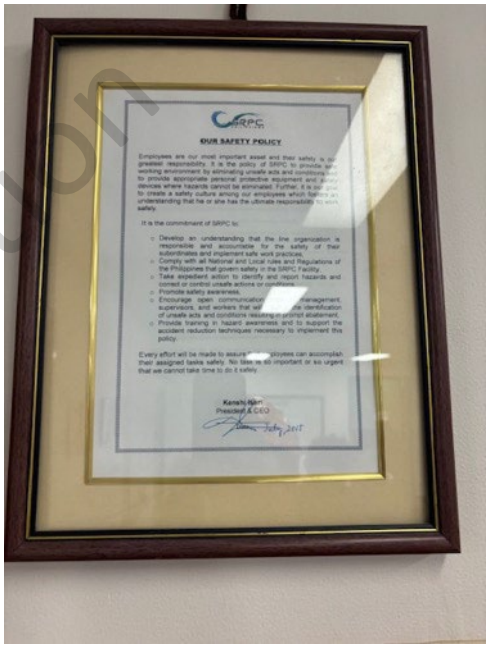

Photo 39: Safety Policy displayed

Photo 40: Evacuation plan in powerhouse

Photo 41: Safety information in powerhouse

Photo 42: Safety record sign at powerhouse

Photo 43: Emergency kits in powerhouse

Photo 44: Oil spill kit in powerhouse

Photo 45: Used oil storage

Photo 46: Agno River at powerhouse tailrace, view downstream

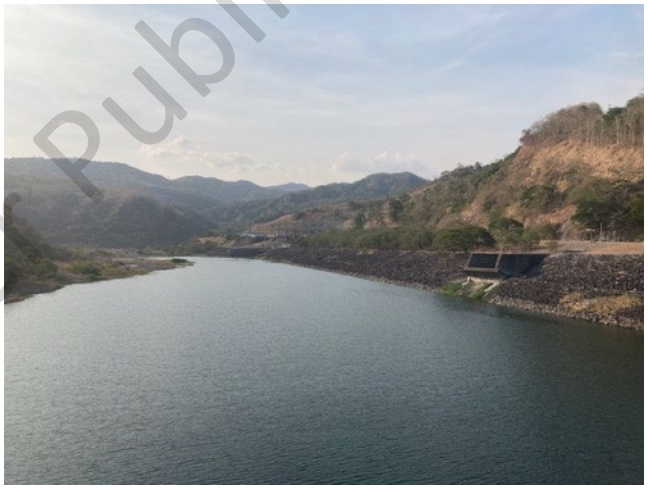

Photo 47: Agno River between powerhouse and re-regulating pond, with low-level outlet on left bank

Photo 48: Low-level outlet, not used for a considerable time

Photo 49: Tank with containment

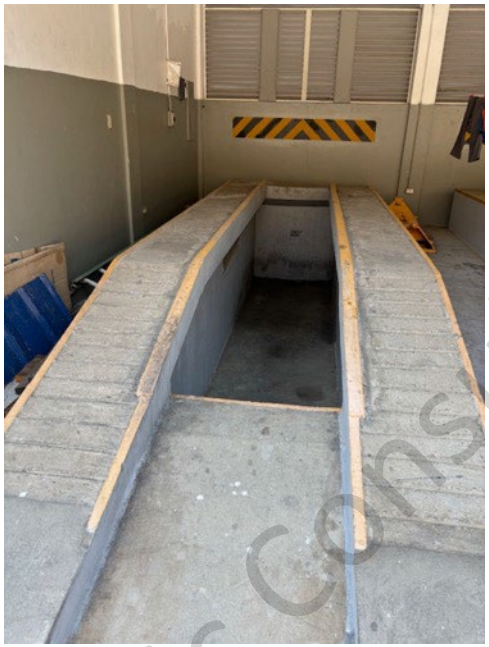

Photo 50: Motor pool repair bay

Photo 51: Warning sign below tailrace

Photo 52: Waste separation near switchyard

Photo 53: Pumps providing domestic water for SRPC camp and offices

Photo 54: Water filtration for operator's village

Photo 55: Monument being built at surge shaft, for workers who died during construction

Photo 56: Safety signage at tunnel

Photo 57: SRPC fire engine in emergency services and medical building

Photo 58: Unrehabilitated land between SRPC corporate office and NIA pond, owned by PSALM

Photo 59: Swimming pool in operator's village (former EPC contractor camp)

Photo 60: SRPC staff celebration of 21 years of successful operations

Photo 61: Head office for police detachment that protects the SRMP, a strategic national asset

Photo 62: Intake gates for left bank irrigation canal (closed)

Photo 63: Left bank main irrigation canal

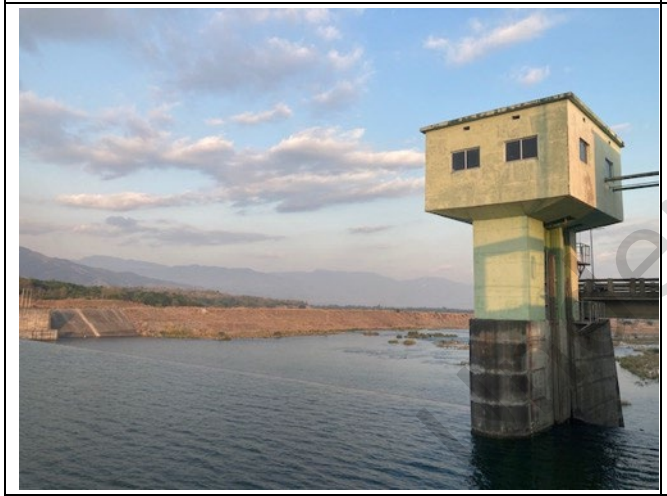

Photo 64: Right bank sluice gate tower at outlet of re-regulating pond

Photo 65: Rice harvest

Photo 66: Harvested rice in bags

Photo 67: Rice drying on road in San Roque

Photo 68: National Irrigation Administration provincial office for Pangasinan

Photo 69: Downstream rice fields after harvest

Photo 70: Entrance to Camanggaan resettlement village

Photo 71: Street in Camanggaan

Photo 72: Sports facility in Camanggaan

		
Photo 73: Livelihoods project chicken raising	Photo 74: Livelihoods project pig raising	Photo 75: Hatchery for aquaculture fish; livelihoods initiative supported by SRPC foundation
		
Photo 76: Main office of Baro a Namnama Multipurpose Cooperative	Photo 77: Rescue vehicle for Camanggaan, example for small ER 1-94 project	Photo 78: Child development centre

Photo 79: Lapgan resettlement village 1

Photo 80: Lapgan resettlement village 2

Photo 81: Meeting with community leader in Lagpan

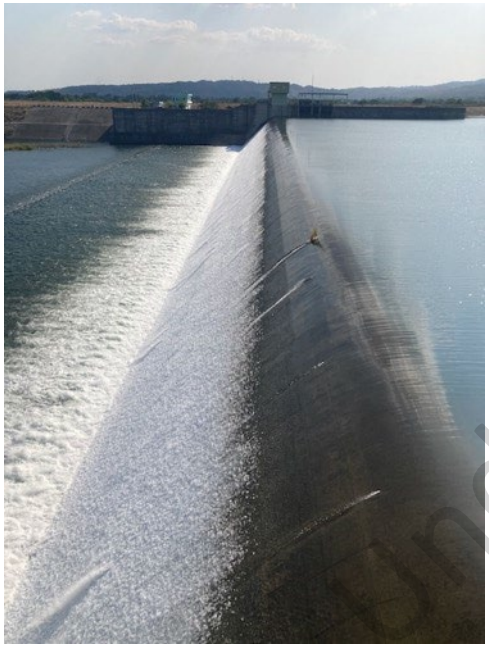

Photo 82: Weir of re-regulating pond spilling between irrigation seasons

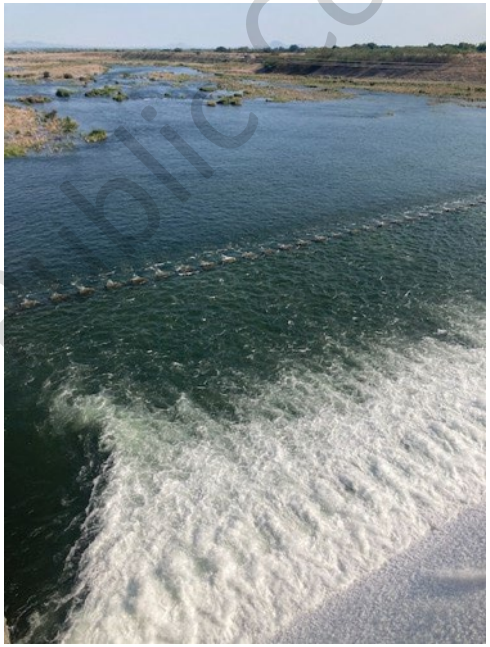

Photo 83: Agno River reach downstream of re-regulating pond

Photo 84: People bathing in river downstream of re-regulating pond

Photo 85: San Roque barangay office

Photo 86: NGCP San Manuel sub-station, south of San Roque

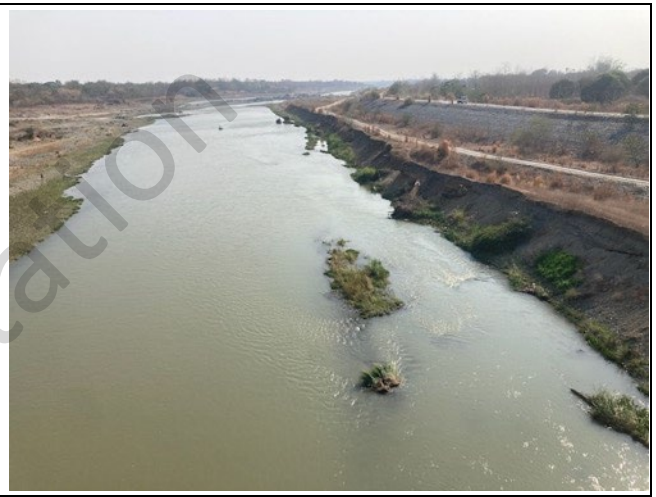

Photo 87: Agno River downstream in floodplain, with embankments

Photo 88: Chemical storage with containment

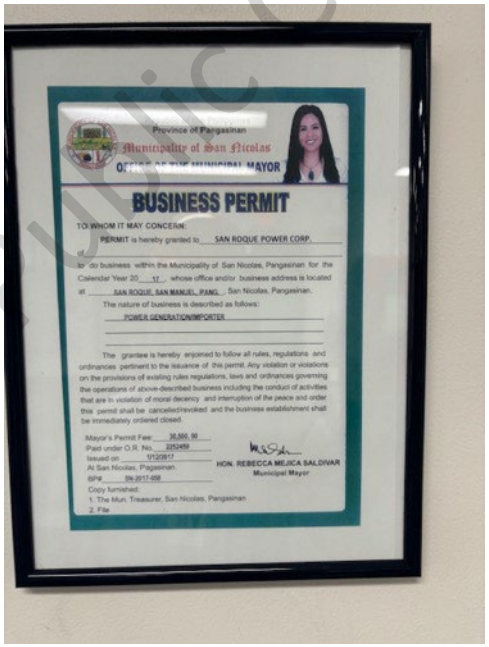
Province of Pangasinan
Municipality of San Nicolas
MAYOR
BUSINESS PERMIT
TO WHOM IT MAY CONCERN:
PERMIT is hereby granted to SAN ROQUE POWER CORP.
to do business within the Municipality of San Nicolas, Pangasinan for the Calendar Year 20 17 whose office and/or business address is located at SAN ROQUE, SAN MANUEL, PANG., San Nicolas, Pangasinan.
The nature of business is described as follows:
POWER GENERATION/IMPORTER
The grantee is hereby enjoined to follow all rules, regulations and ordinances pertinent to the issuance of this permit. Any violation or violations on the provisions of existing rules regulations, laws and ordinances governing the operations of above-described business including the conduct of activities that are in violation of moral decency and interruption of the peace and order this permit shall be canceled/revoked and the business establishment shall be immediately ordered closed.
Mayor's Permit Fee: 30,000.00
Paid under O.R. No. 2252459
Issued on 1/12/2017
At San Nicolas, Pangasinan.
BPN: 09-2017-059
HON. REBECCA MEJICA SALDIVAR
Municipal Mayor
Copy furnished:
1. The Mun. Treasurer, San Nicolas, Pangasinan
2. File

Photo 89: Business permit from municipality

Photo 90: Access to dam galleries

Photo 91: Dam toe downstream protection

Photo 92: Safety measures for powerhouse walkway

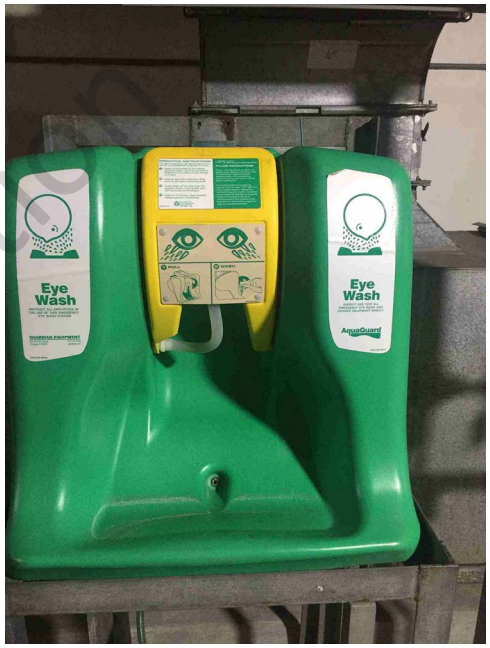

Photo 93: Eye wash installation in powerhouse

Photo 94: Barren land on right bank of regulating pond

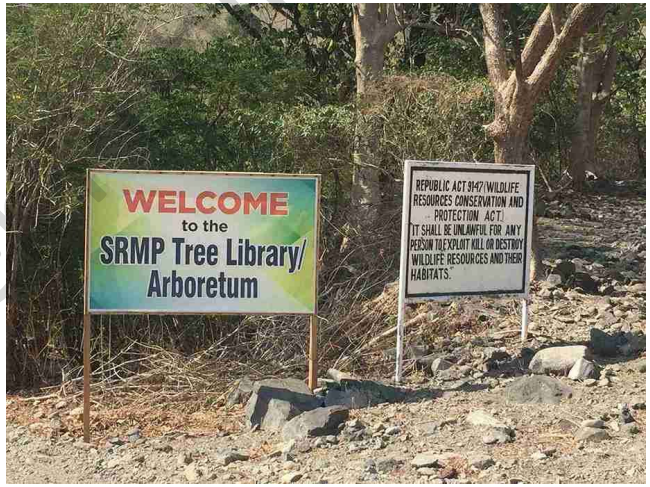

Photo 95: Tree library and wildlife protection signage

Photo 96: Photogrammetry used for spillway chute inspection