



नेपाल सरकार

वन तथा वातावरण मन्त्रालय

बागमती प्रदेश अन्तर्गत रसुवा जिल्लाको आमाछोदिङमो गाउँपालिका, वडा नं. ५ मा साञ्जेन खोला जलविद्युत आयोजना (७८ मे.वा.) निर्माणका लागि प्रस्तावित पुरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा राय सुझावको लागि आह्वान गरिएको सार्वजनिक सूचना
प्रथम पटक प्रकाशित मिति २०८०/०५/०४

श्री सालासुङ्गी पावर प्रा.लि. प्रस्तावक रही बागमती प्रदेश अन्तर्गत रसुवा जिल्लाको आमाछोदिङमो गाउँपालिका, वडा नं. ५ मा निर्माण हुन लागेको प्रस्तावित साञ्जेन खोला जलविद्युत आयोजना (७८ मे.वा.) निर्माणका लागि प्रस्तावित पुरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन प्रस्तावकले तयार गरी यस मन्त्रालयमा पेश भएको छ। सालासुङ्गी पावर प्रा.लि. द्वारा नेपालको बागमती प्रदेशको रसुवा जिल्लाको आमाछोदिङमो गाउँपालिका, वडा नं. ५ मा भौगोलिक अक्षांश २८°१४'२६" र २८°१७'११" देखि देशान्तर ८५°१८'२१" र ८५°१५.'००" भित्र ७८ मे.वा. क्षमताको साञ्जेन खोला जलविद्युत आयोजना पहिचान गरी विद्युत् विकास विभागबाट विद्युत् उत्पादन अनुमतिपत्र (वि. वि. वि. ०७२/०७३ वि. उ. १६०) मिति २०७३/०३/०९ गते प्राप्त गरेको र मिति २१०८/०३/०८ सम्म बहाल रहने छ। यस आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन नेपाल सरकार, वन तथा वातावरण मन्त्रालयको मिति २०७१/०४/२८ को निर्णय अनुसार स्वीकृत भएको।

यस आयोजनाले वातावरणीय प्रभाव मूल्याङ्कन गरी आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केही संरचनाहरू हेरफेर गर्नुपर्ने भएकोले यस पुरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गरिएको छ। स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा देखाइएको भन्दा बाँधको लम्बाई (१३ मि. बाट १६.५ मि.), उचाई (२.३१ मि. बाट २५ मि.), हेडरेस टनेलको लम्बाई (२५२ मि. बढेको), टर्वाइन को संख्या ५ बाट ३ वटा भएको तथा मुख्य रुपमा सर्ज ट्यांक नभएको र १२.२५ कि.मि. लम्बाई र १० मि. चौडाई रहेको पहुँच मार्ग बाट ९.८४६ कि.मि. लम्बाई र चौडाई ७ मि. चौडाईमा डिजाइन गरी निर्माण गरिएको छ। त्यसैले यस आयोजनामा नेपाल सरकारबाट प्राप्त भोगाधिकारको जमिन १५.७० हे. स्थायी तथा १२.१५ हे. अस्थायी (कूल २७.८५ हे.) रहेकोमा हाल १४.०२ हे. स्थायी तथा १०.२३ हे. अस्थायी गरि कूल २४.२५ हे. रहेको छ। उक्त सम्पूर्ण जग्गा राष्ट्रिय वनमा पर्दछ। वातावरण संरक्षण नियमावली, २०७७ को नियम ११ को उपनियम (३) बमोजिम यस प्रतिवेदनमा राय सुझाव दिनका लागि सर्वसाधारणले प्रतिवेदन पढन वा उतार गरी लैजान पाउने व्यवस्था श्री सालासुङ्गी पावर प्रा.लि. प्रस्तावक रहेको साञ्जेन खोला जलविद्युत आयोजना (७८ मे.वा.) निर्माण गर्ने प्रस्तावको पुरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन देहाय बमोजिमका स्थानहरूमा सार्वजनिक गरिएको र वन तथा वातावरण मन्त्रालयको Web Site : www.mofe.gov.np मा समेत सार्वजनिक गरिएको छ। प्रतिवेदनमा उपयुक्त राय सुझाव प्राप्त भएमा यस मन्त्रालयले उक्त प्रस्ताव कार्यान्वयनका लागि स्वीकृती दिने क्रममा त्यस्ता राय सुझावहरूलाई समेत ध्यानमा राखिनेछ। उक्त प्रतिवेदन सम्वन्धमा सर्वसाधारण ब्यक्ति वा संस्थाको कुनै राय सुझाव भए यो सूचना प्रथम पटक प्रकाशन भएको मितिले सात (७) दिन भित्र आफ्नो राय सुझाव निम्न ठेगानामा पठाई दिनु हुन यसै सूचनाद्वारा आह्वान गरिन्छ।

प्रतिवेदन हेर्न वा उतार गर्न सकिने स्थानहरू :-

- श्री वन अनुसन्धान तथा प्रशिक्षण केन्द्रको पुस्तकालय, बबरमहल, काठमाण्डौं।
- श्री त्रिभुवन विश्वविद्यालयको केन्द्रीय पुस्तकालय, किर्तिपुर काठमाण्डौं।
- श्री नेपाल राष्ट्रिय पुस्तकालय हरिहर भवन काठमाण्डौं।
- श्री ऊर्जा जलश्रोत तथा सिंचाइ मन्त्रालयको सिंहदरवार, काठमाण्डौं।
- श्री जिल्ला समन्वय समितिको कार्यालय, रसुवा।
- श्री गाउँ कार्यपालीकाको कार्यालय, आमाछोदिङमो, रसुवा।

राय सुझाव पठाउने ठेगाना

वन तथा वातावरण मन्त्रालय,
वातावरण प्रभाव मूल्याङ्कन शाखा
सिंहदरवार, काठमाण्डौं
फोन नं. ०१-४२११५६७, ४२११६३८
फ्याक्स नं. ०१-४२११८६८

**Supplementary Environmental Impact
Assessment (SEIA) of
Sanjen Khola Hydro-Electric Project (SKHEP)
(78 MW)
Rasuwa District, Bagmati Province, Nepal**



Ministry of Forest and Environment (MoFE)
Singha Durbar, Kathmandu, Nepal

Through

Ministry of Energy, Water Resources and Irrigation (MoEWRI)
Singha Durbar, Kathmandu, Nepal

And

Department of Electricity Development (DoED)
Sanogaucharan, Kathmandu, Nepal

Submitted by:

Salasungi Power Pvt. Ltd.

Chapalkarkhana, Kathmandu, Nepal Tel: +977-1-4015674, E-mail: info.salasungi@gmail.com

June, 2023

कार्यकारी सारांश

१. आयोजनाको पृष्ठभूमि

सालासुङ्गी पावर प्रा.लि. द्वारा नेपालको वाग्मती प्रदेशको रसुवा जिल्लाको आमाछोदिङ्मो गाउँपालिका, वडा नं. ५ मा भौगोलिक अक्षांश २८°१४'२६" र २८°१७'११" देखि देशान्तर ८५°१८'२१" र ८५°१५'००" भित्र ७८ मे.वा. क्षमताको सान्जेंन खोला जलविद्युत आयोजना पहिचान गरी विद्युत् विकास विभागबाट विद्युत् उत्पादन अनुमतिपत्र (वि.वि.वि. ०७२/०७३ वि.उ. १६०) मिति २०७३/०३/०९ गते प्राप्त गरेको थियो, जुन मिति २१०८/०३/०८ सम्म बहाल रहने छ। यस आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन नेपाल सरकार, वन तथा वातावरण मन्त्रालयको मिति २०७१/०४/२८ को निर्णय अनुसार स्वीकृत भएको थियो।

२. आयोजनाको विवरण

यस आयोजनाले वातावरणीय प्रभाव मूल्याङ्कन गरी आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केही संरचनाहरू हेरफेर गर्नुपर्ने भएकोले यस पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गरिएको छ। स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा देखाइएको भन्दा बाँधको लम्बाई (१३ मि. बाट १६.५ मि.), उचाई (२.३१ मि. बाट २.५ मि.), हेडरेस टनेलको लम्बाई (२५२ मि. बढेको), टर्बाइन को संख्या ५ बाट ३ वटा भएको तथा मुख्य रूपमा सर्ज ट्यांक नभएको र १२.२५ कि.मि. लम्बाई र १० मि. चौडाई रहेको पहुँच मार्ग बाट ९.८४६ कि.मि. लम्बाई र चौडाई ७ मि. चौडाईमा डिजाइन गरी निर्माण गरिएको छ। त्यसैले यस आयोजनामा नेपाल सरकारबाट प्राप्त भोगाधिकारको जमिन १५.७० हे. स्थायी तथा १२.१५ हे. अस्थायी (कूल २७.८५ हे.) रहेकोमा हाल १४.०२ हे. स्थायी तथा १०.२३ हे. अस्थायी गरि कूल २४.२५ हे. रहेको छ। सम्पूर्ण जग्गा राष्ट्रिय वनमा पर्दछ। यस आयोजनाको स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा प्रस्तावित सबै disposal sites हरूको समेत स्थान नतोकिएको मा हाल यस प्रतिवेदनमा सम्पूर्ण स्थानहरू प्रस्तुत गरिएको छ। यस कारणले यस पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण नियमावली २०७७ को नियम ११ को उपनियम ६ बमोजिम तयार पारिएको छ।

३. कानूनी औचित्यता

यस आयोजनाको निर्माण कार्य ५५ % सम्पन्न भएको तथा थप जमिन पनि नचाहिने, केही माथि उल्लेखित संरचनाको डिजाइन परिवर्तन गर्नु परेको हुनाले यस आयोजनाको पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन सम्बन्धी प्रतिवेदन तयार पारिएको छ। यस कार्यले गर्दा आयोजनाको स्वीकृत वातावरणीय प्रभाव मूल्याङ्कनमा रहेको वातावरण व्यवस्थापन योजना तथा सामुदायिक विकास कार्यक्रममा केही रकम बढी छुटाइएको छ।

४. पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन विधि

यस सान्जेंन खोला जलविद्युत आयोजनाको पूरक वातावरणीय प्रभाव मूल्याङ्कनको क्रममा आयोजना स्थलबाट संकलन गरिएको पानीको नमुनाको प्रयोगशालामा परीक्षण, वायुको गुणस्तर Air Visual Pro द्वारा परीक्षण, आमाछोदिङ्मो गाउँपालिका वडा नं ५ तातोपानीका प्रत्यक्ष प्रभावित घरधुरीहरूको विवरणलाई २०७८ सालको जनगणना अनुसार विवरण संकलन, स्थलगत अध्ययन तथा नक्साहरूको माध्यमद्वारा द्वितीय सहायक सूचना सङ्कलन गरिनुका साथै Detail Design Report 2021 समेत अध्ययन गरिएको थियो ।

यस आयोजनाको सार्वजनिक सुनुवाई कार्यक्रम सम्बन्धी सूचना मिति २०७९/१०/०६ को आर्थिक अभियान राष्ट्रिय दैनिक पत्रिकामा प्रकाशित गरी मिति २०७९/१०/१३ का दिन तातोपानी क्याम्प, आमाछोदिङ्मो गाउँपालिका वडा नं ५ मा सार्वजनिक सुनुवाईको कार्यक्रम आयोजना गरिएको थियो । सार्वजनिक सुनुवाईका क्रममा उठाइएका स्थान तथा आयोजना लक्षित सवालहरू र वातावरणीय सवालहरूको न्यूनीकरणका निमित्त उपायहरूको अवलम्बन गरिएको कुरालाई यसै प्रतिवेदनका विभिन्न परिच्छेदहरूमा प्रस्तुत गरिएको छ । यस आयोजनाको पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गर्दा मुख्य रूपमा जलविद्युत विकास सम्बन्धी सान्दर्भिक नीति तथा योजना, नियम, ऐन, कानून तथा निर्देशिकाहरू, सन्धी-सम्झौताहरू जस्तै: नेपालको संविधान, वातावरण संरक्षण ऐन, २०७६, विद्युत् ऐन २०४९, वन ऐन, २०७६, फोहोरमैला व्यवस्थापन ऐन, २०६८, जलस्रोत ऐन, २०४९, सूचनाको हक सम्बन्धी ऐन २०६४, वातावरण संरक्षण नियमावली, २०७७, वन नियमावली, २०७९, विद्युत् नियमावली २०५०, फोहोरमैला व्यवस्थापन नियमावली, २०७०, जलस्रोत नियमावली, २०५०, वायुको गुणस्तर सम्बन्धी राष्ट्रिय मापदण्ड, २०६९, राष्ट्रिय खानेपानी गुणस्तर मापदण्ड, २०७९ आदिलाई समेत विस्तृत रूपमा समीक्षा गरी अध्ययन प्रतिवेदन तयार पारिएको छ ।

५. विद्यमान वातावरणीय अवस्था

भौतिक वातावरण

यस आयोजनाको स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन सम्बन्धी प्रतिवेदनमा उल्लेखित जलाधार क्षेत्र, पछिल्लो चरणको अध्ययनमा १३६.७ वर्ग मिटर बाट १७९ वर्ग मिटर हुन गएको छ भने compensation flow ०.१९६ क्यू.मि./से. बाट ०.२६३ क्यू.मि./से. रहने छ भने भौतिक वातावरण सम्बन्धित विवरण स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन अनुसार नै रहेको छ ।

जैविक वातावरण

यस आयोजनामा थप जमिन लिन नपर्ने तथा परिवर्तन हुने संरचनाहरूले जैविक वातावरणमा स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित प्रभावहरू बाहेकका थप प्रभावहरू नपर्ने देखिएको हुनाले थप जैविक वातावरण सम्बन्धी अध्ययन कार्य गरिएन ।

सामाजिक-आर्थिक तथा सांस्कृतिक वातावरण

यस आयोजनाको प्रतिवेदन तयारी सम्बन्धी अध्ययनमा आमाछोदिङ्मो गाउँपालिका वडा नं ५ तातोपानीका प्रत्यक्ष प्रभावित घरधुरीहरूको विवरणलाई २०७८ सालको जनगणना अनुसार विवरण प्रस्तुत गरिएको छ। यस आयोजना क्षेत्र आमाछोदिङ्मो गाउँपालिकाको वडा न. ५ मा ४६३ घरधुरी र १७६७ जनसंख्या रहेको छ जसमा ९३१ पुरुष तथा ८३६ महिला रहेका छन्। यस गाउँपालिकाको वडा नं ५ मा ४६३ घरहरू छन्। आमाछोदिङ्मो गाउँपालिका वडा नं ५ मा घरधुरी अनुपात ३.८२ र लिङ्ग अनुपात १११.३६ रहेको छ। यस वडा न. ५ मा साक्षरता दर ६७.६६% (पुरुष ७४.७% र महिला ५९.८७% साक्षर) रहेका छन्। यहाँ उत्पादन हुने अन्नवालीहरू तथा सागसब्जीहरूमा मकै, जौ, कोदो, स्थानीय गहुँ, सिमी, काउली, बन्दागोभी र गाजरहरूको खेती गर्दछन्। पशुपंशी पालनको रूपमा गाई, गोरु, बाख्रा, भेडा, चौरा र कुखुराहरूको पालन गर्दछन्। सडक यातायातको कुरा गर्दा तातोपानी स्याफ्रुबेसी सम्म कच्ची सडकले जोडिएको छ।

६. आयोजनाको थप प्रभावहरू

सकारात्मक प्रभावहरू

- आयोजनाको कूल लागत थप भएको हुनाले सामुदायिक विकास कार्यक्रमा रकम थप गरिएको छ।

नकारात्मक प्रभावहरू

भौतिक वातावरण

निर्माण चरण

- भू-उपयोगमा परिवर्तन: यस आयोजनामा नेपाल सरकारबाट प्राप्त भोगाधिकारको जमिन १५.७० हे. स्थायी तथा १२.१५ हे. अस्थायी (कूल २७.८५ हे.) रहेकोमा हाल १४.०२ हे. स्थायी तथा १०.२३ हे. अस्थायी गरि कूल २४.२५ हे. रहेको छ। सम्पूर्ण जग्गा राष्ट्रिय वनमा पर्दछ।

विवरण	वन क्षेत्र (हे.)	बाँजो जमिन (हे.)	घासे मैदान(हे.)	जम्मा (हे.)
स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन	१५.१६	१२.५९	०.१०	२७.८५
पूरक वातावरणीय प्रभाव मूल्याङ्कन	१५.१६	९.१०	०	२४.२५

अन्य प्रभावहरू स्वीकृत वातावरणीय प्रभाव मूल्याङ्कनमा प्रस्तुत गरिए अनुसार रहेको हुनाले सो को विवरण फेरी प्रस्तुत नगरिएको।

७. वातावरणीय व्यवस्थापन योजना

यस पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा वातावरणीय व्यवस्थापन योजनामा वातावरण सम्बन्धी मुद्दाहरू, सम्भावित प्रभावहरू, प्रभावहरूको न्यूनीकरण उपायहरूको विधि, अनुगमन विधि र कार्य तालिका, कार्यान्वयनका जिम्मेवार निकायहरू पहिचान गरी प्रस्ताव गरिएको छ। भौतिक, जैविक, सामाजिक, आर्थिक र सांस्कृतिक वातावरण सम्बन्धी विभिन्न अनुगमनका सूचकहरू विकास गरिएका छन्। वातावरणीय र सामाजिक उपायहरूलाई समयबद्ध तरिकामा कार्यान्वयन गरिएको सुनिश्चित गर्न पर्यवेक्षण, अनुगमन र लेखापरीक्षणको लागि प्रोटोकल र इनबिल्ट रेकर्डिङ र रिपोर्टिंग प्रणालीको विकास गरिएको छ। यस आयोजनाको कूल लागत ने.रु. १३,१९०,८६०,००० रहेको छ । यस आयोजनाको सामाजिक उत्तरदायित्वका लागि कूल लागत ने.रु. ८,५१,५२,६४५ रहेको छ । यस आयोजनाको स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित वातावरण प्रभाव न्यूनीकरण र व्यवस्थापन खर्चको लागि ने.रु. ४,९५,००० मा थप गर्नु पर्ने रहेको छ ।

८. वातावरणीय अनुगमन

वातावरणीय प्रभाव न्यूनीकरणका उपायहरूको प्रभावकारितालाई सुनिश्चित गर्नका निमित्त अनुगमनका आवश्यकताहरूलाई सिफारिस गर्नु वातावरणीय व्यवस्थापन कार्ययोजनाको प्रमुख उद्देश्य हो। अनुगमन योजनालाई प्रभावकारी बनाउनको लागि यस प्रतिवेदनमा अनुगमनका पक्षहरूको संकेत पहिचान, अनुगमनका विधिहरू, अनुगमनको संख्या, जनशक्ति, स्थान र अनुगमनका जिम्मेवार संस्थाहरूको विवरण तालिका सहित प्रतिवेदनमा प्रस्तुत गरिएको छ। साथै वातावरणीय अनुगमनको लागि अनुमानित लागत सहित प्रतिवेदनमा समावेश गरिएको छ। अनुगमन योजनालाई प्रभावकारी बनाउन प्रभाव अनुगमनमा मुख्य प्रारम्भिक अवस्थाको सूचकको अनुगमन गरी आयोजनाको विभिन्न चरणहरूमा तुलनात्मक मूल्याङ्कन गरी प्रतिवेदन सम्बन्धित निकायमा प्रस्तुत गरिने छ।

९. निष्कर्ष तथा प्रतिबद्धता

यस पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनको अभिन्न अंगको रूपमा रहने छ। यस आयोजनाले वातावरणीय प्रभाव मूल्याङ्कन गरी आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केही संरचनाहरू हेरफेर गर्नुपर्ने भएकोले यस पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गरिएको छ। स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा देखाइएको भन्दा बाँधको लम्बाई (१३ मि. बाट १६.५ मि.), उचाई (२.३१ मि. बाट २५ मि.), हेडरेस टनेलको लम्बाई (२५२ मि. बढेको), टर्वाइन को संख्या ५ बाट ३ वटा भएको तथा मुख्य रूपमा सर्ज ट्यांक नभएको र १२.२५ कि.मि. लम्बाई र १० मि. चौडाई रहेको पहुँच मार्ग बाट ९.८४६ कि.मि. लम्बाई र चौडाई ७ मि. चौडाईमा डिजाइन गरी निर्माण गरिएको छ। त्यसैले यस आयोजनामा नेपाल सरकारबाट प्राप्त

भोगाधिकारको जमिन १५.७० हे. स्थायी तथा १२.१५ हे. अस्थायी (कूल २७.८५ हे.) रहेकोमा हाल १४.०२ हे. स्थायी तथा १०.२३ हे. अस्थायी गरि कूल २४.२५ हे. रहेको छ। यस आयोजनाको स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा प्रस्तावित सबै disposal sites हरुको समेत स्थान नतोकिएको मा हाल यस प्रतिवेदनमा सम्पूर्ण स्थानहरू प्रस्तुत गरिएको छ जसका कारणले यस पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण नियमावली २०७७ को नियम ११ को उपनियम ६ बमोजिम तयार पारिएको छ। अन्य सम्पूर्ण विवरण स्वीकृत वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन अनुसार नै रहने प्रतिबद्धता प्रस्तावकले गर्दछ।

Abbreviations

DFO	Division Forest Office
DHM	Department of Hydrology and Meteorology
DIA	Direct Impact Area
DIZ	Direct Impact Zone
DoED	Department of Electricity Development
DoEnv	Department of Environment
DPR	Detail Project Report
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
EMS	Environment Management System
EPA	Environment Protection Act
EPR	Environment Protection Rule
ESMP	Environmental and Social Management Plan
ESO	Environmental and Social Officer
ESS	Environmental and Social Section
ESSD	Environmental and Social Safeguard Division
EU	Environmental Unit
GO	Grievance officer
GoN	Government of Nepal
GRMPIC	Grievance Redress Management and Public Information Centre
GWh	Giga Watt Hour
Ha	Hectare
HFT	Himalayan Frontal Thrust
HH	Household
MW	Mega Watt
NAAQS	National Ambient Air Quality Standards
NESS	Nepal Environmental and Scientific Services
PoE	Panel of Experts
PPE	Personal Protective Equipment
RM	Rural Municipality
RRA	Rapid Rural Appraisal
SE	Social Expert
SEIA	Supplementary Environmental Impact Assessment
SU	Social Unit
ToR	Terms of Reference
TSP	Total Suspended Particles
ZOI	Zone of Influence

Table of Contents

कार्यकारी सारांश	I
ABBREVIATIONS.....	VI
LIST OF TABLES	X
LIST OF FIGURES	XI
CHAPTER1. ORGANIZATION RESPONSIBLE FOR PREPARATION OF SEIA	1
1.1 PROPONENT.....	1
1.2 INSTITUTION RESPONSIBLE FOR PREPARING THE DOCUMENT	1
1.3 THE RATIONALE OF SUPPLEMENTARY EIA	1
1.4 OBJECTIVES OF THE SEIA STUDY.....	1
1.5 SCOPE OF THE STUDY.....	1
1.6 STUDY TEAM.....	2
1.7 STATUTORY REQUIREMENT OF REPORT PREPARATION IN THE ENGLISH LANGUAGE	2
CHAPTER2. GENERAL INTRODUCTION OF THE PROJECT.....	3
2.1 PROJECT DESCRIPTION.....	3
2.2 PROJECT LOCATION AND ACCESSIBILITY	3
2.3 COMPARATIVE SALIENT FEATURES OF SKHEP.....	4
2.4 PROJECT COMPONENTS	10
2.4.1 Headworks	10
2.4.2 Diversion Weir.....	11
2.4.3 Under Sluice	11
2.4.4 Intake Structure.....	11
2.4.5 Gravel Trap and Gravel Flushing	11
2.4.6 Approach Canal	11
2.4.7 Settling Basin.....	11
2.4.8 Surge Tank.....	11
2.4.9 Penstock Shaft.....	12
2.4.10 Headrace Tunnel	12
2.4.11 Tailrace.....	12
2.4.12 Powerhouse.....	12
2.4.13 Access Roads	18
2.4.14 Surface Ropeways.....	18
2.4.15 Adit/Access Tunnel.....	18
2.4.16 Power and Energy	18
2.5 PROJECT REQUIREMENTS	18
2.5.1 Construction Materials and Equipment.....	18
2.5.2 Manpower Requirement	19
2.5.3 Land Requirement.....	19
2.5.4 Spoil management.....	23
CHAPTER3. DATA REQUIREMENT AND STUDY METHODOLOGY	25

3.1 DESK STUDY AND LITERATURE REVIEW	25
3.2 FIELD STUDY	25
3.3 DATA REQUIREMENT, COLLECTION METHODS AND ANALYSIS	25
3.3.1 Physical Environment.....	25
3.3.2 Biological Environment.....	26
3.3.3 Socio-economic and Cultural Environment.....	26
3.4 IMPACT IDENTIFICATION AND PREDICTION.....	26
3.5 IMPACT ANALYSIS	26
3.6 PUBLIC INVOLVEMENT	27
CHAPTER4. REVIEW OF ACTS, POLICIES, LAWS AND GUIDELINES	29
4.1 CONSTITUTION OF NEPAL	29
4.2 PLANS ATTRACTED BY THE PROJECT	29
4.3 POLICIES ATTRACTED BY THE PROJECT	29
4.4 ACTS ATTRACTED BY THE PROJECT.....	30
4.5 RULES AND REGULATIONS ATTRACTED BY THE PROJECT.....	31
4.6 GUIDELINES AND MANUALS.....	31
4.7 DIRECTIVES ATTRACTED BY THE PROJECT.....	32
4.8 INTERNATIONAL CONVENTIONS ATTRACTED BY THE PROJECT	32
4.9 STANDARDS TO BE MAINTAINED BY THE PROJECT	33
CHAPTER5. DESCRIPTION OF THE EXISTING ENVIRONMENT	34
5.1 PHYSICAL ENVIRONMENT	34
5.1.1 Topography and Geomorphology	34
5.1.2 Water quality	34
5.2 BIOLOGICAL ENVIRONMENT	34
5.3 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT.....	35
5.3.1 Project Affected Rural Municipality.....	35
CHAPTER6. ALTERNATIVE ANALYSIS	37
CHAPTER7. PREDICTION AND ASSESSMENT OF ENVIRONMENTAL IMPACT	38
7.1 BENEFICIAL IMPACTS.....	38
7.2 ADVERSE IMPACTS	38
7.2.1 Physical Environment	38
7.2.2 Summary of Adverse Impact Prediction on the Physical Environment.....	39
7.2.3 Chemical Environment.....	39
7.2.4 Biological Environment	39
7.2.5 Socio-economic Environment	39
CHAPTER8. ENVIRONMENTAL MITIGATION MEASURES	40
8.1.1 Physical Environment	40
8.1.2 Chemical Environment.....	40
8.1.3 Biological Environment	40
8.1.4 Socio-Economic and Cultural Environment.....	41

8.1.5 Environmental Enhancement Programs	42
CHAPTER9. ENVIRONMENTAL MANAGEMENT PLAN	44
9.1 ENVIRONMENTAL MITIGATION MANAGEMENT PLAN	44
9.2 ENVIRONMENTAL MONITORING MANAGEMENT PLAN.....	46
9.3 EMP IMPLEMENTATION	48
CHAPTER10. CONCLUSION AND RECOMMENDATION	49
REFERENCES	51
LIST OF ANNEXES.....	52

List of Tables

Table 1: Study Team.....	2
Table 2: Comparative Salient Features of SKHEP.....	4
Table 3: Requirements of Aggregate, Sand, Cement, and Backfilling Materials for SKHEP.....	19
Table 4: Human Resource.....	19
Table 5: Requirements of Aggregate, Sand, Cement, and Backfilling Materials for SKHEP.....	19
Table 6: Land Use and Land Requirements.....	20
Table 7: Spoil Management Sites and Total Spoil Volumes.....	23
Table 8: Numerical scale for impact analysis.....	26
Table 9: Cumulative score and description of impacts.....	27
Table 10: Public Hearing.....	27
Table 11: Air Quality Data of Different Project Locations.....	34
Table 12: Noise Quality Data of Different Project Locations.....	34
Table 13: Expected Land Use Changes in SKHEP.....	38
Table 14: Adverse Impact on Physical Environment.....	39
Table 15: Physical Environmental Issues/Impacts/Mitigation Matrix.....	40
Table 16: Biological Environmental Issues/Impacts/Mitigation Matrix.....	40
Table 17: Socio-economic and Cultural Environmental Issues/Impacts/Mitigation Matrix.....	41
Table 18: Development Aspiration of the Local Communities of the Project Area.....	42
Table 19: Community Support Program as done till the Date.....	42
Table 20: Mitigation Management Plan.....	45
Table 21: Baseline Monitoring Plan.....	47
Table 22: Impact Monitoring, Pre-construction, Construction, Post construction and Operation Phase.....	47
Table 23: Cost Estimates of Environmental Mitigation, Monitoring and Environmental Enhancement.....	49

List of Figures

Figure 1: Location Map of Sanjen Khola Hydro Electric Project	3
Figure 2: Accessibility of the Project Site from Kathmandu	4
Figure 3: General Project Layout (Source: Detail Design Report 2021)	13
Figure 4: General Project Layout (Source: Detail Design Report 2021)	14
Figure 5: General Project Layout (Source: Detail Design Report 2021)	15
Figure 6: Plan of the Headworks Area (Source: Detail Design Report 2021)	16
Figure 7: Cross-Sectional View of HRT (Source: Detail Design Report 2021)	17
Figure 8: Powerhouse Plan (Source: Detail Design Report 2021)	21
Figure 9: Powerhouse Cross-Section (Source: Detail Design Report 2021)	22
Figure 10: SKHEP Access Road Overview(Source: Detail Design Report 2021 and ARC GIS 10.1)	24
Figure 11: Air monitoring and Water sampling in project area	25

CHAPTER 1. ORGANIZATION RESPONSIBLE FOR THE SEIA OF

1.1 Proponent

The proponent of the Sanjen Khola Hydroelectric Project is Salasungi Power Pvt. Ltd., whose address is given below:

Salasungi Power Pvt. Ltd.

Chapalkarkhana, Kathmandu-1, Naxal

Tel: +977-1-4015674/+977-9841428732

E-mail: info.salasungi@gmail.com

1.2 Institution Responsible for Preparing the Document

The Nepal Rural and Advancement Committee (NRAC) Private Limited, a consulting firm registered with the GoN, has been entrusted to undertake the SEIA study of the Sanjen Khola Hydroelectric Project (SKHEP) for and on behalf of the Salasungi Power Pvt. Ltd. as per the provision of EPR 2077.

The address of the NRAC is:

Nepal Rural Advancement Committee (NRAC) Pvt. Ltd.

Bijulibazar, Kathmandu, Nepal

E-mail: envnrac@gmail.com

Contact: 9771-9851149216

1.3 The rationale of Supplementary EIA

The SEIA for this project has been done due to changes in design; however, there is no additional felling of trees or additional land required. Supplementary EIA study will help in updating the EMP for only those parts which are identified at this stage and due to the change in the design. This SEIA study has been done due to the removal of the Surge Shaft, which was present in the approved EIA.

1.4 Objectives of the SEIA Study

The main objective of the SEIA study is to ensure sustainable development by avoiding or minimizing the impacts of the proposed development and operation on the physical, biological and socio-economic and cultural environments. The followings are major objectives:

- Identify, predict and evaluate adverse and beneficial impacts on physical, biological, socio-economic and cultural aspects of the environment due to changes in design.
- Recommend measures to enhance beneficial impacts and minimize adverse environmental impacts (for the additional issues) identified by employing principles of avoidance, mitigation and compensation only for the impacts due to change in design.
- Inform stakeholders about the environmental implications of the project due to the change in design compared to the original EIA.
- To carry Public hearing and address the issues raised during the Public hearing.

1.5 Scope of the Study

The project's changed structural components are the study. The scope of the SEIA study includes; a review of earlier approved EIA reports, the study of the present Design report in detail, collection of physical, biological and socio-economic information on the project areas concerning the changed design. The SEIA includes the presentation

of additional impacts and mitigation due to changes in the design. However, the SEIA doesn't include the transmission line for this project.

1.6 Study Team

A multidisciplinary team of experts was involved in the supplementary SEIA study. The study team comprised of following key professionals with expertise in their respective fields:

Table 1: Study Team

Name	Qualification	Experience and Number of Environmental Study reports
Mr. Bishal Sharma	M.Sc. in Environmental Science	6 years/ 10 IEE/EIA Reports
Dr. Jyoti Prasad Gajurel	PhD. in Conservation Biology (Botany)	12 years/18 IEE/EIA Reports
Mr. Prakash Ghimire	MA in Sociology	18 years/18 IEE/EIA Reports
Mr. Umesh Dhital	M.Sc. in Water Resource Engineering	8 years/12 IEE/EIA Reports
Mr. Abhinash Aryal	M.Sc. in Environmental Science	4 years/3 IEE/EIA Reports

1.7 Statutory Requirement of Report Preparation in the English Language

As per the survey license terms and conditions, the Environmental Impact Assessment has been prepared and the project has started its construction work also. But the project has changed some of its designs that differ from the previous feasibility study. So, based on the revised conditions, the supplementary feasibility of the project has been accomplished to optimally maximize the hydropower potential of the Sanjen River. This Supplementary Environmental Impact Assessment (SEIA) study report of the SKHEP is a part of the Supplementary Design Study Report which has been prepared based on the provisions of the Environment Protection Act (EPA 2076 BS) and Environment Protection Rule (EPR, 2077 BS) of the Government of Nepal (GoN). As per Clause 11 of EPA, the change in the design requires any project to carry SEIA. For it, permission to study SEIA needs to be taken before carrying out the SEIA study.

As per EPR, 2077 Clause 7 Sub Clause (8), the English language. Since the developer of SKHEP is a Chinese promoter company, the report is prepared in the English language following the format of EPR, 2077.

CHAPTER 2. GENERAL INTRODUCTION OF THE PROJECT

2.1 Project Description

The Salasungi Power Pvt. Ltd. has obtained the Generation license within the geographical grid Latitudes from 28° 14' 26" N to 28° 17' 11" N and Longitudes 85° 18' 21" E to 85° 15' 00" E in the Amachhodingmo Rural Municipality, ward 1 of Rasuwa districts of Bagmati Province of Nepal for construction of 78 MW **Sanjen Khola Hydroelectric Project (SKHEP)** from the Department of Electricity Development (DoED) (*Annex 1*). There are no other proposed or current hydropower projects upstream of the SKHEP but there are three projects downstream of the SKHEP up to the confluence of the Sanjen Khola to the Bhotekoshi River. Figure 1 shows the location of the project.

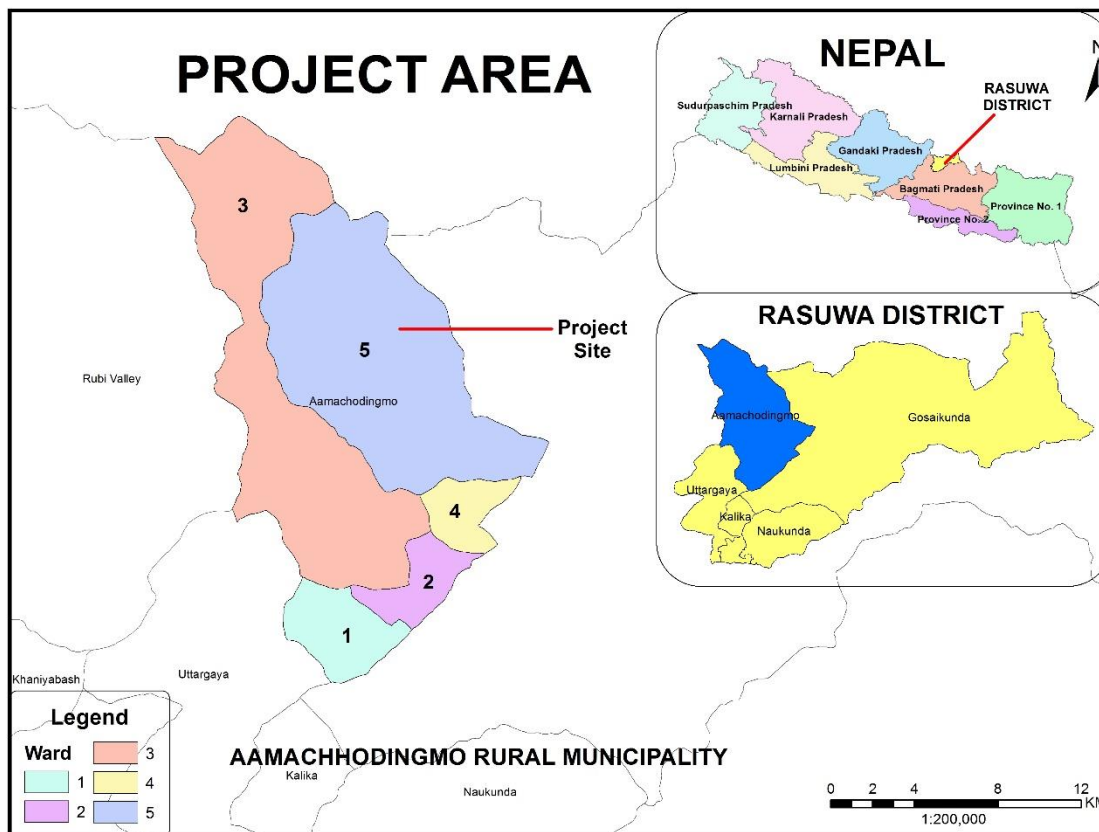


Figure 1: Location Map of Sanjen Khola Hydro Electric Project

(Source: Department of Survey and ARC GIS 10.1)

2.2 Project Location and Accessibility

The project site is about 170 km north–west of Kathmandu, the capital city of Nepal. The project area is accessed from Kathmandu up to Syaphru Besi via Kathmandu –Trishuli Road (78 km blacked topped road) and Trishuli-Somdang Highway, also known as the Pasang Lhamu Highway, up to Syaphru Besi (72 km blacktopped road). At 2 km northeast of Syaphru Besi at Runga, the local community and project have opened a 25 km motorable corridor upgraded by the project to access the project site. The constructed main access road lies entirely within the Aamachhodingmo Rural Municipality.

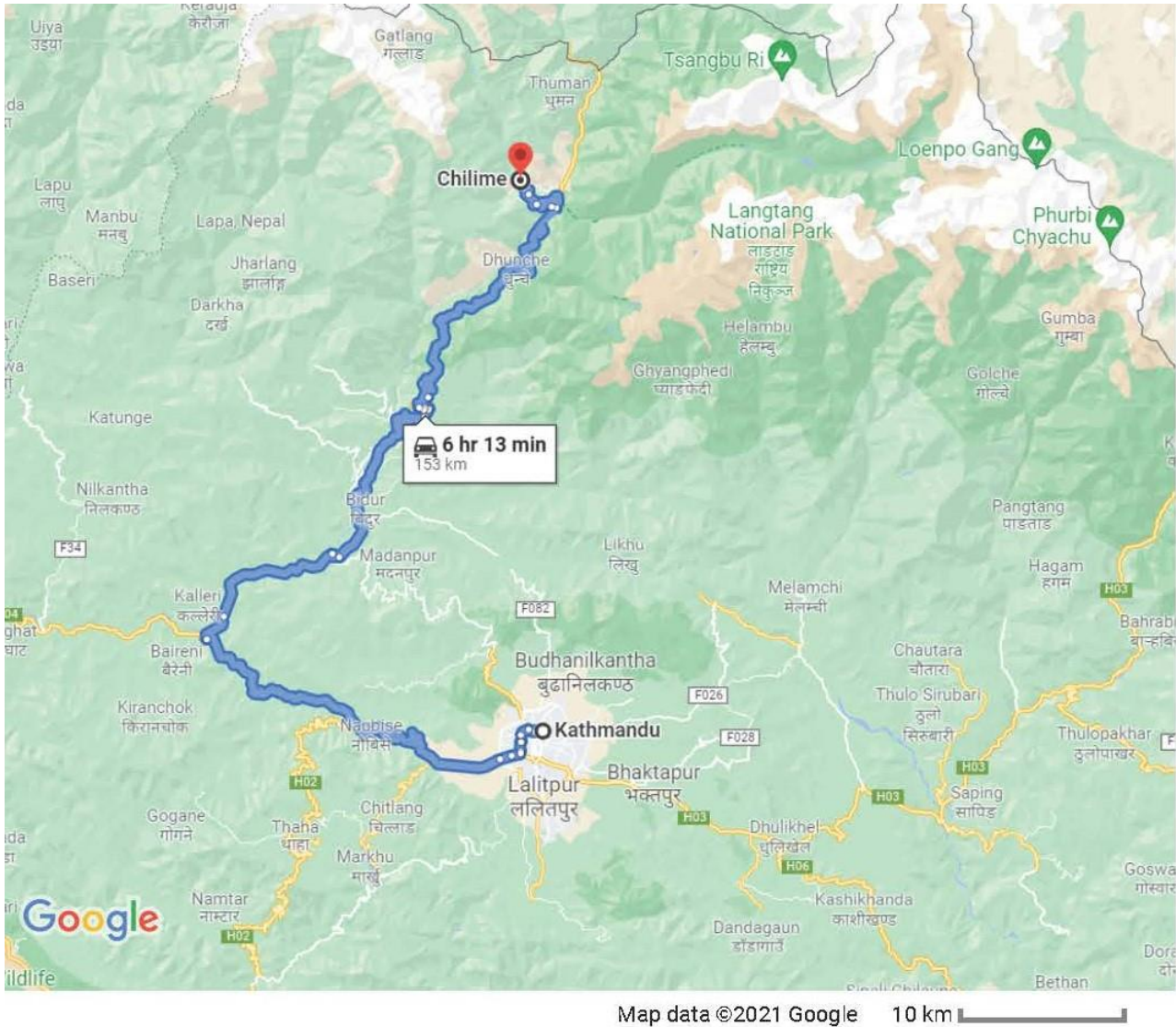


Figure 2: Accessibility of the Project Site from Kathmandu

(Source: Google Maps 2023)

2.3 Comparative Salient Features of SKHEP

The **SKHEP** based on the water resources of the Sanjen Khola has been planned as a Run-of-the River (RoR) diversion scheme with an installed capacity of 78 MW. SKHEP consists of a 16m long weir across Sanjen Khola, approximately 2 Km south of the Nepal – China border. The diverted water from the river will be conduit to the underground powerhouse, through a 4665.45 m long headrace tunnel. A 210 m long underground tailrace tunnel will discharge the water back to Sanjen Khola, around 5 km downstream of the diversion structure. This SEIA study has been done due to the discarding of the Surge Shaft, which was present in EIA but due to changes in design, it has been removed. *Table 2* presents the salient features of the proposed SKHEP.

Table 2: Comparative Salient Features of SKHEP

S.N.	DESCRIPTION	EIA 2015	SEIA 2023	Changes
1.	<i>GENERAL</i>			
	Name of the project	Sanjen Khola Hydropower Project	Sanjen Khola Hydropower Project	No

	Developer	Salasungi Power Limited	Salasungi Power Limited	No
	Name of the River	Sanjen River	Sanjen River	No
	Type of Scheme	Run-of-River (RoR)	Run-of-River (RoR)	No
	Project Location	Chilime VDC, Rasuwa	Ward 5, Aamachhodingmo Rural Municipality, Rasuwa	Yes (Only updated as per Federal Local Units)
	Province/zone	Bagmati Zone	Bagmati Province	Yes (Only updated as per Federal Structure)
	Headwork Area	Upper Ronga	Upper Ronga	No
	Powerhouse Area	Tiloche	Tiloche	No
2.	<i>GEOGRAPHICAL COORDINATES</i>			
	Latitude	28° 21' 64" N to 28° 17' 7" N	28° 21' 64" N to 28° 17' 7" N	No
	Longitude	85° 01' 05" E to 82° 17' 8" E	85° 01' 05" E to 82° 17' 8" E	No
3.	<i>HYDROLOGY</i>			
	Catchment Area at Intake	136.7 sq. km	179.0 sq. km	Changed due Design done by the Chinese Technical Team
	Design Discharge (Q40)	9.3 m ³ /s	9.3m ³ /s	No
	Compensation Flow	0.196 m ³ /s	0.263 m ³ /s	Changed due Design done by the Chinese Technical Team
4.	<i>FLOOD</i>			
	1 in 50 years Design Flood at Weir	134.6 m ³ /s	138 m ³ /s	Changed due Design done by the Chinese Technical Team
	1 in 500 years Design Flood at Weir	179.1 m ³ /s	188 m ³ /s	Changed due Design done by the Chinese Technical Team
5.	<i>WEIR</i>			
	Type	Gravity Free Flow	Overflow Type	Changed due Design done by the Chinese Technical Team
	FSL	3393.0 m amsl	3391.0 m amsl	Changed due Design done by the Chinese Technical Team
	Crest Length	13.0 m	16.5 m	Changed due Design done by the Chinese Technical Team
	Height of Weir	2.31 from the riverbed	25.0 m	Changed due Design done by the Chinese Technical Team
6.	<i>UNDERSLUICE</i>			
	Invert Level of Sill	3388.32 m amsl	3383.50 m amsl	Changed due Design done by the Chinese Technical Team
	No. of Openings	1	1	No

	Discharge through Sluice	59.69 m ³ /s	58.44 m ³ /s	Changed due Design done by the Chinese Technical Team
	Bottom Slope	1:35	1:2	Changed due Design done by the Chinese Technical Team
7.	<i>INTAKE</i>			
	Type	Side Intake	Side Intake	No
	No. of Orifice	2	2	No
	Size	2.5m (W) x 1.9m (H)	3m (W) x 3m (H)	Changed due Design done by the Chinese Technical Team
	Invert level of Sill	3390.70 m amsl	3389.0 m amsl	Changed due Design done by the Chinese Technical Team
	Intake Discharge	11.16 m ³ /s	9.3m ³ /s	Changed due Design done by the Chinese Technical Team
8.	<i>GRAVEL TRAP AND GRAVEL FLUSHING</i>			
	Type	Surface	Surface	No
	Size	8m x (6~4) m x 3.45m	25.0 m x 6.0 m x 9.2 m (LxBxH)	Changed due Design done by the Chinese Technical Team
	Bed Load size to trap	2 mm	5 mm	Changed due Design done by the Chinese Technical Team
	Size of Flushing Channel	1.0 m x 0.5 m	2.5 m x 6.8 m	Changed due Design done by the Chinese Technical Team
	Channel Length	15 m	35.2 m	Changed due Design done by the Chinese Technical Team
	Bottom Slope	1:35	1:25	Changed due Design done by the Chinese Technical Team
9.	<i>APPROACH CANAL</i>			
	Length of Canal	140.6 m	6.3 m	Changed due Design done by the Chinese Technical Team
	Size of Canal	4 m x 2 m	2.2 m x 2.2 m	Changed due Design done by the Chinese Technical Team
10.	<i>SETTLING BASIN</i>			
	Type	Dufour Type (Underground)	Dufour Type (Underground)	No
	No. of Basins	2	2	No
	Size	90 m x 10 m x 4.5 m	130 m x 7.8 m x (7.6~11.6) m	Changed due Design done by the Chinese Technical Team

	Inlet Transition Length	17 m	17.949 m	Changed due Design done by the Chinese Technical Team
	Outlet Transition Length		9.15 m	Changed due Design done by the Chinese Technical Team
	Nominal size of Trapped particle	0.10 mm	0.15 mm	Changed due Design done by the Chinese Technical Team
	Trap Efficiency	90%	90%	No
	Sediment Storage Depth	1.47 m	1.25 m	Changed due Design done by the Chinese Technical Team
	Flushing Channel	1.0 m x 1.0 m	2.0 m x 1.5 m	Changed due Design done by the Chinese Technical Team
11.	<i>HEADRACE TUNNEL</i>			
	Section Type	Inverted- D	Inverted-D	No
	Length	4413.27	4665.45 m	Changed due Design done by the Chinese Technical Team
	Excavation Diameter	3.4 m	3.0 m x 3.0 m	Changed due Design done by the Chinese Technical Team
	Finish Diameter	2.5 m	2.8 m x 2.7 m	Changed due Design done by the Chinese Technical Team
	Support	Concrete Lining	Shotcrete Lining	Changed due Design done by the Chinese Technical Team
12.	<i>SURGE TANK</i>			
	Diameter	6 m	NO SURGE TANK	Changed due Design done by the Chinese Technical Team
	Height	30.5 m		
	NWL	3386.823 m amsl		
	USWL	3401.953 m amsl		
	DSWL	3384.236 m amsl		
	Ventilation Tunnel	Diameter 3 m, Length-125 m		
13.	<i>PENSTOCK SHAFT</i>			
	Material	Steel	Steel	No
	Finish Diameter	2.0 m	varies from 1.2-1.6 m	Changed due Design done by the Chinese Technical Team
	Length	1716.6 m	2031.59m	Changed due Design done by the Chinese Technical Team
14.	<i>POWERHOUSE</i>			
	Type	Underground	Underground	No

	Int. Dimension	87.3 m x 14.0 m x 14.0 m	71.0 m x 15.6 m x 31.0 m	Changed due Design done by the Chinese Technical Team
	Turbine Axis Level	2380.0 m amsl	2375.0 m amsl	Changed due Design done by the Chinese Technical Team
	Machine Floor Level	2377.50 m amsl	2372.65 m amsl	Changed due Design done by the Chinese Technical Team
15.	<i>TAILRACE</i>			
	Type	Tunnel	Underground Tunnel	Changed due Design done by the Chinese Technical Team
	Length	173.0 m	210.0 m	Changed due Design done by the Chinese Technical Team
	Size	2.6 m x 2.6 m	3.5 m x 3.5 m	Changed due Design done by the Chinese Technical Team
	Outlet Level	2374.355 m amsl	2368.0 m amsl	Changed due Design done by the Chinese Technical Team
16.	<i>TURBINES</i>			
	Type	Pelton	Pelton	No
	No. of Units	5	3	Changed due Design done by the Chinese Technical Team
	Unit Discharge	1.86 m ³ /s	3.1 m ³ /s	Changed due Design done by the Chinese Technical Team
	Rated Speed	1000 rpm	750 rpm	Changed due Design done by the Chinese Technical Team
	Rated Efficiency	91.2%	92.4%	Changed due Design done by the Chinese Technical Team
17.	<i>GENERATORS</i>			
	Type	Three phases, Synchronous	Three phases, Synchronous	No
	No. of Units	5	3	Changed due Design done by the Chinese Technical Team
	No. of poles	6	8	Changed due Design done by the Chinese Technical Team
	Rated Power	18.4 MW	26 MW	Changed due Design done by the Chinese Technical Team
	Power Factor	0.85	0.85	No

	Rated Speed	1000 rpm	750 rpm	Changed due Design done by the Chinese Technical Team
	Voltage	11 kV	11 kV	No
	Frequency	50	50 Hz	No
	Efficiency	96.5%	97%	Changed due Design done by the Chinese Technical Team
18.	<i>TRANSFORMER</i>			
	No. of Units	16 (including 1 unit spare)	3	Changed due Design done by the Chinese Technical Team
	Phase	Single	Combined	Changed due Design done by the Chinese Technical Team
	Voltage Level	11kV/132 kV	11kV/132 kV	No
	Type	Indoor	Underground	Changed due Design done by the Chinese Technical Team
19.	<i>POWER AND ENERGY</i>			
	Gross Head	1012.65 m	1015 m	Changed due Design done by the Chinese Technical Team
	Rated Net Head	999.69 m	952 m	Changed due Design done by the Chinese Technical Team
	Installed Capacity	78.074 MW	78.0 MW	No
	Annual Energy	423.748 GWh	412.4 GWh (5% outage)	Changed due Design done by the Chinese Technical Team
	Dry Energy	57.229 GWh	64.1 GWh	Changed due Design done by the Chinese Technical Team
	Wet Energy	366.518 GWh	348.6 GWh	Changed due Design done by the Chinese Technical Team
20.	<i>ADITS/ ACCESS TUNNEL</i>			
	Flushing Tunnel	Length- 171.2 m, Diameter 1.5 m	Length- 265 m, Diameter 2.5 m	Changed due Design done by the Chinese Technical Team
	Adit 1	Length- 414.5 m, Diameter 4 m	Length- 107 m, Diameter 3 m	Changed due Design done by the Chinese Technical Team
	Adit 2	Length- 197.46 m, Diameter 3.1 m	Length-446 m, Diameter 3 m	Changed due Design done by the Chinese Technical Team
	Adit 3	Length- 198.5 m, Diameter 4 m	Length- 392m, Diameter 3 m	Changed due Design done by the Chinese Technical Team

	Adit 4	Length- 183 m, Diameter 4 m	Length- 257 m, Diameter 3 m	Changed due Design done by the Chinese Technical Team
	Adit 5		Length- 195 m, Diameter 3 m	Changed due Design done by the Chinese Technical Team
	Adit 6		Length- 162 m, Diameter 3 m	Changed due Design done by the Chinese Technical Team
	Main Access Tunnel	Length- 256.4 m, Diameter 5.5 m	Length- 268.6 m, Diameter 5 m	Changed due Design done by the Chinese Technical Team
21.	ACCESS ROADS			
	Access Road to Headworks	Length- 12.25 km, width 10 m	Length- 9.846 km width 7 m	Changed due Design done by the Chinese Technical Team
	Access Road to Powerhouse	Length- 0.25 km, width 10 m	Length- 2.945 km width 7 m	Changed due Design done by the Chinese Technical Team
	Access Road to Desander		Length- 0.268 km width 7 m	Changed due Design done by the Chinese Technical Team
	Access Road to Adit 2		Length- 0.636 km width 7 m	Changed due Design done by the Chinese Technical Team
	Access Road to Adit 3 & Adit 4		Length- 1.502 km width 7 m	Changed due Design done by the Chinese Technical Team
	Access Road to Adit 5		Length- 1.043 km width 6 m	Changed due Design done by the Chinese Technical Team
22.	SURFACE ROPEWAYS			
	Ropeway 1	Length 0.73 km width 5m	No Ropeway	Changed due Design done by the Chinese Technical Team
	Ropeway 2	Length 0.57 km width 5m		
	Ropeway 3	Length 0.37 km width 5m		
23	EMP cost	Nrs. 6,73,42,462	Nrs. 6,78,37,462	Nrs. 4,95,000 added
24	CSP cost	Nrs. 2,07,12,500	Nrs 8,51,52,645	Nrs. 6,44,40,145 added
25	Project Cost	Nrs. 10,475,650,000	Nrs 13,190,860,000	Nrs 2,715,210,000 additional due to additional time for the construction

2.4 Project Components

2.4.1 Headworks

Headwork is located in the Aamachhodingmo Rural Municipality of Rasuwa District. The major structures of headworks are a weir, under sluice, intake, gravel trap, approach canal and settling basins. All of the headwork structures are located on the left bank of the Sanjen Khola. Figure 2 presents the plan of the headwork. **Figure 9** presents the project layout showing the placement of different structural components of the project.

2.4.2 Diversion Weir

The diversion weir was previously a gravity-free flow type but now changed to an overflow type. Based on the previous plan, the weir was located at 3393.0 amsl but now it has been changed to 3391.0 amsl. The crest length also changed from 13.0 m to 16.5 m. the height of the weir was previously 2.31 m from the river bed, now, it has changed to 25.0 m. The design flood at the weir for 50 years was previously $134.6 \text{ m}^3/\text{s}$ and now it has changed to $138 \text{ m}^3/\text{s}$ similarly the design flood at the weir for 500 years has also changed from $179.1 \text{ m}^3/\text{s}$ to $188 \text{ m}^3/\text{s}$.

2.4.3 Under Sluice

The invert level of the Sill of the Under sluice was previously 3388.32 m amsl. But now, it has changed to 3383.5 m amsl. The no. of openings is the same as the previous design i.e., 1. The discharge through Sluice was previously $59.69 \text{ m}^3/\text{s}$ and now, it has changed to $58.44 \text{ m}^3/\text{s}$. the bottom slope of the Under sluice was previously 1:35 and now, it has changed to 1:2.

2.4.4 Intake Structure

The Side intake with two Orifice remains the same as the previous study. But the size has changed from 2.5m (W)*1.9m(H) to 3m(W*3m(H). the invert level of the Sill has also changed from 3390.7 m amsl to 3389.0 m amsl. Similarly, the intake discharge also changed from $11.16 \text{ m}^3/\text{s}$ to $9.3 \text{ m}^3/\text{s}$.

2.4.5 Gravel Trap and Gravel Flushing

A gravel trap has been provisioned to trap gravel, cobble and coarse sand particles that enter through the intake orifice during monsoon. The type of gravel trap and gravel flushing remains the surface type as of the previous design. But the size has changed from 8m long, 6-4m wide and 3.45m tall to 25m long, 6m wide and 9.2m tall gravel trap. The bed load size to trap has also changed to 5mm from 2mm. The size of the flushing channel changed to 2.5m*6.8m from 1.0m*0.5m, the length changed to 35.2m from 15m and the bottom slope has also changed to 1:25 from 1:35.

2.4.6 Approach Canal

An approach canal of length 140.6m with a single bay has been provided to convey water from Gravel Trap to the Settling Basin in a previous study but now, it has changed to 6.3 m. The width of the canal bay was taken as 4 m and the depth as 2.0m previously but now, it has changed to 2.2 m*2.2 m.

2.4.7 Settling Basin

The type of settling basin is Dufour type (underground) with two basins. The size of the basins has changed from 90m*10m*4.5m to 130m*7.8m*(7.6~11.6) m. The inlet transition length has changed from 17m to 17.949m and the outlet transition length is 9.15m. The nominal size of the trapped particle was 0.10mm previously and now, changed to 0.15mm. The sediment storage depth of this basin was 1.47m previously and now, changed to 1.25m. The size of the flushing channel has changed from 1.0m*1.0m to 2.0m*1.5m. the trap efficiency remains the same as previous i.e., 90%.

2.4.8 Surge Tank

There was a surge tank in the approved EIA but the design has changed and hence there is no surge shaft now.

2.4.9 Penstock Shaft

The underground 1716.6 m long inclined pressure shaft made up of steel was designed previously but the length has changed to 2031.59 m now. The finished diameter of the penstock shaft was 2m previously and now, it has changed to 1.2-1.6 m.

2.4.10 Headrace Tunnel

Inverted D-section type headrace tunnel, of size 4413.27 m long, 2.5 m finish diameter 3.4 m excavation diameter but now, changed to 4665.45 m long, 2.8 m*2.7 m finish diameter and 3.0 m* 3.0 m excavation diameter. To provide the support, the tunnel was purposed to be lined with concrete previously but now, changed to shotcrete lining. **Figure 7** presents the cross-sectional view of the HRT.

2.4.11 Tailrace

The water coming out of the Turbines was purposed to divert back to the Sanjen Khola through a 173m long and 2.6 m*2.6 m size tunnel which an outlet level was 2374.355 amsl. But the design has changed now, the underground tunnel having a length of 210.0m and size of 3.5m*3.5m diverts back the water to Sanjen Khola at an outlet level of 2368.0m amsl.

2.4.12 Powerhouse

An underground powerhouse will be constructed in Sanjen Khola. The internal dimension of the Powerhouse was purposed 88m long, 14m wide and 15.4m high but now changed to 71.0 m x 15.6 m x 31.0 m. The turbine axis level has changed from 2380.0 m amsl to 2375.0 m amsl and the machine floor level also changed from 2377.5 m amsl to 2372.65 m amsl. Previously, the turbine was purposed to be 5 units of Pelton type, unit discharge was 1.86 m³/s, rated speed was 1000 rpm and rated efficiency 91.2 %. But now, the turbine has changed to 3 units of Pelton type, unit discharge is 3.1 m³/s, rated speed is 750 rpm and rated efficiency 92.4 %. The type of generator remains the same as three-phase synchronous but, the no. of units has changed from 5 to 3 and also the no. of poles changed from 6 to 8. The rated power changed from 18.4 MW to 26 MW. Likewise, efficiency and rated speed have changed from 96.5% to 97% and from 1000 rpm to 750 rpm. The power factor, voltage and frequency remain the same as previously i.e., 0.85, 11kv and 50 Hz respectively.

施工总平面布置图
General Construction Layout

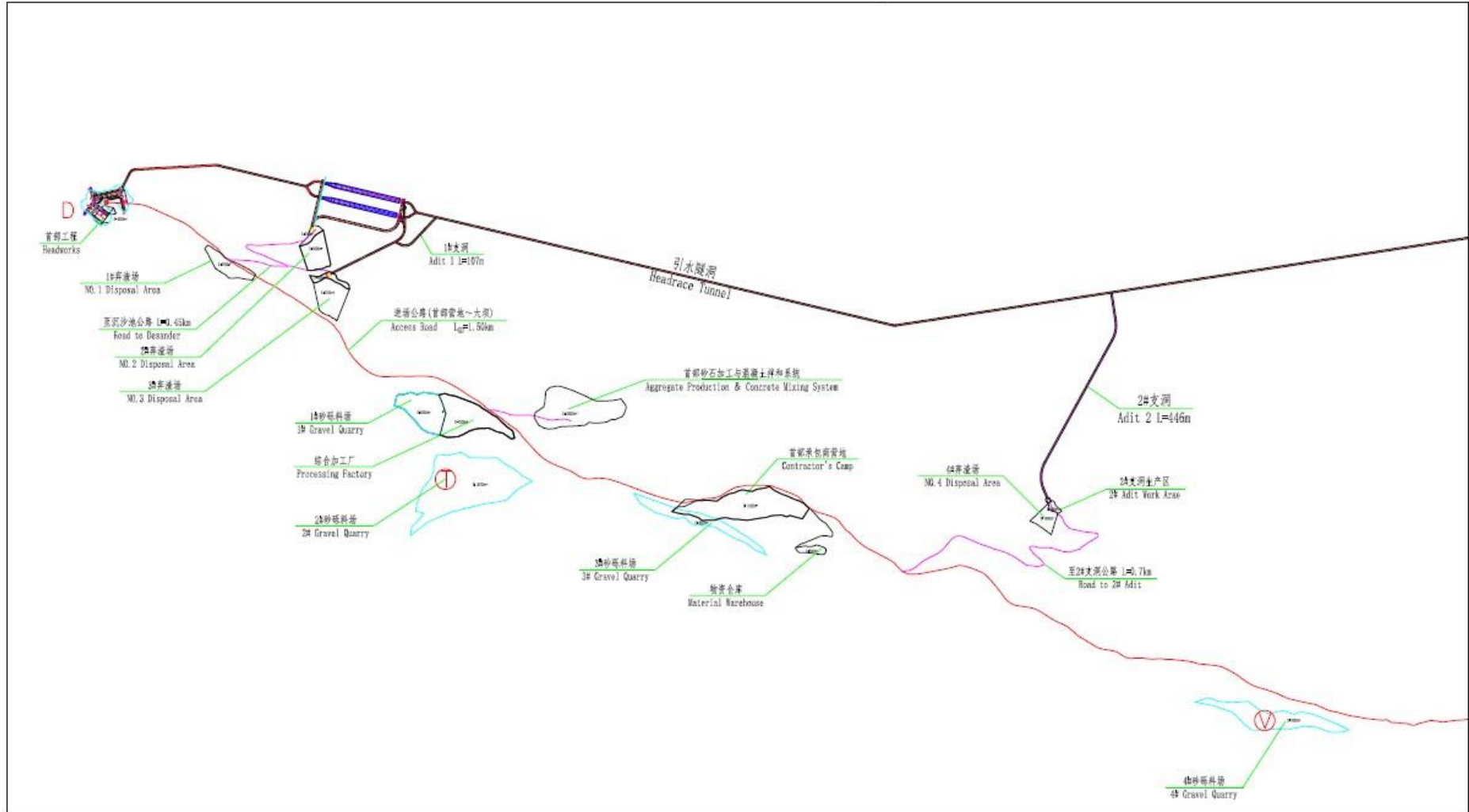


Figure 3: General Project Layout (Source: Detail Design Report 2021)

施工总平面布置图
General Construction Layout

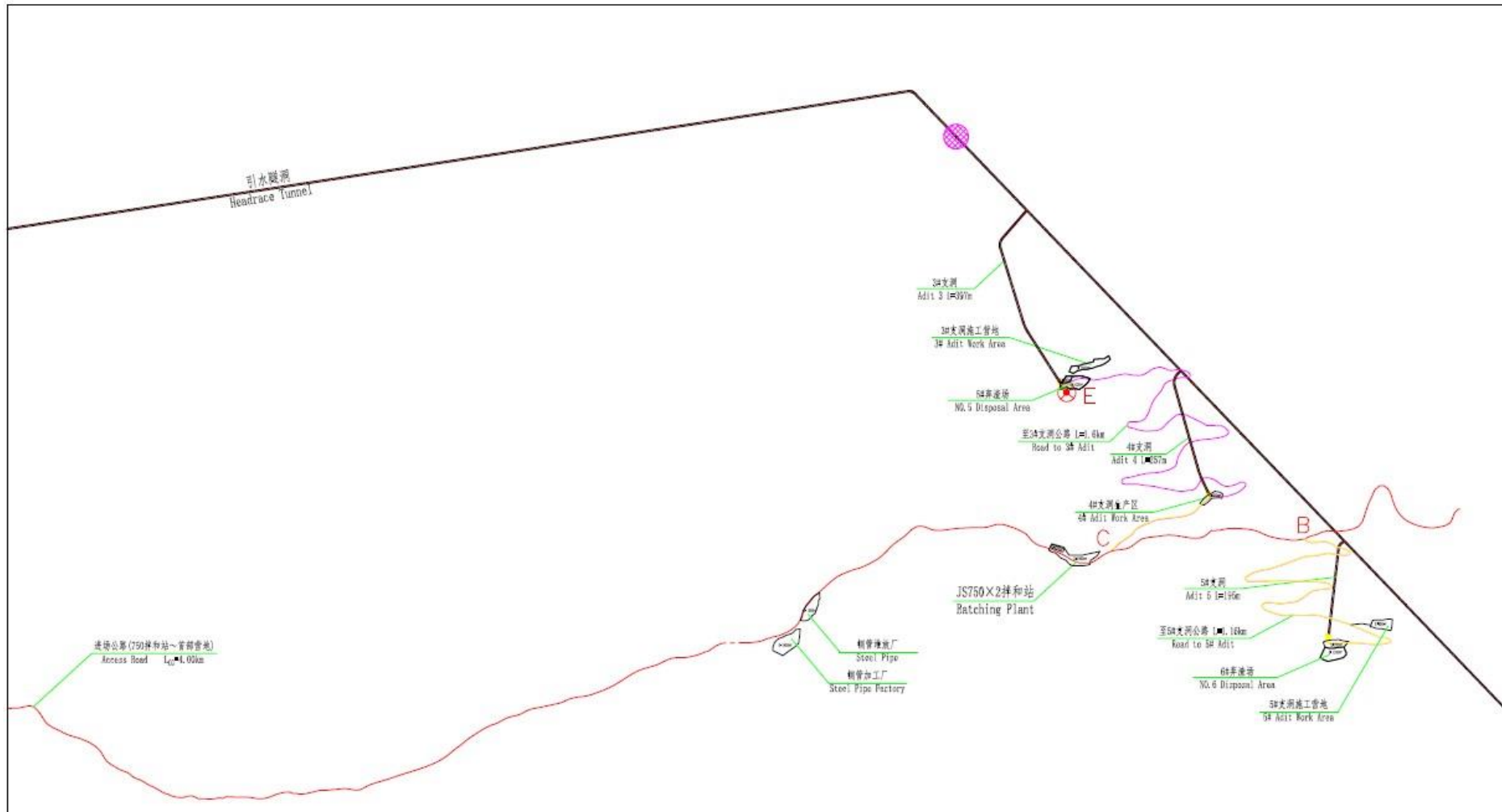


Figure 4: General Project Layout (Source: Detail Design Report 2021)

施工总平面布置图
General Construction Layout

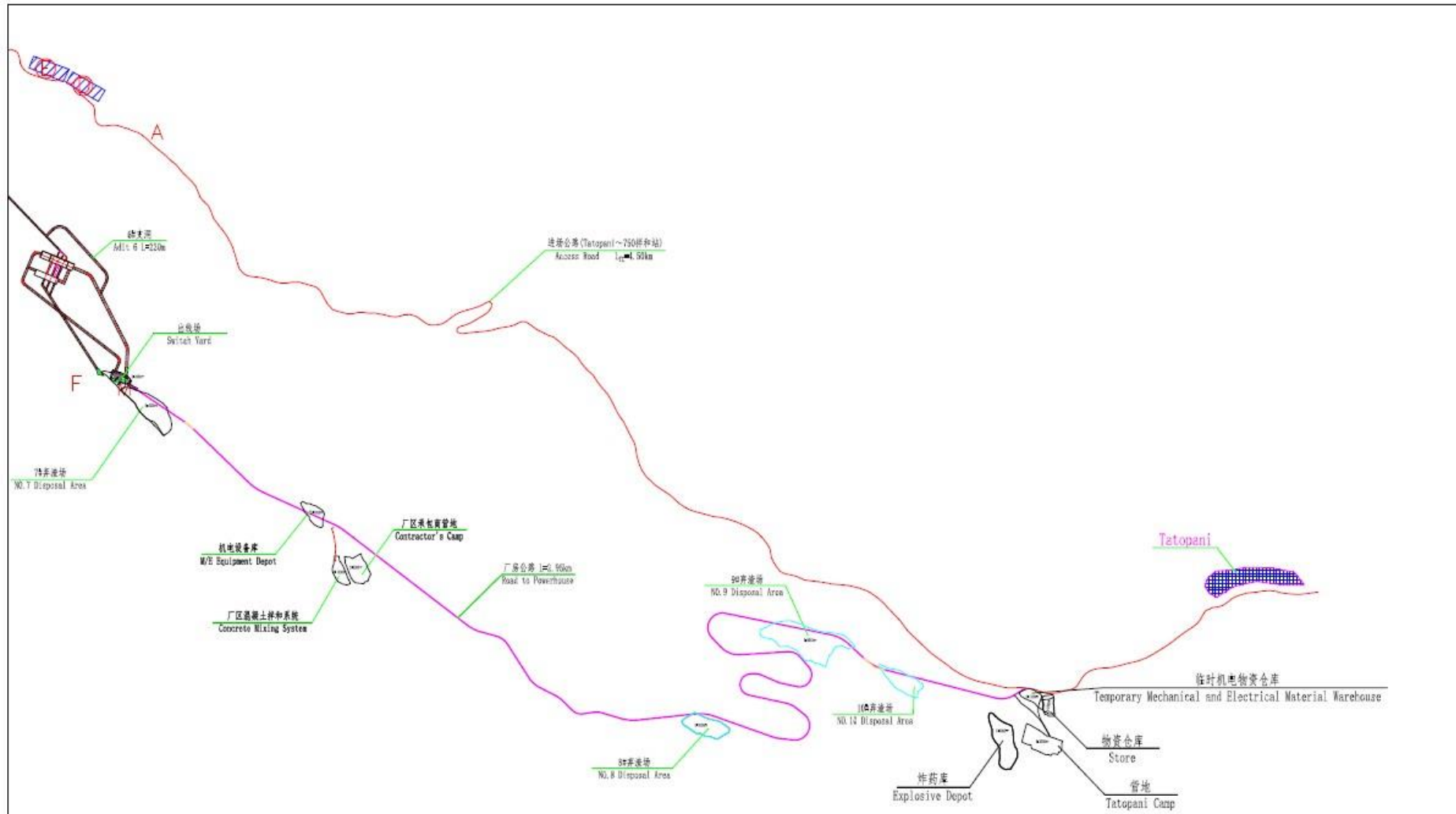


Figure 5: General Project Layout (Source: Detail Design Report 2021)

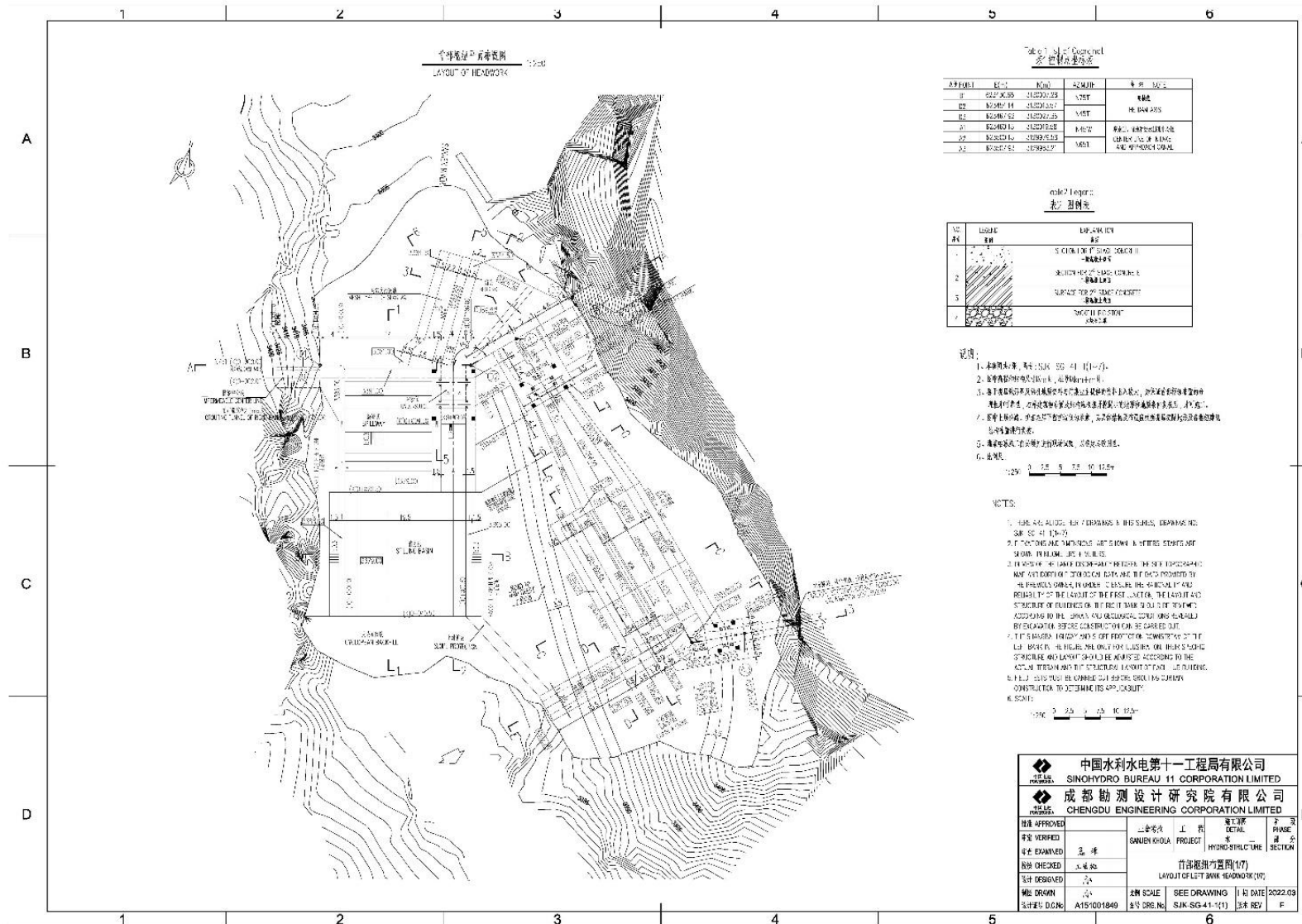


Figure 6: Plan of the Headworks Area (Source: Detail Design Report 2021)

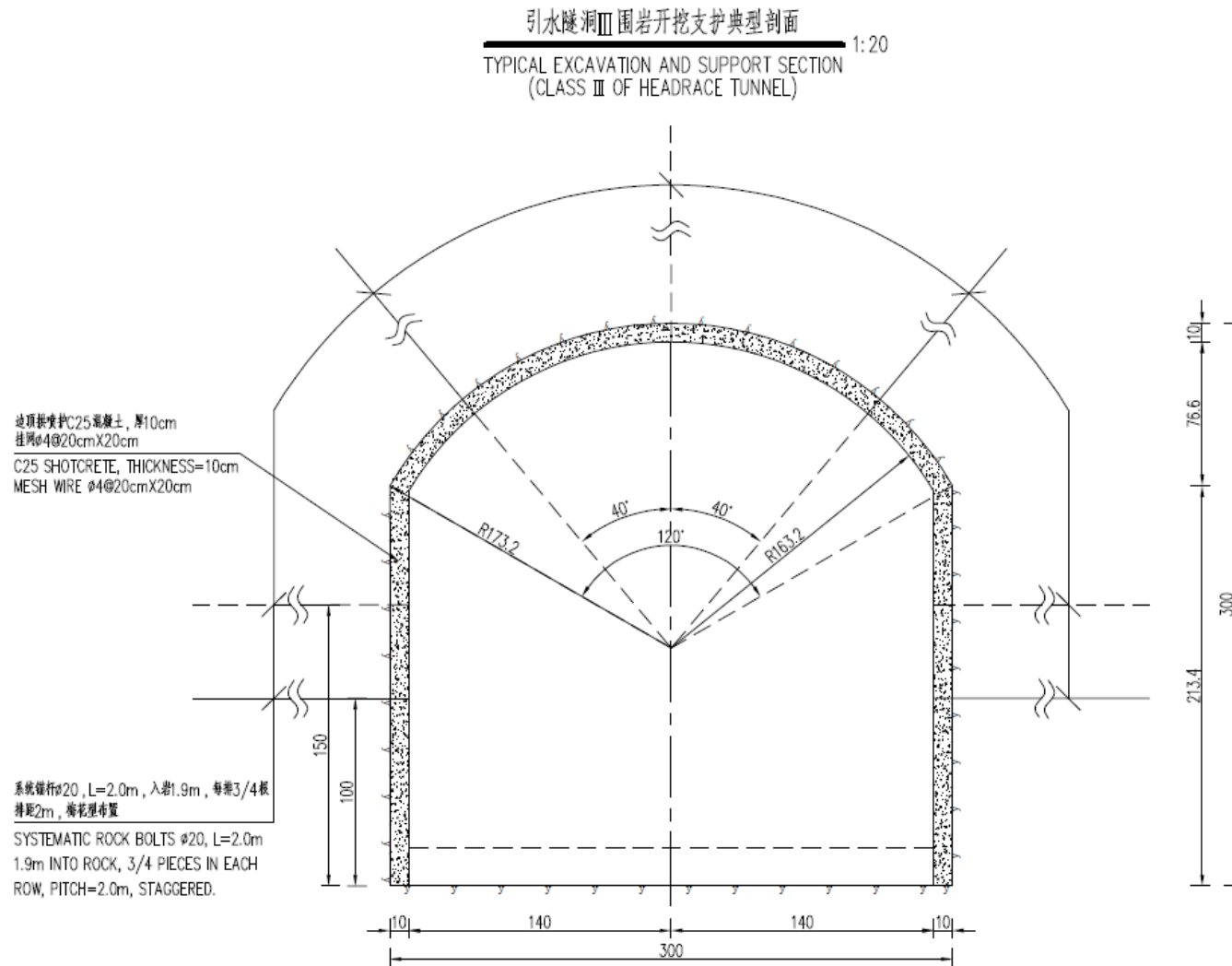


Figure 7: Cross-Sectional View of HRT (Source: Detail Design Report 2021)

2.4.13 Access Roads

The road head of the community-constructed access road from Runga ends at Tatopani. From Tatopani, this road will have to be extended up to the headwork area. From the previous design, the access road to the headworks was about 12.25 Km long with an average width of 10m, Now, the design has changed to a length of 9.846 and a width of 7m. The length and width of the power house access road were 0.25 km and 10m respectively. But now the length and width have changed to 2.945 km and 7m respectively. Now the project has added an access road to the desander (Length- 0.268 km width 7 m), the access road to Adit 2 (Length- 0.636 km width 7 m), the access road to Adit 3&4 (Length- 1.502 km width 7 m) and access road to Adit 5 (Length- 1.043 km width 6 m).

2.4.14 Surface Ropeways

Previously, three surface ropeways (RW1, RW2 and RW3) were purposed to construct from the Adit portals of A1, A2, and A3 up to the Main Access Road to facilitate material transport to and from the Adit portals. RW1 is 0.73 Km long, while RW2 and RW3 are 0.57 and 0.37 km long respectively. The average carriage width of the surface ropeway was about 5m. But now, there are no ropeways.

2.4.15 Adit/Access Tunnel

The length and diameter of the flushing tunnel have changed from (Length- 171.2 m, Diameter 1.5 m) to (Length- 265 m, Diameter 2.5 m), The length and diameter of Adit1 have changed from (Length- 414.5 m, Diameter 4 m) to (Length- 107 m, Diameter 3 m), The length and diameter of Adit2 have changed from (Length- 197.46 m, Diameter 3.1 m) to (Length-446 m, Diameter 3 m), The length and diameter of Adit3 have changed from (Length- 198.5 m, Diameter 4 m) to (Length- 392m, Diameter 3 m), The length and diameter of Adit4 have changed from (Length- 183 m, Diameter 4 m) to (Length- 257 m, Diameter 3 m) and The length and diameter of main access tunnel have changed from (Length- 256.4 m, Diameter 5.5 m) to (Length- 268.6 m, Diameter 5 m) and Adit 5 of size (Length- 195 m, Diameter 3 m) are added to the previous design.

2.4.16 Power and Energy

The gross head has changed from 1012.65 m to 1015 m, rated net head has changed from 999.69 m to 952 m. Installed capacity was previously, 78.074 MW but now changed to 78.0 MW. The annual energy has changed from 423.748 GWh to 412.4 GWh (5% outage). The dry energy is changed to 64.1 GWh from 57.229 GWh. The wet energy also changed to 348.6 GWh from 366.518 GWh.

2.5 Project Requirements

Other project requirements include construction materials such as aggregates and sand, steel, cement, and various mechanical equipment including vehicles, batching plants, crushing plants, excavators, and a range of support items such as fuel, lubricants, blasting materials, construction power etc.

2.5.1 Construction Materials and Equipment

The key construction material input is sand and aggregates of adequate quality apart from cement and reinforcement steel for concrete works, these have been revised as per the construction requirement.

Table 3 presents the likely requirements of the above construction materials.

Table 3: Requirements of Aggregate, Sand, Cement, and Backfilling Materials for SKHEP

S.N.	Structure	Boulders and Rocks (m ³) for Backfill and Riprap	Sand(m ³)	Cement (Bags)	Aggregate (m ³)	Reinforcement (Tons)
1	Head Works	90000	7590	138792	12722	790
2	Headrace tunnel		2991	54704	5014	648
3	Desander		3565	65192	5975	545
4	Penstock		3832	70072	6423	0
5	Powerhouse		7857	143680	13170	1600
Total		90000	25835	472440	43304	3583

(Source: Detail Design Report 2021)

2.5.2 Manpower Requirement

On an average daily basis, about 500 workforces will be engaged for the project construction. During the lean construction phase, the numbers could be as low as 50 and during peak construction, it may peak up to 700. Of the total about 25 % will be skilled, 35% semi-skilled and the remaining unskilled manpower. Most of the unskilled workforce required for the project will be sourced from the local area if available. A semi-skilled and skilled workforce will be employed from among the Nepalese nationals as far as possible. For the operation phase, a total of 40 human resources are estimated for the uninterrupted operation of the project. Of the Total nearly 70% will be technical manpower while 30% will be administrative and other non-technical human resources.

Table 4: Human Resource

S.N.	Human Resource	Total (Man Months)
1	Skilled	175
2	Unskilled	275
3	Semiskilled	250
Total		700

(Source: Progress Report 2022)

2.5.3 Land Requirement

The land required for the installation of the permanent project structures and support facilities is not more than the approved EIA (total permanent land is 15.7 ha and temporary 12.15 ha). The total permanent land is 14.02 ha of forest land and temporary is 10.23 ha belonging to MoFE as in the given table:

Table 5: Requirements of Aggregate, Sand, Cement, and Backfilling Materials for SKHEP

Description	Forest area (hector)	Barren land (hector)	Grassland(hector)	Total (hector)
Approved EIA	15.16	12.59	0.10	27.85
SEIA	15.16	9.10	0	24.25

(Source: Detail Design Report 2021 And Approved EIA Report 2015)

Table 6: Land Use and Land Requirements

SN	Project Components	Total Land (Hector)							Total
		Forest		Agriculture		Barren		Floodplain	
		Government	Private	Government	Private	Government	Private	Government	
A. Permanent									
1	Headworks	0	0	0	0	0.42	0	0	0.42
2	Access road	11.02	0	0	0	0.32	0	0	11.34
3	work area	0.22	0	0	0	0	0	0	0.22
4	Access Portal	0.04	0	0	0	0.15	0	0	0.19
5	Disposal Site	0.16	0	0	0	0.67	0	0	0.83
6	mixing system/Mechanical Yard	0.4	0	0	0	0	0	0	0.4
7	Camp	0.22	0	0	0	0	0	0	0.22
8	Stock piling	0	0	0	0	0.40	0	0	0.40
	Total A	12.06	0	0	0	1.96	0	0	14.02
B. Temporary									
9	Crusher/Quarry	0.2	0	0	0	4.8	0	0	5
10	Camp	0.41	0	0	0	1.15	0	0	1.56
11	Audit Portal	0.14	0	0	0	0	0	0	0.14
12	Work Area	0.16	0	0	0	0.7	0	0	0.86
13	Disposal Site	2.09	0	0	0	0.27	0	0	2.36
14	Access Road	0	0	0	0	0	0	0	0
15	Stockpiling	0.1	0	0	0	0.22	0	0	0.32
	Total B	3.09	0	0	0	7.14	0	0	10.23
	Sub Total (A+B)	15.16	0	0	0	9.1	0	0	24.25

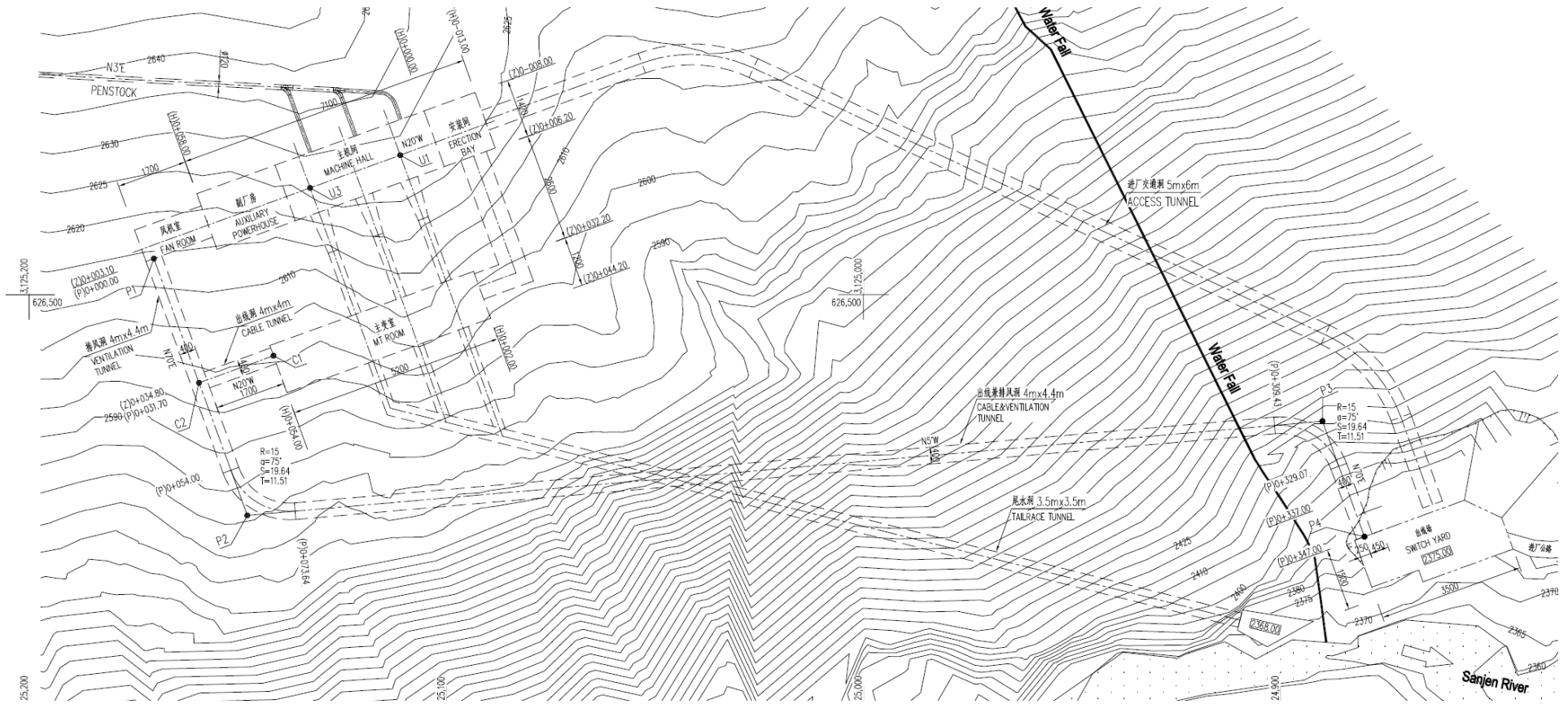


Figure 8: Powerhouse Plan (Source: Detail Design Report 2021)

2.5.4 Spoil management

Even after the reuse of the spoil material for aggregates and backfill, there will be a surplus of spoil material. This surplus spoil requires adequate spoil management within the DIZ. Project excavation works estimate nearly 199155m³ of spoil material. Nearly 70% (129500m³) of the spoil will have to be managed in a safe place against erosion has been mentioned in the approved EIA the present study showed it is estimated that 153910 m³ volumes of the spoil can be managed in these places. There were 10 options available for the management of the spoil. Disposal Area No. 1, Disposal Area No. 2 (Access Tunnel for Gate of Inlet of Desander), Disposal Area No. 3 (Adit 1), Disposal Area No.4 (Adit 2), Disposal Area No. 5 (Adit 3) and Disposal Area No. 6 (Adit 5), Disposal Area No. 7, Disposal Area No. 8, Disposal Area No. 9, Disposal Area No. 10 are the disposal sites as in figure 10. The total volumes of the spoil are given below:

Table 7: Spoil Management Sites and Total Spoil Volumes

NO.	Disposal Area	Area m ²	Volume m ³	Remark
1	1# Disposal Area	2700	10000	28.281759°, 85.256924°
2	2# Disposal Area	3000	12000	28.280766°, 85.258245°
3	3# Disposal Area	3700	15000	28.280086°, 85.257895°
4	4# Disposal Area	1600	8000	28.268055°, 85.264288°
5	5# Disposal Area	1000	6000	28.249957°, 85.286321°
6	6# Disposal Area	1100	6000	28.243330°, 85.285893°
7	7# Disposal Area	4300	20000	28.236821°, 85.286150°
8	8# Disposal Area	3000	15000	28.231979°, 85.286550°
9	9# Disposal Area	8810	40000	28.224954°, 85.291846°
10	10# Disposal Area	2700	10000	28.223014°, 85.292545°
Total		31910	142000	

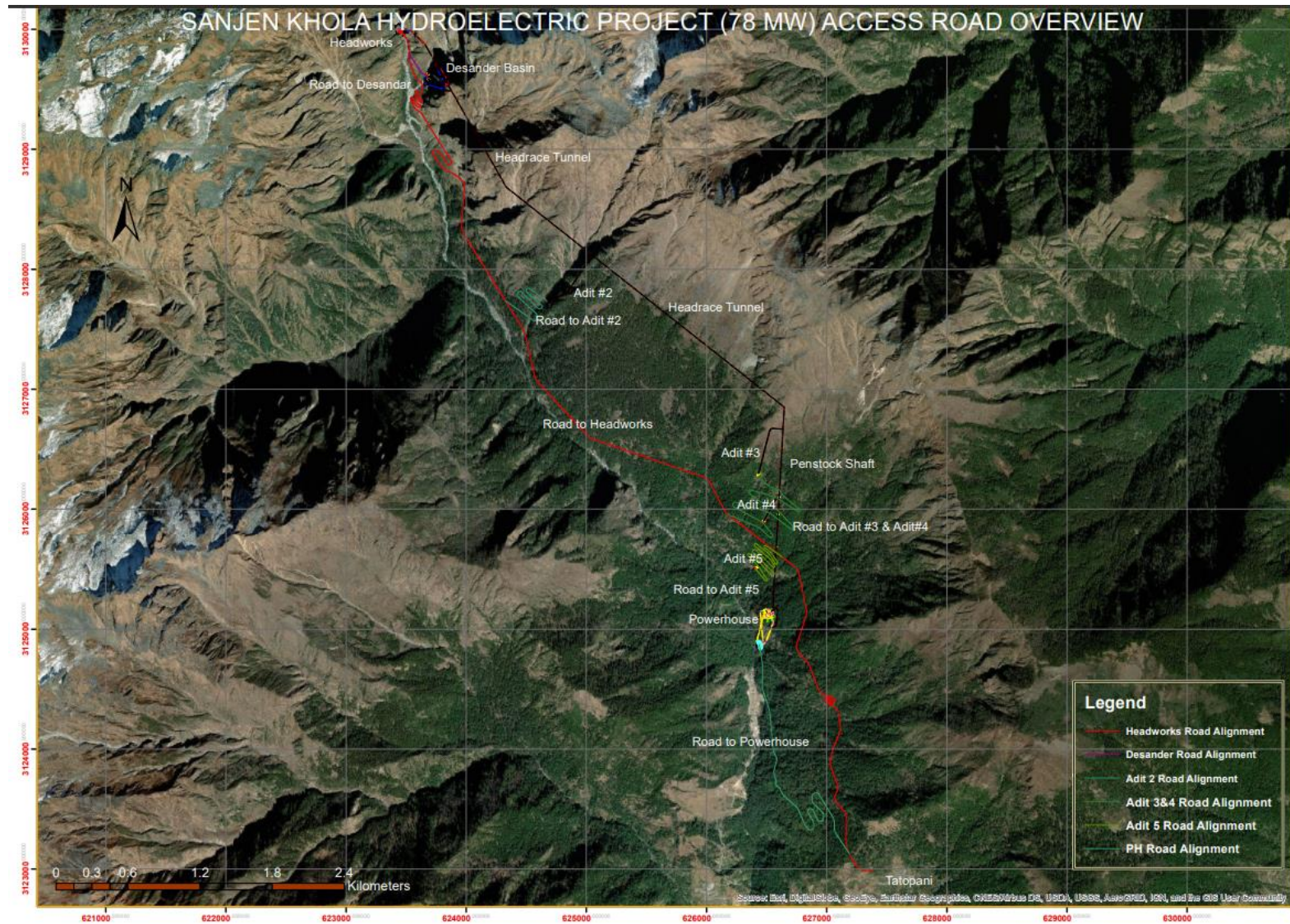


Figure 10: SKHEP Access Road Overview (Source: Detail Design Report 2021 and ARC GIS 10.1)

CHAPTER 3. DATA REQUIREMENT AND STUDY METHODOLOGY

This chapter describes the methodologies used for the SEIA. It includes environmental issues on physical, biological, and socio-economic and cultural environmental resources of the project area only for the changes section. In this case, the Surge Shaft is removed, therefore, only the baseline data for the biological environment was compared to before and after construction.

3.1 Desk Study and Literature Review

The approved EIA report was reviewed thoroughly, and its relevance in the changed context of the project design and sites are evaluated. Furthermore, available primary and secondary literature in the form of reports and maps (topographic maps, land use maps, land capability maps, land system maps, aerial photographs, cadastral survey maps etc.) were collected for the additionally impacted areas.

3.2 Field Study

Field studies were conducted in all project areas and land demarcation was done.

3.3 Data Requirement, Collection Methods and Analysis

3.3.1 Physical Environment

3.3.1.1 Data Requirement

The data required for the evaluation of the physical environment are based on the same parameter as in the approved EIA. The recent soil erosion, land instability, Air quality, water quality, and noise level were observed and data were collected.



Figure 11: Air monitoring and Water sampling in the project area

3.3.1.2 Data Collection Method

Air quality and noise levels were derived from indirect inferences in the field. The key parameters noted for the evaluation of air and noise are the level of industrial development and the key anthropogenic activities of the area. The water quality of the river is obtained by sampling the river water and laboratory analysis for key indicators of pollution.

3.3.1.3 Data Analysis

The air quality and noise levels of the project area were evaluated. The water quality of the river was analyzed and the data obtained were evaluated in terms of key pollution indicators.

3.3.2 Biological Environment

3.3.2.1 Data Requirement

The biological environment data required for the study include vegetation types in the project area and are compared with the approved EIA.

3.3.2.1.1 Consultation with the DFO Office

With consultation of the DFO office, the project hired a consultant for demarcation of the land use in the project area and this was compared with the land use in approved EIA and land obtained for the project.

3.3.2.1.2 Consultation with the FUGs

The FUGs were consulted and collected the necessary information and their views and suggestions for forest management were obtained. Other biological data were not collected.

3.3.3 Socio-economic and Cultural Environment

3.3.3.1 Data Requirement

The following data were envisaged to carry out the environmental evaluations of the project due to changes in design and capacity:

- Demographic characteristics (population, ethnicity, literacy, religion, health and sanitation, occupational status, income and expenditure, economic activities etc.) of Project Impact RM.
- Demographic characteristics (population, ethnicity, literacy, religion, health and sanitation, occupational status, income and expenditure, economic activities etc.) of Project direct impact Households.
- Infrastructure and support service facilities of the Project Impact RM.

3.3.3.2 Data Collection Method

Information on the general socio-economic conditions of the people of the project area RM were collected through focus group discussions and public hearings at the RM.

3.3.3.3 Data Analysis

The obtained data were compared with the approved EIA.

3.4 Impact Identification and Prediction

The additional impact which is identified in addition to the approved EIA were all included in the SEIA report.

3.5 Impact Analysis

The identified impacts were systematically analyzed including their nature, duration, extent and magnitude.

Table 8: Numerical scale for impact analysis

Magnitude	Numerical Scale	Extent	Numerical Scale	Duration	Numerical Scale
High (H)	60	Regional (R)	60	Long Term (LT)	20
Medium (M)	20	Local (L)	20	Medium Term (MT)	10
Low (L)	10	Site Specific (SS)	10	Short Term (ST)	5

Source: National EIA Guideline, 1993

For the impacts ranging in cumulative score from 45 to 75 will be termed significant/ moderate while the impacts ranging in cumulative score above 75 will be termed as highly significant (**Table 9**).

Table 9: Cumulative score and description of impacts

S.N.	Cumulative Score	Description
1	< 45	Insignificant
2	45 to 75	Significant (Moderate)
3	>75	Highly Significant

3.6 Public involvement

After publishing the notice for the Public hearing in Aarthik Abhiyaan National Daily newspaper, the public hearing was done on 27th January 2023. The comments received from the locals about the SEIA have been incorporated in the report and a draft is prepared will be submitted to the DoED, for approval. **Table 10** shows the major issues raised during various consultations.

Table 10: Public Hearing

Total number of participants		Male	Female	Total
		39	2	41
S.N.	Comments			
1.	The road from Ronga to Tatopani should be repaired with gravel, drains, slopes, grids and road grading.			
2.	Healthcare facilities and an ambulance should be arranged in Tatopani			
3.	In the case of schools, provisions should be made for teachers, fencing and gabion mesh jali for landslide prevention in the Tatopani school			
4.	Arrangements for fire-fighting must be done			
5.	To help in the construction of Tasiling Gumba			
6.	Shares should be provided to the local people affected by the project			
7.	The project should help in the construction and maintenance of the trekking trail			
8.	Proper management of the rangeland area should be done			

9.	The development of hot springs and the protection of springs should be supported
10.	Necessary work should be done to prevent landslides and protect the environment
11.	The remaining wood in the forest should be managed
12.	Environmental impact assessment report should be prepared in Nepali language that can be understood by the locals
13.	Care should be taken in proper disposal of muck and spoil
14.	The project itself should arrange for environmental experts and forest experts
15.	The project should make a nursery for forest management
16.	Forest watchers should be kept in Tatopani for the safety of buildings of community forests and forests.
17.	During the digging of the road, stone falls and fallen plants and house damage should be prevented and minimum actions should be taken.
18.	Proper management of dust blowing on the access road should be done, as well as water sprinkler tankers should be arranged
19.	Beli Bridge should be constructed at Goljung Basin
20.	The project should maintain its vehicles and machinery equipment from time to time
21.	Priority should be given to local people in the employment opportunities of the project.
22.	The project should designate a waste management area and build it.

CHAPTER 4. REVIEW OF ACTS, POLICIES, LAWS AND REGULATIONS

4.1 Constitution of Nepal

Constitution	Related Provisions
Constitution of Nepal	<ul style="list-style-type: none"> - Article 30 of the Constitution of Nepal proclaims that: (1) "every citizen shall have the right to live in a clean and healthy environment; (2) the victim shall have the right to obtain compensation, per the law, for any injury caused by environmental pollution or degradation; and (3) this Article shall not be deemed to prevent the making of necessary legal provisions for a proper balance between the environment and development, in development works of the nation. To meet this Constitutional right, EIA study provides impact-based measures to mitigate environmental pollution, facilitate environmental enhancement, and balance environment and development. - Under Policies of the State, Article 51 (G) (policies relating to protection, promotion and use of natural resources) includes assertion to protect, promote, and make environmental-friendly and sustainable use of natural resources to make multi-purpose development of water resources, to conserve, promote, and make sustainable use of forests, wildlife, birds, vegetation and biodiversity, by mitigating possible risks to environment and to pursue the principles of environmentally sustainable development".

4.2 Plans attracted by the project

Plans	Related Provisions
15th Five-year Plan 2019/20-2024/25	<ul style="list-style-type: none"> - The plan focuses on developing modern, safe and sustainable cities and integrated settlements to manage the increasing migration and
National Water Plan, 2058-2063	<ul style="list-style-type: none"> - The National Water Plan emphasizes the need for Strategic Environmental Assessment. - Section 7 of the NWP highlights the Environment Management Plan (EMP) as a strategic document for the implementation, monitoring and Auditing of environmental protection programs.

4.3 Policies attracted by the project

Policies	Related Provisions
Hydropower Development Policy, 2058	<ul style="list-style-type: none"> - Section 5, sub-section 5.7 – environmental protection, sub-section 5.8 -mitigation planning of the affected resources, sub-section 5.20 – an opportunity for local people in employment); Section 6, sub-section 6.1- environmental release, assistance in the land and property acquisition, responsibility for resettlement and rehabilitation of project-affected people; sub-section 6.5 – provisions of HEP transfer to Government of Nepal, sub-section 6.12 - Royalty payments to the local area, licensing provisions for survey and generation, terms of the license, sub-section 6.13 – fee provisions. - The policy also recommends riparian release of 10% of the average minimum monthly flow or as recommended by the study.

National Environment Policy, 2076	<ul style="list-style-type: none"> - Nepal Government has endorsed the National Environment Policy- 2076' to control pollution, manage wastes and promote greenery to ensure citizen s right to live in a fair and healthy environment. - The policy was framed to guide the implementation of environment-related laws and other thematic laws, realize the international commitment and enable collaboration between all concerned government agencies and non -government organizations on environmental management actions. This policy aims to lessen and prevent all types of environmental pollution, manage wastes emanating from all sectors including home, industry and service, expand parks and greenery in urban areas and ensure environmental justice for the pollution-affected population. - To meet the policy goals and objectives, the policy has specified special measures, including the setup of effective systems for checking and reducing pollution of all types, encouragement for the use of environment-friendly technology in the industry, hospitals and vehicles, regulation of harmful pesticides in production and protection of human health from unauthorized food intake. - The ministry has envisaged devising environment-friendly technology to manage pollutant dust, smoke, and water emanating from industries and other businesses promote the use of solar stoves, electric stoves, bio-gas, improved stove and chimney for the prevention of pollution at homes and emphasized energy-effective housing.
-----------------------------------	--

4.4 Acts attracted by the project

Acts	Related Provisions
Environment Protection Act, 2076	<ul style="list-style-type: none"> - The act has been recently promulgated which has included an additional layer for preparing and approving an 'environmental study' report for the prescribed proposal in addition to IEE and EIA. - Based on the proposed definition, 'environmental study' includes (i) a brief environment study; (ii) IEE; and (iii) EIA reports. A section has been added for 'detailed alternative analyses of any proposal that requires an environmental study report. - Similarly, section 11 has been added for carrying out the Supplementary Environmental Impact Assessment (SEIA) of the project whose EIA report has already been approved.
Electricity Act, 2049	<ul style="list-style-type: none"> - Mandates to develop electric power by regulating the survey, generation, transmission and distribute the survey, generation, transmission, and distribution of electricity and to standardize, and safeguard the electricity services.
Water Resources Act, 2049	<ul style="list-style-type: none"> - Article 3 stipulates the water resource rights of the Government; Article 4 prohibits the use of water resources without obtaining a license, except for specified uses under the Act; Article 7 establishes the order of priority for the utilization of water resources; Article 8 stipulates procedures for water resource licensing; Article 16 empowers Government to utilize the water resources and acquisition of other lands and property for the development of water resource as stipulated in the Act; Article 18 stipulates the right of the Government to fix the quality standards of water; Article 19 prohibits pollution of water resources above prescribed pollution tolerance limits; Article 20 prohibits causing harm and adverse effects on the environment while developing a water resource project.

Solid Waste Management Act, 2068	- Solid Waste Management Act aims to manage solid waste and mobilize resources related thereto and ensure the health and convenience of the common people by controlling the adverse impact of pollution from solid waste. The commercial or industrial establishments should adhere to the clauses mentioned in the act during the construction and operation phases of the projects.
Local Government Operation Act, 2074	- This Act states the roles of local bodies in Nepal. The jurisdiction, roles and responsibilities of personnel appointed in local bodies are mentioned in this Act.

4.5 Rules and Regulations Attracted by the Project

Rules and Regulations	Related Provisions
Environment Protection Rules, 2077	<ul style="list-style-type: none"> - The newly formed regulation has included three types of environmental examination concise environment study for the project under Schedule 1, Initial environment examination for the project that comes under Schedule 2 and Environment impact assessment for the project that comes under Schedule 3. - Section 4 of Chapter 2 guides for the scoping works and Section 6 guides for conducting the public hearing. Section 7 guides the development of the report concerning Annexe 10 for the concise environment study report, annexe 11 for the initial environment examination report and Annex 12 for the environmental impact assessment report. - Section 10 mentions the strategic environmental assessment.
Electricity Regulation, 2050	<ul style="list-style-type: none"> - This Act is related to the provision related to licenses related to electricity survey, and distribution, to issue the license for the survey (format and template for license applications etc) - Stipulated requirements for the production of electricity, Permission for import of electricity - Regarding the design and construction of electric circuits Safety provisions are to be followed during electrical works.
Water Resources Regulations, 2050	- Rules 12 to 21 specify the provisions and procedures of licensing for water resource utilization; Rules 32 to 35 specify provisions, procedures and responsibilities for the acquisition of land and property for the development of water resources.

4.6 Guidelines and Manuals

Guidelines and Manuals	Related Provisions
Hydropower Licensing Guideline, 2075	- This guideline states all the criteria, rules and regulations regarding the survey license who wants to generate the electricity. This directive has been framed by the former Ministry of Energy utilizing the power conferred by the Electricity Regulation, 2050 and describes in detail the procedural requirements for issuing or obtaining/amending/renewing/withholding survey licenses for electricity generation, transmission or distribution, electricity generation license and transmission or distribution license. It lists the information and document requirement for these processes.

4.7 Directives Attracted by the Project

Electricity Licensing Directive, 2075	<ul style="list-style-type: none"> - Section 2 determines the capacity of the hydropower projects. - Section 3 determines the licensing of the project based on financial and technical capability. - Section 5 determines the provision for the storage type project. - Section 6 determines the project on the project bank.
---------------------------------------	--

4.8 International Conventions Attracted by the Project

Conventions	Related Provisions
Convention on Biological Diversity, 2049	<ul style="list-style-type: none"> - Article 14 of the Convention introduces appropriate procedures requiring project EIA.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 2029	<ul style="list-style-type: none"> - Article II of the Convention classifies species as Appendix I, II, and III species that are subjected to regulation so as not to endanger their survival.
Convention (No.169) Concerning Indigenous and Tribal Peoples in Independent Countries, 2046	<ul style="list-style-type: none"> - Article 7 - the right of the indigenous and tribal people to decide their priorities for the process of development; Articles 12, 13, 14 and 15 - the safeguards of rights of the indigenous people in the land and natural resources in territories traditionally occupied by them; Article 16 - participation in the decision-making process and resettlement process with full compensation for the resulting loss or injury.
United Nations Declaration on the Rights of Indigenous Peoples, 2064	<ul style="list-style-type: none"> - The Declaration sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues (Articles 1-4). It also "emphasizes the rights of indigenous peoples to maintain and strengthen their institutions, cultures and traditions (Article 5) and to pursue their development in keeping with their own needs and aspirations (Article 23)". It "prohibits discrimination against indigenous peoples" (Article 21), and it "promotes their full and effective participation in all matters that concern them and their right to remain distinct and to pursue their visions of economic and social development" (Articles 25-30).
United Nations Framework Convention on Climate Change, 2047	<ul style="list-style-type: none"> - Realizing the scientific evidence on greenhouse gas emissions from human activities, the United Nations General Assembly established the Intergovernmental Negotiating Committee (INC) in 1990 to prepare an international instrument on climate change. The INC drafted the United Nations Framework Convention on Climate Change (UNFCCC), which was adopted on 9 May 1992 at the UN Headquarters in New York. The UNFCCC - a global treaty - provides the international framework for managing climate change. - The Convention has the ultimate objective of achieving stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system; and of achieving such a level within a time frame sufficient to allow ecosystems to adapt naturally to economic development to proceed sustainably. Nepal signed this Convention on 12 June 1992 and became Party to it in 1994. Article 4 (f) - impact assessment to avoid or mitigate or adapt to climate change.

4.9 Standards to be Maintained by the Project

Standards	Related Provisions
Nepal Vehicle Mass Emission Standard, 2069	- Compliance with Type I to Type V tests for vehicles fueled with gasoline and diesel while importing vehicles for a project.
Nepal Ambient Air Quality Standards, 2069	- Limits of ambient air quality parameters around construction sites.
Drinking Water Quality Standards, 2079	- Quality of drinking water supply in the project camps and construction sites.
Nepal Noise Standards, 2069	- Noise levels for different land use categories and noise-generating equipment.
Exhaust Emission Standards for Diesel Generating Sets, 2069	- Emissions standards for exhaust emissions of Diesel plants /Generating sets.
National Indoor Air Quality Standards (NIAQS), 2066	- The time-weighted (1~24 hrs) standards are given for PM 10, PM2.5, CO & carbon dioxide (CO ₂) for indoor environments. The units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m ³), and micrograms per cubic meter of air (µg/m ³). Monitoring of carbon dioxide is to ensure the adequacy of the ventilation of the monitoring sites. The provision for measurement of PM2.5 is preferred; the PM2.5 values can be converted to the corresponding PM 10 values by the application of a PM 2.5/ PM 10 ratio of 0.5.

CHAPTER 5. DESCRIPTION OF EXISTING ENVIRONMENT

In this section, Existing Environments have been considered from the approved EIA report. Only new data if collected have been added in this chapter.

5.1 Physical Environment

5.1.1 Topography and Geomorphology

Atmosphere/Air Quality and Noise Level

5.1.1.1 Air Quality

Air quality data were collected during the SEIA study and presented in **Table 11**.

Table 11: Air Quality Data of Different Project Locations

S.N.	Parameters/Site	Camp Site (8:15 to 9:02)	Dam Site(9:57 to 10:07)	Adit 3 (11:09 to 11:19)	Power House (12:02 to 12:11)
1	PM2_5 (ug/m3)	20.62	32.58	11.88	18.09
2	PM10 (ug/m3)	20.87	37.14	14.53	19.60
3	PM01 (ug/m3)	13.36	23.23	8.10	13.13
4	CO2 (ppm)	-202.00	-202.00	-202.00	-202.00
5	SGPCO2 (ppm)	-1.00	-1.00	-1.00	-1.00
6	VOC(ppb)	-1.00	-1.00	-1.00	-1.00

5.1.1.2 Noise Quality

Noise quality data were collected during SEIA and presented in **Table 12**.

Table 12: Noise Quality Data of Different Project Locations

S.N.	Location Name	GPS Point	Sound Quality Leq(dBA)			National Ambient Air Quality Standard 2012
			Min	Avg	Max	
1	Camp Site	28.218404, 85.292568	49.0	55.2	72.9	Silent Zone, 50 Rural Residential Area, 45
2	Head Works	28.28431, 85.256167	65.7	71.3	77.5	
3	Labor Camp	28.271937 85.260665	59.1	64.7	73.1	
4	Adit 3	28.250014, 85.286042	50	58.3	73.8	
5	Power House	28.237763, 85.285916)	67.2	70.1	72.8	

5.1.2 Water quality

The water sample was collected during the SEIA study from Dam Site & Power House area and analysed in the laboratory as presented below.

5.2 Biological Environment

The project site is about 9 km in aerial distance from the buffer zone of Langtang National Park. There is no additional forest loss and there is no need for additional forest land. There is no further collection of the biological environment data.

5.3 Socio-economic and Cultural Environment

The name of the Rural municipality has been updated and the population has been presented as per the recent census.

5.3.1 Project Affected Rural Municipality

5.3.1.1 Aamachhodingmo Rural Municipality

Aamachhodingmo Rural Municipality is located within the Rasuwa district of the Bagmati province of Nepal. This rural municipality is named after Parbati Kunda (Amachhodingmo), a religious place in Rasuwa District. This municipality covers 682.23 square kilometres of the area with 1664 households and 6673 total population as of 2021. Aamachhodingmo rural municipality is very rich in terms of water resources and is characterized by its Chilime, Trishuli and Sanjen Hydropower projects. This rural municipality is a gateway for thousands of national and international tourists for trekking to the Langtang Trekking route and Gosainkunda Lake of Rasuwa District. There are a total of 8 hydropower electricity projects in this rural municipality.

The project area lies within ward no. 5 of Aamachhodingmo Rural Municipality. This ward has 463 households and 1767 populations. Thambuchet, Chilime, Tatopani, Gongang, Muktin, Pajung, Simbu, Tetanghe and Bajharm are the major human settlement areas in this ward. There are 14 community forests in this ward with a total area of 958.27 hectares.

The rural municipality has a total of 1619 households with their housing unit, 29 rented, 12 institutional and 4 other types of buildings. The Ward No. 5 of this RM has 463 housing units out of which 438 are owned by the households themselves, 12 are rented, 12 are institutional and 1 other building. The average population-to-household ratio in Aamachhodingmo RM is 4.01 while the sex ratio is 108.99 males to females. Similarly, in Ward No.5, the household ratio is 3.82 and the sex ratio is 111.36. The main source of drinking water in households of this RM is tap water outside of the building premises as 67.7% of households depend upon the outside drinking tap water. 18.5% of households have their drinking tap water within the building premises. In Ward No. 5, 48% of households use drinking tap water from outside the building premises, 20.95% of households use tap water within their building premises and 30.2% of household use spout water. People use the boiling method as a purification of drinking water. In terms of fuel used for cooking purposes, 81.9% of households depend on wood in the RM, while 65.66% of households use wood and 34.1% of households use Liquefied Petroleum Gas (LPG) for cooking in Ward No. 5. In terms of the energy used for lighting purposes, the households in the RM mainly depend on electricity (95.13%) for lighting while very few (22.2%) use solar energy, and 24.64% of households use other various sources of energy for lighting. In Ward No. 5, 97.62% of households use electricity, 1.08% of households use solar energy and 12.96% of households use other sources of energy. In terms of the use of toilet facilities, the RM mainly used flushing toilets with septic tanks (85.28%), 6.9% of households use pit toilets while 5.8% of households are without any toilet facility. In Ward No. 5, 89.42% of households use flushing toilets with septic tanks, 5.4% of household use pit toilets and 4.75% of households are without any toilet facilities. In terms of education, out of the population size aged 5 years and above, the literacy rate is 73.19% are literate (79.34% literacy in males and 66.54% literacy in females) in the Rural Municipality. In Ward No. 5, the literacy rate is 67.66%, 74.7% of the male are literate while 59.87 % of females are literate.

In terms of social and cultural aspects of the rural municipality, people celebrate Dashain, Tihar, Loshar, Maghe Sankranti, Saune Sankranti, Christmas and Manejatra festivals. The Bhadra Purnima Mela is a famous religious fair where local and national tourists visit Parbati Kunda, Jaeshwor, Noje

Kunda, Gosain Kunda and Gopyo Kunda on this occasion. Ward No. 5 has Tatopani, Purano Tatopani, Nagthali, and Tamang Sampada Trek route as main tourist destinations. Tamang (97.8%) is the major caste with very few Kami, Newar, Brahmin, Sherpa, and Tibetan castes in this ward

CHAPTER 6. ALTERNATIVE ANALYSIS

The alternative study is the same as in the approved EIA.

CHAPTER 7. PREDICTION AND ASSESSMENT OF IMPACT

ENV

This section of the report deals with additional environmental issues identified as Different from the approved EIA.

7.1 Beneficial Impacts

The beneficial impact during the construction and operation of the project are the same as in Approved EIA only the cost of CSP has been increased compared to the approved EIA.

7.2 Adverse Impacts

7.2.1 Physical Environment

7.2.1.1 Construction Phase

7.2.1.1.1 Land use Change

The land required for the installation of the permanent project structures and support facilities is not more than the approved EIA (total permanent land is 15.7 ha and temporary 12.15 ha). The total permanent land is 14.02 ha of forest land and temporary is 10.23 ha as in the given table 13.

Table 13: Expected Land Use Changes in SKHEP

Description	Forest (ha)	Barren (ha)	Grassland (ha)	Total (ha)
As per EIA	15.16	12.59	0.10	27.85
For Revision	15.16	9.10	0	24.25

The land use is different but all land belongs to National Forest (under MoFE).

7.2.1.1.2 Change in Land Stability and Erosion

The changes in land stability and associated erosion and sedimentation are envisaged in the excavation sites (Adit portals, access roads, weir intake) and spoil & muck deposition sites. Steep cutting at Adit portals is envisaged to impart land stability problems compared to the access Adit to the powerhouse. The slopes at the Adit portal sites are already steep and excavation without consideration of land stability could increase the risk of land instability as well as upland erosion and low land deposition. Though the excavation areas are made up of bedrock, the jointing in the rocks has the potential for rock failure.

7.2.1.1.3 Generation of More Solid Waste

During the construction phase, there will be more no. of workers in the camps and workplaces. This workforce generates more solid waste on the project site. If the scenery pollution on the site. Furthermore, during the construction period, there will be waste that generates from the construction materials. If not managed properly it also causes soil pollution and scenery pollution as well.

7.2.1.2 Operation Phase

The impacts are as in the EIA report.

7.2.2 Summary of Adverse Impact Prediction on the Physical Environment

Table 14 briefly summarizes the predicted impacts on the physical environment. In this table the value of the impacts given based on the design change in the project which led the project to SEIA and the current stage of the construction.

Table 14: Adverse Impact on the Physical Environment

<i>S.N.</i>	<i>Physical Issues</i>	<i>Impacts</i>	<i>Direct / Indirect Impact</i>	<i>Extent</i>	<i>Duration</i>	<i>Magnitude</i>
<i>PC</i>	<i>Construction Phase</i>					
<i>PC.1</i>	<i>Adverse Issues</i>					
<i>PC.1.1</i>	<i>Change in Land Stability and Erosion</i>	<i>Conversion of land for elevated lands in the spoil & muck disposal sites</i>	<i>D</i>	<i>S</i>	<i>LT</i>	<i>Lo</i>
<i>PC.1.2</i>	<i>Generation of more solid wastes</i>	<i>Creates soil and scenery pollution, if not managed properly</i>	<i>D</i>	<i>S</i>	<i>LT</i>	<i>M</i>

Note: D= Direct; ID = Indirect, S= Site specific; L = Local, R = Regional; ST= short term, NA = Not Applicable of No impact, MT = Medium Term, LT = Long Term; Lo= Low, M = Moderate, H = High

7.2.3 Chemical Environment

The impacts are as in the EIA report.

7.2.4 Biological Environment

There is no further impact on Biological Environment.

7.2.5 Socio-economic Environment

There are no further impacts.

CHAPTER 8. ENVIRONMENTAL MITIGATION MEASURES

The mitigation measures are as presented in the EIA report and for additional impacts, the mitigation measures are presented below.

8.1.1 Physical Environment

8.1.1.1 Mitigation Measures

Project impacts on the physical environment are discussed in the previous chapter without a mitigation scenario.

Table 15: Physical Environmental Issues/Impacts/Mitigation Matrix

S.N.	Physical Issues	Impact	Mitigation Measures	Mitigation Cost in EIA (NPR)	Added Mitigation Cost in SEIA (NPR)
PO.1.2	Generation of more solid waste	Soil and scenery pollution	Proper solid waste management	Not included	100000
Total				-	100000

8.1.2 Chemical Environment

8.1.2.1 Mitigation Measures

The mitigation measures same as in the EIA of 2015.

8.1.3 Biological Environment

8.1.3.1 Mitigation Measures

The mitigation measures are compared with the approved EIA of 2015.

Table 16: Biological Environmental Issues/Impacts/Mitigation Matrix

S.N.	Biological Issues	Impact	Mitigation Measures	Mitigation Cost in EIA (NPR)	Added Mitigation Cost in SEIA (NPR)
BC	Construction Phase				
BC.1	Adverse Issues				
BC.1.8	Decrement of pasturelands of Yaks and other Cattle	Since the structures that occupy the major land use has been already completed, it has decreased the pasturelands for yaks and cattle. Furthermore, the construction of headworks structures may disturb their mobility as well as	Support for trail and passing ways through the dam site for upward and downward movement	Not included	350000 and its responsibility of the project as per need

S.N.	Biological Issues	Impact	Mitigation Measures	Mitigation Cost in EIA (NPR)	Added Mitigation Cost in SEIA (NPR)
		wildlife mobility on this site			
Total					350000

8.1.4 Socio-Economic and Cultural Environment

8.1.4.1 Mitigation Measures

The mitigation measures are compared with the approved EIA of 2015. The designed mitigation measures for socio-economic and cultural environments are briefly presented in **Table 17** in a matrix form relating environmental issues, related impacts and the corresponding mitigation measures.

Table 17: Socio-economic and Cultural Environmental Issues/Impacts/Mitigation Matrix

S.N.	Socio-economic Issues	Impact	Mitigation Measures	Mitigation Cost in EIA (NPR)	Added Mitigation Cost in SEIA (NPR)
SC	Construction Phase				
SC.1	Adverse Issues				
SC.1.4		Loss of community forest resources	Community forest User groups will be supported through direct financial assistance, involvement in the afforestation programs, and training on herbal farming within the community forest area	500000	100000
SO. Operation Phase					
SO.1 Adverse Issue					
SO.1.1	Pastureland, water and forest resources	Decrement in pastureland, water for yaks and cattle and forest resources for the local community	Making water ponds in the project sites that should be drinkable for cattle and wildlife	-	75000
					175000

8.1.5 Environmental Enhancement Programs

8.1.5.1 Community Support Program As mentioned in the EIA report

Table 18: Development Aspiration of the Local Communities of the Project Area

Sector	Aspirations
Education	Upgrading the schools to a higher level
	Support on school infrastructures such as compound fencing, school buildings etc
	Assist with furniture, blackboard, playing material, book and computer and recruitment of qualified teachers
Health	Establishment of primary-level health care facility
	Provisioning of medicinal facilities in the health care facility
	Recruitment of permanent & proficient health technicians from local communities to operate the primary health care facility
Water Supply	Assist in the establishment of a safe drinking water supply system at the community level
	Assist in the protection of local water resources
Rural Electrification	Rural electrification from the proposed Hydropower project in Parajan, Gongang, Pajung, Brajam, and Simbu communities of former Chilime VDC. The project proponents will be primarily responsible; however, the proponent shall coordinate with the local communities for the implementation of rural electrification.
Other Infrastructures	Community building in the village shall be improved and rehabilitated by the project
	Assist in the development and maintenance of the road from Rasuwagadhi Road to Tatopani
	Assist in the maintenance of the cattle track to Kharka areas of the area
	Assist in the development of Tatopani hot spring as the tourist centre
	Assist in landslide protection including afforestation and biodiversity conservation (Paragn, Gogan, Pajun, Brajam, Paijun and Simbu areas)
Employment Opportunity	The project should give priority to local people for employment in the proposed project based on their skills and capability.
Skill Training	Provide skill training for livelihood and income enhancement including project construction and operation-related skills
Total allocated cost	2,07,12,500

Source: CSP from EIA of SKHEP, 2015

8.1.5.2 Community Support Program

The community support program has been revised as per the demand of the RM. The changing local bodies of RM also affected the CSP. However, the cost of the CSP has been revised as per the present project cost. Total CSP is 8,51,52,645

Table 19: Community Support Program as done till the Date

S.N	Description of Work	Location	Unit Price including VAT	Amount
1	Pajung Community House foundation excavation, Stone breaking, levelling	Pajung	5,700.00	1,140,000.00

2	Brajam Gumba foundation excavation, Stone breaking, levelling	Brajam	5,700.00	855,000.00
3	Tatopani Primary School foundation excavation, stone breaking, levelling	Tatopani	5,700.00	228,000.00
4	Tatopani Community House excavation, stone breaking, levelling	Tatopani	5,700.00	1,231,200.00
5	Tatopani Village Road repair (2 times) including new track open	Tatopani	5,300.00	339,200.00
6	Jyalna Chhupchung bridge gabion box support	Jyalna Chhupchung	4,237.50	169,500.00
7	Gonggang Agricultural Road (breaker not used)	Gonggang	5,300.00	879,800.00
8	Bremdang Agricultural Road(breaker used mostly)	Tatopani-Bremdang	5,700.00	456,000.00
9	School Support	Thambuchet-Pajung-Tatopani		1,833,760.00
10	Support to Poor people for house repair	Gonggang		700,000.00
11	Tatopani Water Tank Support (Sand and Aggregate)	Tatopani		130,500.00
12	Dora Construction	Pajung		950,000.00
13	COVID Time Support to Community Hospital at Chilime	Chilime		200,000.00
14	Water supply maintenance	Tatopani	20000	300,000.00
15	Fuel for maintenance of road	Thambuchet		310,580.00
16	Yak camp and access road(labour cost for management)	Tatopani		52,038.00
17	Yak camp and access road repair	Tatopani	20000	300,000.00
Total spent till 2022 December				10,075,578.00

CHAPTER 9. ENVIRONMENTAL MANAGEMENT PLAN

9.1 Environmental Mitigation Management Plan

The environmental mitigation measures described in the chapter will be implemented in different phases of proposal implementation. The Environmental Mitigation Management Plan briefly describes impacts, description of mitigation action required, individual or agency responsible, national standards and guidelines, the timing of actions, responsible authority, and tentative financial requirements. There is no change in EMP.

Table 20: Mitigation Management Plan

S.N.	Impact	Mitigation Measures	Individuals / Agency responsible	National Standards or Guidelines/ Approved Documents	Timing of Actions	Competent Authority/ agency	Mitigation Costs as per EIA (NPR)	Added Mitigation Cost in SEIA (NPR)
I	Biological Environment (Construction Phase)							
B.1.1	Decrement of pasturelands of Yaks and other Cattle	Support for trail and passing ways through the dam site for upward and downward movement	ESISU	SEIA	Construction /post construction	ESMSU	Not included	350000 and its responsibility of the project as per need
I	Physical Environment (Operation Phase)							
P.1.1	Land Pollution	Establishment of solid and sewage wastes management systems in the permanent camps and powerhouse areas	Project Operator	SEIA	Operation	Project Operation Manager	Included in operation costs	100000 and Project Responsibility
III	Biological Environment							
B.1.2	Decrement in pastureland, water for yaks and cattle and forest resources for the local community	Making water ponds in the project sites that should be drinkable for cattle and wildlife	Project Operation Manager	SEIA	Operation phase	Project Operation Management	Not included	75000 and the remaining are already included in the previous section

9.2 Environmental Monitoring Management Plan

The environmental monitoring plan designed for the project has three main objectives;

- To ensure that the project baseline conditions were adequately documented such that a comparative assessment of the project baseline before and after the project could be made objectively for impact evaluation.
- To ensure that the mitigation commitments to minimize the predicted adverse impacts and maximize the beneficial impacts including the environmental enhancement programs were complied with and implemented in time and with sincerity by the project.
- To verify that the project impacts were within the limits of the EIA impact prediction or that some unforeseen impacts also occurred during project development and what measures were taken to minimize the unforeseen impacts.

Taking into account the above objectives, three types of monitoring are envisaged in the plan, namely: Baseline Monitoring, Compliance Monitoring and Impact Monitoring. Since the required databases for the environmental baseline (except for air and noise) are already collected by the EIA study, the project is not envisaged to require Baseline Monitoring in other environmental sectors except for ambient air and noise levels.

The impact monitoring comprises monitoring of the key baseline indicators whose pre-project baseline is well documented for a comparative environmental assessment in various stages of project development. The estimates are presented in the following tables and a total of Nrs 4,95,000/- is needed in addition to the proposed cost in the approved EIA.

Table 21: Baseline Monitoring Plan

S.N.	Indicator	Individuals responsible	Methods	Frequency/Time	Place	Financial commitment (NPR.)
1	Ambient air quality for TSP/PM10 (ug.m3)	ESMSU	High volume air sample /Low volume air sampler	24 hrs/ once before the start of construction	Headwork and powerhouse	Same as in EIA
2	Noise Level	ESMSU	Noise Level Meter	15 minutes for four different time zone	Headwork and powerhouse	Same as in EIA

Table 22: Impact Monitoring, Pre-construction, Construction, Post construction and Operation Phase

S.N.	Monitoring Indicator	Individuals responsible	Methods	Frequency/Time	Place	Financial commitment (NPR.)
Construction Phase						
Physical and Cultural Environment						
1.	Increase in noise pollution	ESMSU	Instrumental measurements of noise A weighted averages (dBA) by noise level meters	Every 4 months during construction	Headwork and powerhouse	Same as in EIA
Chemical Environment						
2.	Water Quality of Sanjen Khola	ESMSU	Sample collection and laboratory testing for the parameters listed in Table 8.1	Every 4 months	Sanjen Khola above and below headwork and powerhouse	Same as in EIA
3.	Water quality of effluents	ESMSU	Sample collection and laboratory testing for the parameters listed in Table 8.1	Every 4 months during construction	Effluent discharges from camps, tunnel Adits, aggregate washing plants, desander, powerhouse, spoil disposal site, batching plants	Same as in EIA
4.	Water Quality of potable waters	ESMSU	Sample collection and laboratory testing for the parameters listed in Table 8.2	Every 4 months during construction	Engineer camp, two construction camps and two labour camps	Same as in EIA

S.N.	Monitoring Indicator	Individuals responsible	Methods	Frequency/Time	Place	Financial commitment (NPR.)
5.	Ambient air quality	ESMSU	Instrumental measurements of air quality by high or low-volume samples for parameters listed in Table 8.3	Every 4 months during construction	Headworks and powerhouse	Same as in EIA
Biological Environment						
Operation Phase						
Socio-economic Environment						
6.	People's Perception of environmental enhancement programs	Project Manager	Discussions with the beneficiary of enhancement programs	Once, after 2 years of project operation	Project affected RM	Same as in EIA
Physical and Cultural Environment						
Chemical Environment						
7.	Water Quality of Sanjen khola	Project Manager	Sample collection and laboratory testing for the parameters listed in Table 9.1	Once every year for 30 years	Sanjen Khola above and below headwork and powerhouse	Same as in EIA
Biological Environment						
8.	Status of afforestation and survival rate	Project Manager	Records of afforestation and counting of survival	Once every 3 years 30 years	Afforestation area within project affected District	Same as in EIA

9.3 EMP Implementation

The EMP implementation has been planned with the establishment of the Monitoring Unit at the site for correction of the impacts and presentation of the monthly report.

CHAPTER 10. CONCLUSION AND RECOMMENDATION

The key environmental impacts of the project could be mitigated to acceptable levels through the implementation of the mitigation measures as mentioned in the approved EIA, and there have been no further mitigation measures proposed in the SEIA appraisal. The summary of all costs is given below

Table 23: Cost Estimates of Environmental Mitigation, Monitoring and Environmental Enhancement

Particulars	Costs (NPR)	SEIA Additional Cost
Mitigation (Construction Phase)		
Socio-economic	3525000	
Cultural and Physical	6378363	
Chemical	0	
Biological	10256599	
Sub-total	20159962	
Mitigation (Operation Phase)		
Socio-economic	0	
Cultural and Physical	0	
Chemical	0	
Biological	4000000	
Sub-total	4000000	
Grand Total (Mitigation)	42659962	
% of Project Cost	0.41	
% of Annual Energy Sale	2.18	
Monitoring (Construction)		
Socio-economic (instrumental monitoring)	0	
Cultural and Physical (instrumental monitoring)	525000	
Chemical (instrumental monitoring)	2620000	
Biological (instrumental monitoring)	0	
Monitoring Consultant (outsourcing)	23325000	
Sub-total	26470000	Added: 4,95,000/-
Monitoring (Operation Phase)		
Socio-economic (instrumental monitoring)	0	
Cultural and Physical (instrumental monitoring)	0	
Chemical (instrumental monitoring)	800000	
Biological (instrumental monitoring)	0	
Monitoring Consultant (outsourcing)	1000000	
Sub-total	1800000	
Grand Total (monitoring)	28270000	
% of Project Cost	0.27	
% of Annual Energy Sale	1.44	
Environmental Audit		
Environmental Audit	700000	

% of Project Cost	0.007	
% of Annual Energy Sale	0.04	
Environmental Enhancement		
Environmental Enhancement	20712500	Nrs 8,51,52,645/-
% of Project Cost	0.2	
% of Annual Energy Sale	1.05	
Grand Total Mitigation, Monitoring, Adit and Environmental Enhancement	67342462	
% of Project Cost	0.88	
% of Annual Energy Sale	4.72	

Surge Tank, which was present in the approved EIA has been removed from the design, therefore the SEIA has been carried out. The land required for the installation of the permanent project structures and support facilities is not more than the approved EIA (total permanent land is 15.7 ha and temporary 12.15 ha). The total permanent land is 14.02 ha of forest land and temporary is 10.23 ha. There are slight changes in the project components and spoil sites but there will be no further impacts compared to the approved EIA. Therefore, this SEIA has been done as per the EPR rule 11, sub-rule 6 and the project proponent is committed to all the conditions given during approval of EIA 2015 and also EPA 2019 and EPR 2020. The project proponent ensures to implementation of the environmental management plan designed for the project and requests the approval of this SEIA report so that the construction will be completed on time. This report will remain as part of the approved EIA and all the EMP and Monitoring activities will be done based on the approved EIA. The additional impacts observed during construction will also be addressed with the cost to be borne by the proponent. This SEIA report is an integral part of the approved main EIA report (2015).

References

- Department of Electricity Development: <https://www.doed.gov.np/>
Detail Design Report of SKHEP, 2021. Salasungi Power Ltd.
EIA of Sanjen Khola HEP 78 MW, Rasuwa. 2015 (Approved Report)
EPA. 2076. Environment Protection Act of 2076. Ministry of Law, Justice, and Parliamentary Affairs. Law Books Management Board. Kathmandu, Nepal.
EPR. 2077. Environment Protection Regulation 2077. Ministry of Law, Justice, and Parliamentary Affairs. Law Books Management Board. Kathmandu, Nepal.
GoN.1993. National Environmental Assessment Guidelines. Nepal Gazette (Rajpatra), 3(5). Kathmandu, Nepal.

List of Annexes

Annex 1: Pictorial Highlights

Annex 2:Permits

Annex 3: Public Hearing

Annex 4: Declaration and Experts CVs

Annex 5: Deed of Enquiry

Annex 6: Seven-Day Notification

Annex 7: Minutes

Annex 8: Recommendation

Annex 9: Water quality Report

Annex 10: Proof of Foreign Investment

Annex 11: Comment Incorporation Matrix

Annex 1 Pictorial Highlights



Air Monitoring



Powerhouse



Visit of Experts at Site



Ferns



Mechanical Yard



Soil Samples

Annex 2 Permits



पञ्चोत्तरजा पत्र संख्या मिति उल्लेखित हुन अपेक्षित छ ।

नेपाल सरकार

वन तथा वातावरण मन्त्रालय

EX: पो.नं. : ३८८७
सिंहदरवार, काठमाडौं

(वातावरण तथा जैविक विविधता महाशाखा)

पत्र संख्या :-

वलासी नं. १०८३


प्राप्त पत्र संख्या र मिति :-

मिति:- २०७९/०२/१२

श्री ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय,
सिंहदरवार, काठमाडौं।

विषय:- पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन गर्न अनुमति प्रदान गरिएको बारे ।

प्रस्तुत विषयमा तहाँ मन्त्रालयको मिति २०७९/०१/२७ च.नं. ११६१ को पत्रसाथ प्राप्त श्री सालासुङ्गी पावर प्रा.लि.द्वारा वागमती प्रदेश रसुवा जिल्लामा निर्माणका लागि प्रस्तावित सान्जेनखोला जलविद्युत (७८ मे.वा.) आयोजनाको पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन गर्न अनुमतिको लागी कारवाही हुँदा प्रस्तावित सान्जेनखोला जलविद्युत (७८ मे.वा.) आयोजनालाई वातावरण संरक्षण ऐन, २०७६ को दफा ११ को उपदफा (३) अनुसार पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन गर्ने प्रयोजनको लागी अनुमति प्रदान गरिएको व्यहोरा वन तथा वातावरण मन्त्रालय (सचिवस्तर) को मिति २०७९/०२/११ को निर्णयानुसार अनुरोध छ।


अमर बहादुर ओली
समाजशास्त्री

बोधार्थ:-

श्री सालासुङ्गी पावर प्रा.लि., काठमाडौं।

फोन नं.: ८२११७०३, ८२११७३७, ८२११५९८, ८२११८६८ फ्याक्स नं.: ८२११८६८



नेपाल सरकार
ऊर्जा मन्त्रालय

विद्युत विकास विभाग

(.....अनुमतिपत्र महाशाखा.....)

पत्र संख्या :- ०७२/७३
चलानी नम्बर :- ३२४

फोन नं. ४४७४८२२, ४४८०२७६
४४७८०८५, ४४८०३२६
४४८०४२५, ४४९६८००
४४८१६१६, ४४७६९९०
फ्याक्स (९७७-९)-४४८०२५७
पोष्ट बक्स नं. २५०७
थापागाउँ, अनामनगर
काठमाडौं, नेपाल
मिति: २०७३/०३/३०

विषय:- सान्जेन खोला जलविद्युत आयोजना (७८ मे.वा.) को विद्युत उत्पादन अनुमतिपत्रको दरखास्त बारे ।

श्री सालासुङी पावर लिमिटेड,
सानेपा, ललितपुर, ।
पो. ब. नं. १३३३१,
फोन नं. ०१-५५५१२४८,
Email: info@salasungi.com.

प्रस्तुत विषयमा त्यस प्रा.लि. ले सान्जेन खोला जलविद्युत आयोजना (७८ मे.वा.) को विद्युत उत्पादनको अनुमतिपत्र पाउन मिति २०७३/०१/१७ मा दिएको दरखास्त अनुसार विद्युत ऐन, २०४९ को दफा (४) को उपदफा (२) र विद्युत नियमावली, २०५० को नियम १७ बमोजिम नेपाल सरकार, ऊर्जा मन्त्रालय (सचिवस्तर) को मिति २०७३/०३/०९ को निर्णयानुसार मिति २१०८/०३/०८ सम्म बहाल रहने गरी जारी भएको ७८ मेगावाट क्षमताको विद्युत उत्पादनको अनुमतिपत्र संख्या वि.वि.वि. ०७२/७३ वि.उ. १६० यसै साथ संलग्न गरी पठाइएको व्यहोरा अनुरोध छ ।

संलग्न: विद्युत उत्पादनको अनुमतिपत्र संख्या वि.वि.वि. ०७२/७३ वि.उ. १६० ।

Alexander
(दिपक मुडवरी)
इन्जिनियर

बोधार्थ:

श्री ऊर्जा मन्त्रालय, सिंहदरवार
श्री विद्युत विकास विभाग

- > आयोजना अध्ययन महाशाखा
- > निरीक्षण तथा अनुगमन महाशाखा
- > योजना महाशाखा
- > आर्थिक प्रशासन शाखा

मिति २०७१/०८/२९ मा आ.र.नं. ४२४१, ने.रा.वै. ध.प्रौ.नं. ००२४८० बाट अनुमतिपत्र दस्तुर बापत रू ३०,००,०००/०० अक्षरूपी रू. तिस लाख मात्र राजश्व खातामा जम्मा हुन ।

श्री जिल्ला जलश्रोत समिति, रसुवा ।



नेपाल सरकार
न्याय विभाग

ऊर्जा उत्पादनको अनुमतिपत्र विद्युत उत्पादनको अनुमतिपत्र

(सान्जेन खोला जलविद्युत आयोजना: ७८,००० कि.वा)

अनुमतिपत्र संख्या: वि.वि.वि. ०७२।७३ वि.उ. १६०

श्री सालासुङ्गी पावर लिमिटेड,
सानेपा, ललितपुर,
फोन नं. ०१-५५५१२४८,
Email: info@salasungi.com.

महाशय,

विद्युत उत्पादनको लागि अनुमतिपत्र पाउन मिति २०७३/०१/१७ मा दिनुभएको दरखास्त अनुसार देहायका विवरणहरू खोली विद्युत ऐन, २०४९ को दफा (४) को उपदफा (२) र विद्युत नियमावली, २०५० को नियम १७ बमोजिम देहायका शर्तहरू सहित यो अनुमतिपत्र प्रदान गरिएको छ ।

१. अनुमतिपत्र पाउने व्यक्ति वा संगठित संस्थाको पुरा नाम र ठेगाना :

श्री सालासुङ्गी पावर लिमिटेड,
सानेपा, ललितपुर,
फोन नं ०१-५५५१२४८,
Email: Info@salasungi.com.

२. विद्युत परियोजनाको नाम : सान्जेन खोला जलविद्युत आयोजना (ROR).
जडित क्षमता : ७८,००० किलोवाट ।
सरदर वार्षिक उत्पादन : ४२३.७४८ मिगावाट घण्टा विद्युतशक्ति ।

३. विद्युतशक्ति उत्पादन गर्ने साधन : जलस्रोत ।

४. जलस्रोत उपयोग गरिने भए :

(क) नदीको नाम : सान्जेन खोला ।

(ख) जलस्रोत उपयोग गर्न पाइने क्षेत्र :

(अ) अञ्चल : बागमती ।

(आ) जिल्ला : रसुवा ।

(इ) गा.वि.स./नगरपालिका : चिलिमे ।

पूर्व : ८५° १८' २१" E पूर्वी देशान्तर ।

पश्चिम : ८५° १५' ००" E पूर्वी देशान्तर ।

उत्तर : २८° १७' ११" N उत्तरी अक्षांश ।

दक्षिण : २८° १४' २६" N उत्तरी अक्षांश ।

(ग) प्रयोग गरिने जलस्रोतको परिमाण: डिजाइन डिस्चार्ज (Design Discharge) ९.३

घनमीटर प्रतिसेकेण्ड र ग्रस हेड १०१२.६५

मी. ।

५. मुख्य मुख्य संरचनाहरूको विवरण र रहने स्थान :
सान्जोन खोला जलविद्युत आयोजनाको मुख्य संरचनाहरू विभिन्न विकास समितिमा पर्दछन् ।
- क) बाँध र ईन्टेक (Weir and Intake):
आयोजनाको लागि पानी फर्काउन निर्माण गरिने बाँध (Gravity Free flow weir) को लम्बाई १३.० मी., Crest Level 3393 m amsl तथा खोलाको bed level बाट २.३१ मी. को उचाईमा हुनेछ । आयोजनाको अधिकतम जल सतह (High flood level) ३३९५.८ मी. हुनेछ र बाँध संगै २.५ मी. x १.९ मी. साइजको २ वटा Opening भएको Orifice Side Intake निर्माण गरिनेछ ।
- ख) ग्राभल ट्याप (Gravel Trap), अप्रोच क्यानल (Approach Canal) तथा बालुवा थिग्र्याउने ट्याङ्की (Settling Basin):
Intake बाट निस्केको पानीलाई ८.० मी. लम्बाई, ४~६ मी. चौडाई र ३.४५ मी. गहिराई भएको Gravel Trap हुँदै १४०.६ मी. लम्बाई, ४.० मी. चौडाई र २.० मी. उचाई भएको Approach Canal मार्फत ९०.० मी. लम्बाई, १०.० मी. चौडाई र ४.५ मी. गहिराई भएको बालुवा थिग्र्याउने ट्याङ्की (Settling Basin) सम्म लगिनेछ ।
- ग) हेडरेस टनेल (Headrace Tunnel) तथा सर्ज ट्याक (Surge Tank):
बालुवा थिग्र्याउने ट्याङ्कीबाट निस्केको पानीलाई करिब ४४१३.२७ मी. लम्बाई र २.४ मी. Finished Diameter भएको Headrace Tunnel मार्फत ६.० मी. व्यास र ३०.५ मी. गहिराई भएको Surge Tank सम्म लगिनेछ ।
- घ) पेनस्टक पाइप (Penstock Pipe):
Surge Tank बाट पानीलाई करिब १७९६.६ मी. लामो, २.० मी. Finished Diameter भएको Penstock Pipe बाट विद्युतगृह (Powerhouse) सम्म पुऱ्याईनेछ ।
- ङ) विद्युत गृह (Power House):
सान्जोन खोला जलविद्युत आयोजनाको भूमिगत विद्युत गृह (Underground Powerhouse) ८७.३ मी. लम्बाई, १४.० मी. चौडाई र १४.० मी. गहिराईको हुनेछ । विद्युत गृहमा ५ वटा Horizontal Axis Pelton Turbine (15.6MW rated output) र 18400 kVA Rated Output, 0.85 pf तथा 11 kV Rated Voltage भएको ५ वटा जेनेरेटरहरू मार्फत ७८ मे.वा. विद्युत उत्पादन गरिने छ ।
- च) टेलरेस (Tailrace):
विद्युत गृहबाट निस्केको पानीलाई १७३.० मी. लम्बाई, २.६ मी. चौडाई, २.६ मी. उचाई, र Out let level समुन्द्री सतहबाट २३७४.३५५ मी. भएको Tailrace canal मार्फत सान्जोन खोलामा पठाईनेछ ।
- छ) प्रसारण लाईन (Transmission Line):
यस आयोजनाबाट उत्पादित विद्युत, विद्युत गृह सँग रहेको १३२ के. मी. को स्वीचयाई बाट करिब १० कि.मी. लामो १३२ के. मी. प्रसारण लाईन मार्फत प्रस्तावित १३२/२२० के. मी. को नेपाल विद्युत प्राधिकरणको चिलिमे हब (सवस्टेशन) मा जोडिनेछ ।
६. अनुमतिपत्र बहाल रहने अवधि :
मिति: २०७३/०३/०९ देखि २१०८/०३/०८ सम्म ।
७. अन्य शर्तहरू :
(क) निम्न कागजातहरू तथा सोमा हुने संशोधन समेत यस अनुमतिपत्रको अभिन्न अङ्गको रूपमा रहनेछन् ।
(अ) Detailed Feasibility study Report Vol. I, ii, iii, Detailed Feasibility study Report Revised Vol. I, ii, iii, Updated Feasibility Study Report Volume I (Main Report), July 2014; Volume II: Drawings; Volume III:



- (आ) नेपाल सरकार, ऊर्जा मन्त्रालय (सचिवालय) को मिति २०७१।०४।२८ का निर्णयानुसार स्वीकृत सान्जेन खोला जलविद्युत आयोजनाको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन । (मन्त्रालयको मिति २०७१।०४।२८, च.नं. २६७ को अनुसूची १ (एक) मा संलग्न पत्रमा उल्लेख भएका शर्तहरू कार्यान्वयन गर्ने गरी) ।
- (इ) त्यस संस्था र नेपाल विद्युत प्राधिकरण बिच मिति २०७२।१२।०२ मा सम्पन्न भएको विद्युत खरीद विक्रि सम्झौता ।
- (ख) आयोजनाको विस्तृत इन्जिनियरिङ डिजाइन तथा सोको लागि आवश्यक पर्ने फिल्ड अन्वेषणको कार्य, सुरक्षात्मक व्यवस्था सम्बन्धी जिम्मेवारी तथा वातावरणीय प्रभाव न्यूनीकरण सम्बन्धी सम्पूर्ण उत्तरदायित्वहरू त्यस संस्थामा रहनेछ ।
- (ग) आयोजनाको विद्युत उत्पादन क्षमतामा असर नपर्ने गरी माथि (क) (अ) मा उल्लिखित प्रतिवेदन तथा प्रकरण (५) मा उल्लिखित मुख्य संरचनाहरूको डिजाइनमा बृहद वा उल्लिखनीय परिवर्तन गर्नुपरेमा वा संरचना नै थपघट गर्नुपरेमा सोको पूर्व स्वीकृति लिनुपर्नेछ । तर परियोजनाको निर्माणस्थलमा वातावरणीय वा अन्य प्रतिकूल असर नपर्ने गरी परियोजनाको स्थान तथा डिजाइनमा सामान्य हेरफेर वा परिवर्तन गर्नुपरेमा तत्सम्बन्धी जानकारी ऊर्जा मन्त्रालय, विद्युत विकास विभागलाई दिई गर्न सकिनेछ ।
- (घ) त्यस संस्थालाई प्रदान भएको यस अनुमतिपत्रको प्रकरण ४ मा उल्लेख भएको क्षेत्रभन्दा बाहिर नजाने गरी आयोजनाको संरचनाहरू (जलाशयवाट सिर्जना हुने Back Water, Tail Water लगायत) निर्माण गर्नुपर्नेछ ।
- (ङ) अनुमतिपत्र जारी भएको १ (एक) वर्ष भित्र विद्युत नियमावली, २०५० को नियम २१ बमोजिम भौतिक रूपमा निर्माण कार्य शुरू गर्नुपर्नेछ र निर्माण कार्य सम्पन्न नभएसम्म प्रत्येक ६ महिनामा कार्य प्रगति विवरण विद्युत विकास विभागलाई दिनुपर्नेछ । दुई वर्षभित्र वित्तीय व्यवस्था (Financial Closure) नभएमा यो अनुमतिपत्र रद्द गरिनेछ । उक्त अवधि भित्र वित्तीय व्यवस्था सम्पन्न हुन नसकेमा आवश्यकता एवं औचित्यका आधारमा बढिमा एक वर्षमात्र म्याद थप गर्न सकिनेछ । उक्त अवधिमा पनि वित्तीय व्यवस्था सम्पन्न हुन नसकेमा यो अनुमतिपत्र स्वतः रद्द हुनेछ ।
- (च) आयोजना निर्माण तथा सञ्चालन सम्भार अवधिभर वातावरणमा उल्लेखनीय प्रतिकूल असर नपार्नका लागि वातावरण संरक्षण ऐन, २०५३ तथा वातावरण संरक्षण नियमावली, २०५४ र वातावरण सम्बन्धी अन्य प्रचलित कानूनहरू पालना गर्नुपर्नेछ ।
- (छ) नेपाल सरकार, विज्ञान प्रविधि तथा वातावरण मन्त्रालय (सचिवालय) को मिति २०७१।०४।२८ को निर्णयानुसार स्वीकृत सान्जेन खोला जलविद्युत आयोजनाको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लिखित वातावरणीय प्रभाव न्यूनीकरण (Mitigation), व्यवस्थापन तथा अनुगमन योजनामा उल्लिखित प्रावधानहरू तथा मन्त्रालयवाट थप गरिदिएका बुँदाहरू समेतको अधीनमा रही न्यूनीकरण तथा अनुगमनका कार्यहरू अनिवार्य रूपले कार्यान्वयन गर्नु गराउनु पर्नेछ । आयोजना निर्माण तथा सञ्चालन/सम्भारको अवधिमा अन्य थप न्यूनीकरणका उपायहरू अपनाउनुपर्ने देखिएमा सो समेत गर्नु गराउनु पर्नेछ । न्यूनीकरण तथा अनुगमन योजनामा संशोधन गर्नु परेमा ऊर्जा मन्त्रालय तथा त्यस संस्थाको आपसी सहमतिमा गर्न सकिनेछ ।
- (ज) यस अनुमतिपत्रको अवधिभर स्वीकृत वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेख भए बमोजिम जलचरको संरक्षणको लागि सुख्खा मौसमको खोलाको वहावको तोकिए बमोजिमको न्युनतम पानी (०.२१ घनमीटर प्रति सेकेण्ड) निरन्तर खोलामा छाड्नुपर्नेछ । साथै स्वीकृत EIA प्रतिवेदनमा उल्लेख भएअनुसार बाँध भन्दा तल्लो तटीय क्षेत्रमा पानी खोलामा छाड्न र माछाको आवत जावतको लागि सोही प्रतिवेदनमा तोकिए बमोजिम संरचना निर्माण गर्नु पर्ने दायित्व त्यस संस्थाको हुनेछ ।
- (झ) आयोजनाको निर्माण, सञ्चालन तथा सम्भारका लागि कम्पनीले आयात गर्ने निर्माण उपकरण, मेशिनरी, औजार तथा सोको लागि आवश्यक पार्टपुर्जामा विद्युत ऐन, २०४९ तथा अन्य प्रचलित कानून बमोजिमको सुविधा कम्पनीलाई उपलब्ध हुनेछ । अस्थाई

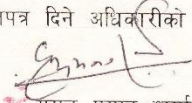
- निर्माण उपकरण, मेशिनरी औजार तथा सोभानामा आवश्यक पार्टपुर्जाहरू प्रचलित कानून बमोजिम कम्पनीले आयात गर्न सक्नेछ ।
- (ज) विद्युत ऐन २०४९, विद्युत नियमावली २०५० तथा अन्य प्रचलित ऐन नियमहरूको अधीनमा रही आयोजना कार्यान्वयन तथा सञ्चालन/सम्भारको लागि आवश्यक पर्ने विविध स्थानीय अनुमतिपत्र तथा स्वीकृतीहरू, संचार सुविधा, विस्फोटक पदार्थ, पेट्रोलियम पदार्थ (ईन्धन), जग्गा खरीद, पानी, सडक निर्माण, शैक्षिक, स्वास्थ्य सुविधा, हेलिप्याड निर्माण लगायतका कार्यहरू गर्न तथा विदेशबाट आउने सामानहरू आयात गर्नका लागि कम्पनीले अनुरोध गरेमा विद्युत विकास विभाग, ऊर्जा मन्त्रालयले कम्पनीलाई आवश्यक सहयोग गर्नेछ ।
- (ट) विदेशी मुद्रा लगानी भएको अवस्थामा विद्युत ऐन, २०४९ तथा विदेशी लगानी तथा प्रविधि हस्तान्तरण ऐन, २०४९ बमोजिम विदेशी विनिमयको सुविधा कम्पनीलाई उपलब्ध हुनेछ र यस्तो विदेशी लगानीका सम्बन्धमा विदेशी लगानी तथा प्रविधि हस्तान्तरण ऐन, २०४९ बमोजिम आवश्यक स्वीकृतीहरू लिनुपर्नेछ ।
- (ठ) आयोजनाको निर्माण तथा सञ्चालन/सम्भारको सम्पूर्ण जिम्मेवारी कम्पनीमा रहनेछ र अनुमतिपत्रको अवधि समाप्त भएपछि विद्युत ऐन, २०४९ मा भएको व्यवस्था र सोमा समय समयमा हुने संशोधन बमोजिम हुनेछ ।
- (ड) आयोजनाको निर्माण तथा सञ्चालन/सम्भारमा कम्पनीले प्रचलित श्रम ऐन तथा श्रम नियमावलीको अधीनमा रही सम्भव भएसम्म बढी स्थानीय सीप, श्रम, वास्तुकला, स्थानीय संस्था, विशेषज्ञ, ठेकेदार तथा निर्माण सामग्री आदिको प्रयोग गर्नुपर्नेछ ।
- (ढ) आयोजनाको निर्माण तथा सञ्चालन/सम्भार अवधिभर यस किसिमको आयोजनाको लागि उपयुक्त स्तरको बीमाहरू गर्नुपर्नेछ । कम्पनीले आयोजनाको बीमालेखका प्रतिलिपिहरू विद्युत विकास विभाग, ऊर्जा मन्त्रालयमा पेश गर्नुपर्नेछ ।
- (ण) आयोजनाको निर्माण तथा सञ्चालन/सम्भारका लागि आवश्यक पर्ने सम्पूर्ण सामग्री, मेशिनरी, औजार उपकरण तथा तिनका पार्टपुर्जा ढुवानी गर्ने सम्पूर्ण जिम्मेवारी कम्पनीको हुनेछ ।
- (त) आयकर तथा अन्य सुविधाहरू प्रचलित कानून बमोजिम हुनेछन् ।
- (थ) त्यस संस्थाले नेपाल सरकारलाई प्रचलित ऐन बमोजिमको रोयल्टी देहाय अनुसार बुझाउनु पर्नेछ ।
- (अ) जडित किलोवाट वापत : पहिलो टर्बाइन जेनेरेटर युनिट व्यापारिक सञ्चालनमा आएको मितिले १५ (पन्ध्र) दिनभित्र तत्पश्चात् प्रत्येक वर्ष सोही समयमा ।
- (आ) ऊर्जा वापत : पहिलो टर्बाइन जेनेरेटर युनिट व्यापारिक सञ्चालनमा आएको ४ (चार) महिनामा प्रथम पटक र त्यसपछि ४/४ महिनामा ।
- (इ) आयोजनाको क्षमता संशोधन गरिने भएमा वा सुदृढीकरण गरिनुपर्ने भएमा विद्युत ऐन, २०४९ तथा विद्युत नियमावली २०५० बमोजिम स्वीकृतीको लागि दरखास्त दिनुपर्नेछ र आयोजना सञ्चालनमा नआउने भएमा सोको जानकारी विद्युत विकास विभाग, ऊर्जा मन्त्रालयलाई दिनुपर्नेछ ।
- (ई) त्यस संस्थाको स्वामित्वको संरचनामा कुनै किसिमको हेरफेर वा परिवर्तन गर्नुपरेमा सोको पूर्व जानकारी ऊर्जा मन्त्रालयलाई दिनुपर्नेछ ।
- (न) यस आयोजनाको Upstream/Downstream मा प्रस्तावित, निर्माणाधीन वा सञ्चालनमा रहेको जलविद्युत आयोजनाहरूलाई भौतिक रूपले असर नपर्ने एवं ती आयोजनाहरूसंग समन्वय गरी आयोजनाको निर्माण तथा सञ्चालन कार्य गर्नुपर्नेछ ।
- (प) आयोजनाको Testing and Commissioning गर्नुको सात (७) दिन अगावै विद्युत विकास विभागलाई अनिवार्य रूपमा जानकारी गराउनु पर्नेछ ।
- (फ) आयोजनाको व्यापारिक उत्पादन भएको ३ महिनाभित्र आयोजनाको प्राविधिक तथा आर्थिक पक्ष समेटिएको १/१ प्रति Hard Copy र १ प्रति Soft Copy (CD) मा कार्य सम्पन्न प्रतिवेदन

(Project Completion Report) तथा निर्माण भए बमोजिमका नक्शाहरु (As-built Drawings) विकास विभागमा पेश गर्नुपर्नेछ ।

- (ब) यस अनुमतिपत्रमा उल्लेखित शर्तहरूमा थपघट वा कुनै संशोधन गर्नुपरेमा प्रचलित कानूनको अधीनमा रही आवश्यकता एवं औचित्यताका आधारमा नेपाल सरकार, ऊर्जा मन्त्रालय र त्यस संस्थाको आपसी सहमतिमा गर्न सकिने छ ।
- (भ) विद्युत उत्पादन अनुमतिपत्रको अवधि भर कुनै कार्यको सिलसिलामा कुनैको घर जग्गामा प्रवेश गर्नु परेमा सम्बन्धित व्यक्तिलाई पूर्व-सूचना दिएर मात्र त्यस्तो घर जग्गामा प्रवेश गर्न सकिनेछ । त्यसरी प्रवेश गर्दा कुनै हानी-नोक्सानी हुन गएमा अनुमतिपत्र प्राप्त व्यक्ति वा संस्थाले नै क्षतिपूर्ति दिनुपर्नेछ ।
- (म) आयोजना निर्माण गर्दा अरू कुनै आयोजना वा भौतिक संरचना, व्यक्ति वा जमीनलाई प्रभाव पर्ने भएमा प्रचलित कानून बमोजिम क्षतिपूर्ति दिनुपर्नेछ ।
- (य) आयोजनाको निर्माण तथा सञ्चालनको लागि आवश्यक पर्ने निजी जग्गा सम्बन्धित जग्गा घनीहरूसंग खरिद गरी प्रवृद्धक कम्पनीको नाममा दर्ता गर्नुपर्नेछ, र सोको अद्यावधिक जानकारी विद्युत विकास विभागमा दिनु पर्नेछ । आयोजनाको लागि खरिद भएको जग्गा विक्री वितरण गर्न पाइने छैन ।
- (र) स्वीकृत EIA प्रतिवेदनमा निर्माणको चरणमा ठेकेदारले पालना गर्नुपर्ने भनि उल्लेख भएका सम्पूर्ण कार्यहरू र सो कार्यको पालना नहुँदा ठेकेदारको दायित्व समेत स्पष्ट खुल्ने गरि निर्माणको ठेक्का सम्झौता गर्नु पर्नेछ । सा अनुसार भएको ठेक्का सम्झौताको प्रति विभागमा पेश गर्नु पर्नेछ ।
- (ल) अनुमतिपत्रको अवधिको अन्त्यमा आयोजना चालु हालतमा निःशुल्क नेपाल सरकारलाई हस्तान्तरण गर्नुपर्नेछ । हस्तान्तरण सम्बन्धी विधि र प्रक्रिया समय समयमा नेपाल सरकारले निर्देशन गरे बमोजिम हुनेछ, र आयोजना हस्तान्तरण गर्दा आयोजनाको निर्माण तथा सञ्चालनको लागि खरिद गरिएको जग्गा जमिन समेत नेपाल सरकारलाई निःशुल्क हस्तान्तरण गर्नुपर्नेछ ।
- (व) विद्युत ऐन, २०४९ को दफा ३३ (२) बमोजिम अनुमतिपत्र प्राप्त संस्थालाई आयोजना प्रयोजनका लागि आवश्यक जग्गा प्राप्त गराई दिन वा लिजमा उपलब्ध गराउन नेपाल सरकारले आवश्यक सहयोग गर्नेछ ।
- (श) नेपाल सरकार, ऊर्जा मन्त्रालयको स्वीकृति बिना यो अनुमतिपत्र विक्री वा हस्तान्तरण गर्न पाइने छैन ।



अनुमतिपत्र दिने अधिकारीको

सही : 
नाम : सुमन प्रसाद शर्मा
पद : सचिव
: ऊर्जा मन्त्रालय
मिति : २०७३/३/९



आ.सु.च. - १

नेपाल सरकार

विज्ञान, प्रविधि तथा वातावरण मन्त्रालय

पत्र संख्या :-

(वातावरण व्यवस्थापन महाशाखा)

च. नं. :- २६७

मिति: २०७१।०।२८

विषय: सान्जेन खोला जलविद्युत आयोजनाको EIA प्रतिवेदनको स्वीकृति सम्बन्धमा।

श्री उर्जा मन्त्रालय
सिंहदरबार काठमाण्डौ।

प्रस्तुत विषयमा तहाँको मिति २०७०।११।२१ को पत्र साथ प्रप्त सालासुङ्गी पावर प्रा.ली प्रस्तावक रहेको सान्जेन खोला जलविद्युत आयोजनाको परिमार्जित EIA प्रतिवेदनमा कारवाही हुदाँ नेपाल सरकार (सचिवस्तर) को मिति २०७१।०।२८ को निर्णयानुसार वातावरण संरक्षण ऐन, २०५३ को दफा ६ तथा वातावरण संरक्षण नियमावली, २०५४ को नियम ११ अनुसार निम्न शर्तहरू बमोजिम प्रस्ताव कार्यान्वयन हुने गरी यस प्रस्तावको EIA प्रतिवेदन स्वीकृत भएको व्यहोरा जानकारीको लागि अनुरोध छ। स्वीकृत प्रतिवेदनको एक प्रति यसै साथ संलग्न छ।

- वातावरणीय व्यवस्थापन योजना अन्तर्गत उल्लेखित कार्यहरूको प्रभावकारी रूपमा कार्यान्वयन गर्न विनियोजित रकम अपुर्ण भएमा पनि प्रस्तावकले बजेट व्यवस्था गरी सम्पूर्ण कार्यहरू कार्यान्वयन गर्नु पर्ने छ।
- आयोजना निर्माण तथा सञ्चालनको क्रममा कुनै नयाँ र EIA प्रतिवेदनमा संवोधन हुन नसकेका सवाल सहितको वातावरणमा नकरात्मक प्रभाव देखिएमा प्रस्तावकले स्वयंको खर्चमा यस्तो प्रभाव न्यूनीकरण/निराकरण को उपाय अपनाउनु पर्नेछ।
- प्रस्तावको निर्माण कार्य सम्पन्न भई सञ्चालनमा आएको मितिले २ वर्ष भित्र यस मन्त्रालयलाई लिखित जानकारी दिई वातावरणीय परिक्षण कार्यमा सघाउनु पर्नेछ। साथै निर्माण तथा सञ्चालनको क्रममा गरिने वातावरणीय अनुगमन तथा मूल्याङ्कन सम्बन्धिको वार्षिक प्रतिवेदन तयार गरी यस मन्त्रालय लगायत सम्बन्धित निकाय/मन्त्रालयमा नियमित रूपमा पठाउनु पर्नेछ।
- ठोस फोहर मैला व्यवस्थापन ऐन २०६८ र नियम २०७१ लगायत प्रस्ताव कार्यान्वयन गर्दा आकर्षित हुने सबै ऐन/नियम, कानूनहरूको पूर्ण पालना भएको हुनुपर्नेछ। साथै प्रस्ताव कार्यान्वयनका लागि प्रचलित नियम/ कानून, नितिहरू बमोजिम विभिन्न निकायहरूबाट लिनु पर्ने सहमति अनुमति लिईएको हुनुपर्नेछ।
- प्रत्यक्ष प्रभावित क्षेत्रमा रहेका सुनाखरी (orchid) प्रजातिहरूलाई transplantation गर्ने गरी संरक्षणको व्यवस्था मिलाउनुपर्ने छ।

S. Shrestha
सृजना भुसाल
(शाखा अधिकृत)

सिधार्थ

श्री सालासुङ्गी पावर प्रा.ली, काठमाण्डौ-- (यसैसाथ संलग्न स्वीकृत प्रतिवेदनको एक प्रति उर्जा मन्त्रालयलाई सिधै पठाइदिनुहुन।)

कार्यालयको ठेगाना :
सिंहदरबार, काठमाण्डौ

जनमुखी प्रशासन: अनुशासन र सुशासन
कार्यालयको टेलिफोन नं.
४२११७३४, ४२११६४१, ४२११९९६

फ्याक्स नं.
९७७-१-४२११९२४

इमेल :
info@moste.gov.np

वेब साईट :
www.moste.gov.np



नेपाल सरकार
ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय
विद्युत विकास विभाग

फोन नं.: { ४४३४११९
४४११४३७
४४११४०१
४४३१३६२

फ्याक्स: ४४३१९०३
पोष्ट बक्स नं.: २५००७
सानो गीचरण, काठमाडौं, नेपाल
मिति: २०७८/११/१६

पत्र संख्या: ०७८/७९
चलानी नं.: १०२२


अनुमतिपत्र संशोधन विभाग
२०४०

सान्जेन खोला ज.वि.आको विद्युत उत्पादन अनुमतिपत्र संशोधनको सैद्धान्तिक सहमति बारे

विषय:-
श्री प्रतापसुंगी पावर प्रा.लि.
ब्रिफ्त कारखाना, काठमाडौं
फोन-९७७-४०१५६७४

उपर्युक्त सम्बन्धमा मिति २०७८/१०/२७मा (दर्ता नं. ४७३८) सान्जेन खोला ज.वि.आ.को (वि.उ.१६०) आयोजनाको संरचना परिवर्तनको थप अध्ययनको लागि सैद्धान्तिक सहमति सम्बन्धि दरखास्त माथि कारवाही हुँदा विद्युत आयोजनाको अनुमतिपत्र सम्बन्धी निर्देशिका, २०७५ को दफा १६ को उपदफा (२) अनुसार सैद्धान्तिक सहमति प्रदान गरिएको व्यहोरा मिति २०७८/११/१२ को विभागीय निर्णयानुसार जानकारी गराइन्छ ।

साथै विद्युत आयोजनाको अनुमतिपत्र सम्बन्धी निर्देशिका, २०७५ को दफा १६(३) बमोजिमको कागजात, विवरण तथा दस्तुर पेश भए पश्चात मात्र अनुमतिपत्र संशोधनको कारवाही अगाडी बढाइने व्यहोरा समेत सोहि निर्णयानुसार जानकारी गराइन्छ ।


.....
(सुवास थपलिया)
इन्जिनियर

Annex 3: Public Hearing



Public Hearing



Public Hearing





शुक्रबार १ माघ २०७९ | Friday, 20 January 2079 | पृष्ठ नं. १५

आर्थिक

हरिक सुधि, जर्नलिक बोध

031 No. 303 170
@arthik_abhiyan
garmh_abhiyan



www.abhiyandaily.com

अभियान

राष्ट्रिय दैनिक

संवेगको उत्पत्ति
सपना **A**

संवेगको उत्पत्ति र जीवनको
नगरपालिकाको विकास **B**

सुदूरपश्चिम प्रदेशको विकास
सिन्धुको विकासको विकास **C**

'साथ तुरुष्काको उत्पत्ति विकास
इन्टरनेटको विकास **D**



सार्वजनिक सुनुवाईको लागि आह्वान गरिएको सूचना

(दोश्रो पटक प्रकाशित मिति: २०७९/१०/०६)

बागमती प्रदेश रसुवा जिल्ला आमाछोदिडमो गाउँपालिका वडा नं. ५ मा सालासुङ्गी पावर प्रा.लि., चम्पलकारखाना, काठमाडौं द्वारा सान्जेन खोला जलविद्युत् आयोजना (७८ मे.वा.)को पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयारीको क्रममा आयोजना प्रभावित क्षेत्रमा सार्वजनिक सुनुवाई कार्यक्रम गरिने भएको हुनाले सम्बन्धित सबै प्रस्ताव कार्यान्वयन हुने क्षेत्रका प्रभावित स्थानीय समुदाय, संघसंस्था तथा सरोकारवाला व्यक्ती तथा निकायहरूलाई तल उल्लेखित मिति, स्थान र समयमा सहभागी भई रायसुझाव उपलब्ध गराईदिनुहुन सार्वजनिक सूचना आह्वान गरिएको छ ।

सार्वजनिक सुनुवाई सम्बन्धि कार्यक्रम

मिति: २०७९ माघ १३ गते, शुक्रबार

स्थान: तातोपानी क्याम्प, आमाछोदिडमो गाउँपालिका वडा नं. ५, रसुवा जिल्ला, बागमती प्रदेश

समय: बिहानको ११:०० बजे

Annex 4: Declaration and Experts CVs



Salasungi Power Pvt.Ltd.
सालासुङ्गी पावर प्रा.लि.

Chapalkarkhana, Annapurna Marg
Kathmandu-4, Nepal
Tel: 01-4015674
Email: info.salasungi@gmail.com

May 30, 2023

I declare the followings:

- The study finding is correct to the best of my knowledge, and have not been altered in any manner.
- I shall be accountable for miss leading information in the part of this report related to my area of study.
- Our company is responsible for EMP, approved EIA and all mitigation and monitoring costs that have been included in this report and EIA report which was approved previously.


Zhou Zhiyi
(Managing Director)


सालासुङ्गी पावर प्रा .लि., बालुवाटार, काठमाडौं



नेपाल रुरल एण्ड एडभान्समेन्ट कमिटी प्रा. लि.
Nepal Rural & Advancement Committee Pvt. Ltd.
Kathmandu, Nepal



May 30, 2023

We declare that:

- The study findings are correct to the best of my knowledge; and have not been altered in any manner.
- We shall be accountable for miss leading information in the part of this report related to our area of study.
- We have conducted the study professionally using acceptable and standard methodologies.
- The study findings are correct to the best of our knowledge and have not been altered in any manner.
- We shall be accountable for miss leading information in the part of this report related to our area of study.

Name	Qualification	Signature
Mr. Bishal Sharma	M.Sc. in Environmental Science	
Dr. Jyoti Prasad Gajurel	PhD. in Conservation Biology (Botany)	
Mr. Prakash Ghimire	MA in Sociology	
Mr. Umesh Dhital	M.Sc. in Water Resource Engineering	
Mr. Abhinash Aryal	M.Sc. in Environmental Science	

POSITION TITLE AND NO. : Environment Expert

NAME OF EXPERT : Mr Bishal Sharma

DATE OF BIRTH : April 22, 1992

CITIZENSHIP : Nepali

EDUCATION :

- M. Sc. in Environmental Science: GoldenGate International College, Tribhuvan University. 2018.
- B. Sc: Amrit Science Campus, Tribhuvan, University, Nepal. 2015

OTHER TRAINING / WORKSHOP / CONFERENCE:

- ◆ “ Details Study and Profile of Herpetofauna of Soil Conservation, Kathmandu. Nepal, 2022
- ◆ Croaking Monsoon @ 20 : Approach to Study Frogs
- ◆ Companions for Amphibians and Reptiles of Nepal (CARON), Environment Protection and Study Centre (ENPROSC) and Wildlife Conservation Nepal (WCN) Kathmandu, Nepal,
- ◆ Croaking Monsoon 2019 : “ A Citizen Based Appr Valley ”
- ◆ Companions for Amphibians and Reptiles of Nepal (CARON), Environment Protection and Study Centre (ENPROSC) and Wildlife Conservation Nepal (WCN) Kathmandu, Nepal,
- ◆ Kathmandu Amphibian Survey 2018
- ◆ Companions for Amphibians and Reptiles of Nepal (CARON), Kathmandu, Nepal
- ◆ Field Herpetology, 2018
- ◆ Companions for Amphibians and Reptiles of Nepal (CARON), Kathmandu, Nepal
- ◆ National Pangolin Survey, 2016
- ◆ Small Mammals Conservation and Research Foundation (SMCRF)
- ◆ Status of Illegal Pangolin Trade in Nepal- 2018, M.Sc. Dissertation, GGIC
- ◆ A Case Study to Assess Habitat Status and Threats of Porcupines in Putalibazar Municipality, Syangja District- 2017, M.Sc. Case Study, GGIC

EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT :

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
June 2020 to December 2022	NRAC Pvt. Ltd., Position: Environment Expert For References: Dr. Jyoti Prasad Gajurel Phone: +977-01-9851243732	Nepal	• Feasibility Study & Design and Environmental Impact Assessment Studies of 132 KV Transmission Line of Super Melamchi HEP.

	E-mail: jpgajurel2010@gmail.com		
August 2022 to Feb 2023	NRAC Pvt. Ltd., Position: Environment Expert For References: Dr. Jyoti Prasad Gajurel Phone: +977-01-9851243732 E-mail: jpgajurel2010@gmail.com	Nepal	<ul style="list-style-type: none"> • Initial Environmental Examination of 400 kV TL of NEA in Koshi Province • Field management and data collection planning
Jan 2019 to September 2020	NRAC Pvt. Ltd., Position: Environment Expert For References: Dr. Jyoti Prasad Gajurel Phone: +977-01-9851243732 E-mail: jpgajurel2010@gmail.com		<ul style="list-style-type: none"> • Literature review, preparation of ToR, Scoping and writing report of Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) of different physical infrastructure construction works
August 2016 to December 2019	NRAC Pvt. Ltd., Position: Environment Expert For References: Dr. Jyoti Prasad Gajurel Phone: +977-01-9851243732 E-mail: jpgajurel2010@gmail.com	Nepal	<ul style="list-style-type: none"> • Working as Environmental Expert in IEE of 132 kV Single Circuit Transmission Line for Sanjen Khola Hydroelectric Project, Rasuwa District • Working as Environmental Expert in SEIA of Sanjen Khola Hydropower Project (78 MW), Rasuwa District • Working as Environmental Expert in IEE of Upper Melemchi Hydropower Project (4.95 MW), Sindhupalchowk District • Working as Environmental Expert in IEE of Lower Melemchi Hydropower Project (4.96 MW), Sindhupalchowk District • Working as Environmental Expert in EIA of Madhye Chamaliya HPP (28.304 MW), Sudhuraschim Province, Marma Rural Municipality

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS AND PUBLICATIONS:

Publication

- Koirala, S., Baral, S., Garber, P.A., Basnet, H., Katuwal, H.B., Gurung, S., Rai, D., Gaire, R., Sharma, B., Pun, T. and Li, M., 2022. Identifying the environmental and anthropogenic causes, distribution, and intensity of human rhesus macaque conflict in Nepal. *Journal of Environmental Management*, 316, p.115276.

- Lamichhane, A., Anup, K. C., & **Sharma, B.** (2020). Socio-economic Aspects of Tourism Development in Chitlang Village, Makwanpur. *Economic Journal of Nepal*, 43(3-4), 74-88.
- Aryal, P. C., Aryal, C., Neupane, S., **Sharma, B.**, Dhamala, M. K., Khadka, D., & Neupane, D. (2020). Soil moisture & roads influence the occurrence of frogs in Kathmandu Valley, Nepal. *Global Ecology and Conservation*, e01197.
- Khadka, D., Neupane, S., **Sharma, B.**, Dixit, S., Wagle, P. C., Thapa, L., & Bhujel, A. (2019). Ecotourism Potential of Tinjure Milke Jaljale Area: A Rhododendron Capital of Nepal. *Journal of Tourism & Adventure*, 2(1), 40-60.
- Neupane, S., Dahal, B. R., Aryal, P. C., & **Sharma, B.** (2018) Identification of Illegal Wildlife Trade Routes From Nepal. *Goldengate Journal of Science and Technology*, 4: 59-72

Conference

- 3rd International Mountain in Changing World "Status of Illegal Pangolin Trade in Nepal"
- Evidence to Action "Research to Address Illegal Quantifying Unregulated Wildlife Trade in Nepal Exemplified by Trade in Turtle and Tortoise Species through Terai"

Research Experience And Training

- "Details Study and Profile of Herpetofauna and Soil Conservation, Kathmandu. Nepal, 2022
- Croaking Monsoon 2020: "A Citizen Based Approach Companions for Amphibians and Reptiles of Nepal (CARON), Environment Protection and Study Centre (ENPROSC) and Wildlife Conservation Nepal (WCN) Kathmandu, Nepal,
- Croaking Monsoon 2019: "A Citizen Based Approach Valley" Companions for Amphibians and Reptiles of Nepal (CARON), Environment Protection and Study Centre (ENPROSC) and Wildlife Conservation Nepal (WCN) Kathmandu, Nepal,
- Kathmandu Amphibian Survey 2018
Companions for Amphibians and Reptiles of Nepal (CARON), Kathmandu, Nepal
- Field Herpetology, 2018
Companions for Amphibians and Reptiles of Nepal (CARON), Kathmandu, Nepal
- National Pangolin Survey, 2016
Small Mammals Conservation and Research Foundation (SMCRF)
- Status of Illegal Pangolin Trade in Nepal- 2018, M.Sc. Dissertation, GGIC
- A Case Study to Assess Habitat Status and Threats of Porcupines in Putalibazar Municipality, Syangja District- 2017, M.Sc. Case Study, GGIC

LANGUAGE SKILLS :

	<u>Speaking</u>	<u>Reading</u>	<u>Writing</u>
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent

Hindi

Good

Excellent

Good

ADEQUACY FOR THE ASSIGNMENT :

DETAILED TASKS ASSIGNED TO THE CONSULTANT'S TEAM OF	REFERENCE TO PRIOR WORK/ASSIGNMENTS THAT BEST ILLUSTRATES CAPABILITY TO HANDLE THE ASSIGNED TASKS
<ul style="list-style-type: none"> • Manage the field for environmental data collection • Coordinate the safeguarding team • Assist EIA team leader to prepare and submit Scoping and TOR document • Use aerial photographs and delineate the different forest/vegetation types and status and transfer it to topographic maps for field survey • Identify vegetation samplings plots in the topographic plots for all forest types and status for direct impact zones and representative sites for indirect impact zones • Use the quadrant method for the field study for sampling plots in the direct impact zones to record biodiversity, status, wood volume, other NTFP etc. • Use transects methods for the field study for the indirect impact zones to record biodiversity, status, wood volume, other NTFP etc. • Prepare a baseline of the terrestrial flora with maps for direct and indirect impact zones to show forest types and distribution, plant categories, status of endangered, rare, threatened, vulnerable and protected plant species, plant biodiversity, lichen flora, biomass volume etc. • Forest inventory and biomass loss estimation • Support and provide input to the EIA team leader during the preparation of EIA report 	<ul style="list-style-type: none"> • Feasibility Study & Design and Environmental Impact Assessment Studies of 132 KV Transmission Line of Super Melamchi HEP. • Initial Environmental Examination of 400 kV TL of NEA in Koshi Province • Field management and data collection planning • Literature review, preparation of ToR, Scoping and writing report of Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) of different physical infrastructure construction works • Working as Environmental Expert in IEE of 132 kV single Circuit Transmission Line for Sanjen Khola Hydroelectric Project, Rasuwa District • Working as Environmental Expert in SEIA of Sanjen Khola Hydropower Project (78 MW), Rasuwa District • Working as Environmental Expert in IEE of Upper Melemchi Hydropower Project (4.95 MW), Sindhupalchowk District • Working as Environmental Expert in IEE of Lower Melemchi Hydropower Project (4.96 MW), Sindhupalchowk District • Working as Environmental Expert in EIA of Madhye Chamaliya HPP (28.304 MW), Sudhuraschim Province, Marma Rural Municipality

EXPERT'S CONTACT INFORMATION

E-mail wishal.vishal10@gmail.com

Phone No.: 9851273402

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



Mr. Bishal Sharma

{ day/month/year }

Name of Expert

Signature

Date: April 1, 2022

POSITION TITLE AND NO. : Sociologist
NAME OF EXPERT : Mr. Prakash Ghimire

DATE OF BIRTH : 22 Mangsir, 2034

CITIZENSHIP : Nepali

EDUCATION :

- M. A. in Sociology /Anthropology from Tribhuvan University (2070 BS)

OTHER TRAINING / WORKSHOP / CONFERENCE:

- ◆ **Training of Health and Safety for ESIA (2022):** Two-day workshop at ERMIC, Kathmandu.
- ◆ PRA/RRA/FGD
- ◆ Successfully participated in one month long training on (local-self-reliance) organized by (IIDS) in Nawalparasi District

EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT :

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
June 2020 to June 2021	<p>Udaya (P.) Ltd.,</p> <p>Position: Sociologist</p> <p>For References: Mr. Rakesh Regmi Director , Udaya</p> <p>Phone: +977-01-4471884</p> <p>E-mail: udayaconslingpvtltd@gmail.com</p>	Nepal	<ul style="list-style-type: none"> • Feasibility Study, Detailed Engineering Survey & Design and Environmental Impact Assessment Studies of Nalsing Gad Hydropower Project, Jajarkot District, Nepal (Storage Project – 410 MW)
April 2014 to April 2020	<p>Employer: NESS (P.) Ltd.</p> <p>Title / Position: Sociologist</p> <p>Ref. Name: Mr. Salil Devkota</p> <p>Phone No.: 01-4244989</p> <p>E-mail: ness@mos.com.np</p>	Nepal	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment (ESIA) Study of Karnali Chisapani Multipurpose Project (10800 MW) • EIA Study of 132 kV TL for Nupche Likhu HEP (57.5 MW)-Ramechhap District • IEE for 132 kV TL for Sanjen Khola HEP (78 MW), Rasuwa. • IEE Study of LungriKhola HPP (4.4MW), Rolpa • EIA Study of Sharada Babai HEP (93 MW), Dang and Salyan Districts

<p>January 2019 to February 2020</p>	<p>Employer: NESS (P.) Ltd. Title / Position: Sociologist Ref. Name: Mr. Salil Devkota Phone No.: 01-4244989 E-mail: ness@mos.com.np</p>		<ul style="list-style-type: none"> • Biological Environment for 312 km 400kV double circuit Transmission Line for MCA Nepal. • Field Coordinator and Lead for write up for biological environment for 312 km
<p>May 2010 to June 2014</p>	<p>Employer: ERMIC (P.) Ltd. Title / Position: : Sociologist Ref. Name: Mr. Uddab Raj Chaulagain, MD Phone No.: 01-4483064 E-mail: ermic@ermicnepal.com</p>	<p>Nepal</p>	<ul style="list-style-type: none"> • Feasibility Study and Environmental Impact Assessment (EIA) Study of Sankhuwa Khola Hydropower Project (41.06 MW), Sankhuwasabha and Bhojpur District • Feasibility Study and Initial Environmental Examination (IEE) Study of Ikhuwa Khola Hydropower Project, Sankhuwasabha District (30 MW) • Preparation of VDC level land resource maps (Present Land Use Map, Soil Map, Land Capability Map, Land Use Zoning Map, VDC Profile for Land Use Zoning and Superimpose of Cadastral Layers), database and reports (Package - 8, Amarpatti, Amaw, Babuain, Laxmipur Kotwali, Bishanpurwa, Dewapur, Gadhal, Inarwamal, Kabahijabdi, Khopawa, Kudawa, Madhurijabdi, Mahendra Adarsha, Narahi, Paterwa, Pathara, Pipra Basatpur, Simhasani, Tedhakatti VDCs of Bara District (Total 19 VDCs) • Detail Engineering Design of Bheri-Babai Diversion Hydropower Project (48 MW) • Preparation of Urban Mapping of Bheem Datta Municipality • EIA of Arun Hydropower Initial Environment Examination (IEE) Study of Nepal Portion for 400 KV D/C Transmission System for Evacuation of Power from Arun-3 HEP Dhalkebar in Nepal

			<ul style="list-style-type: none"> • Environment Impact Assessment (EIA) of Num-Kimanthanka Road (72 km) of North South (Koshi) Highway (GESU/NS (KH)-01/066/067) • District Level Land Use Map Updating, Preparation of District Level Land Use Zoning Maps, Preparation of GIS Database and Preparation of District Profile for Land Use Zoning (25 Districts)
January 2009 to April 2010	Employer: Ambeshor Engineeringl (P.) Ltd. Title / Position: Botanist Ref. Name: Dr. Saroj Adhikari	Nepal	Responsible for collection of Socioeconomic and Cultural Data

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS AND PUBLICATIONS: N/A

LANGUAGE SKILLS :

	<u>Speaking</u>	<u>Reading</u>	<u>Writing</u>
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent
Hindi	Good	Excellent	Good

ADEQUACY FOR THE ASSIGNMENT :

DETAILED TASKS ASSIGNED ON THE CONSULTANT'S OF EXPERTS	REFERENCE TO PRIOR WORK/ASSIGNMENTS THAT BEST ILLUSTRATES CAPABILITY TO HANDLE THE ASSIGNED TASKS
<ul style="list-style-type: none"> • Manage the field for cultural and socio-economic • Assist the Environmental team leader to prepare and submit document • Carry Public consultation and other activities. 	<p>Name of Assignment or Project: EIA Study of 400 kV TL for MCA Nepal (312 km); Year: January 2019 to February 2020; Location: Central Nepal; Client: MCA Nepal; Main Project Features: EIA Study; Position Held: Sociologist; Activities Performed: Socio-economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: Detail Design and EIA Study of 132 kV Tl for NupcheLikhu HEP (57.5 MW); Year: May 2017 to December 2017; Location: Ramechhap, Nepal; Client: Private; Main Project Features:</p>

<ul style="list-style-type: none"> To Assist in the Presentation and data analysis of the social assessment 	<p>Detail Design and EIA Study; Position Held: Sociologist; Activities Performed: Socio-economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: Detail Design and IEE Study of 132 kV TI for Sanjen Khola HEP (78 MW); Year: May 2017 to December 2017; Location: Rasuwa, Nepal; Client: Sinohydro, China; Main Project Features: Detail Design and IEE Study; Position Held: Sociologist; Activities Performed: Socio-economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: Feasibility Study, Detailed Engineering Survey & Design and Environmental Impact Assessment Studies of Nalsing Gad Hydropower Project, Jajarkot District, Nepal (Storage Project – 410 MW); Year: June 2020 to June 2021; Location: Jajarkot District, Nepal; Client: DoED; Main Project Features: Environmental Survey and IEE study of hydropower project; Position Held: Sociologist; Activities Performed: Socio-economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: Environmental and Social Impact Assessment (ESIA) Study of Karnali Chisapani Multipurpose Project (10800 MW); Year: March 2020 to April 2020; Location: Achham, Doti, Kailali, Bardiya and Surkhet Districts in Nepal; Client: Department of Electricity Development / NEA; Main Project Features: Environmental Survey and ESIA Study of Hydropower Project; Position Held: Sociologist; Activities Performed: Socio economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: Feasibility Study and Environmental Impact Assessment (EIA) Study of Sankhuwa Khola Hydropower Project (41.06 MW), Sankhwasabha and Bhojpur District; Year: January 2019 to February 2020; Location: Sankhwasabha District; Client: Department of Electricity Development (DOED), Ministry of Energy; Main Project Features: Feasibility Study and Environmental Impact Assessment (EIA) Study; Position Held: Sociologist; Activities Performed: Socio economic data collection, data entry management and analysis, presentation, etc.</p>
	<p>Name of Assignment or Project: IEE Study of Sikta Irrigation Project; Year: January 2018 to December 2018; Location: Nepalgunj, Banke, Nepal; Client: Sikta Irrigation Project; Main Project Features: IEE Study; Position Held: Sociologist; Activities Performed: Socio economic data collection, data entry management and analysis, presentation, etc.</p>

EXPERT'S CONTACT INFORMATION

E-mail ghimireprakash666@gmail.com

Phone No.: 9851149216

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



Prakash Ghimire

{ day/month/year }

Name of Expert

Signature

Date: April 1, 2022

POSITION TITLE AND NO. : Environment Expert
NAME OF EXPERT : Dr. JYOTI PRASAD GAJUREL
DATE OF BIRTH : December 22, 1982
CITIZENSHIP : Nepali

EDUCATION :

- PhD in Botany (Central Department of Botany, Tribhuvan University, Kirtipur Kathmandu, Nepal, May, 2016 and in Conservation Biology from WSL Switzerland, in 2016.
- M. Sc. in Botany: Central Department of Botany, Tribhuvan University, Kirtipur Kathmandu, Nepal. Plant Systematics. 2007.
- B. Sc: Trichandra Multiple Campus, Tribhuvan, University, Nepal. 2003

OTHER TRAINING / WORKSHOP / CONFERENCE:

- ◆ **Field Data Collection for MCA Nepal 312 km TL:** Three-day workshop at Hotel Yak and Yeti and field training for use of Computer APP for field design and data collection for biodiversity. ERM International Group Limited and Millennium Challenge Account Nepal.
- ◆ **Training of Health and Safety for ESIA (2019):** Seven-day workshop at Hotel Yak and Yeti. Millennium Challenge Account Nepal.
- ◆ **Trainer for Bankers from East Nepal for ESIA (2018).** ERM International Group Limited organized in Biratnagar (two days program) for ESIA monitoring and financing.
- ◆ **Award (2017):** Nepal Bidhya bhusan “KA” : Gold medal for
- ◆ **Award (June, 2010):** "Krishna Chandra Regmi Award" for best Thesis of year 2007/2008 among post graduate level from Tribhuvan University, Nepal.
- ◆ **Statistical Training:** Tribhuvan University, CDB (2013, 2014) short courses. *Training Focus:* Fundamentals of SPSS. "R" Statistics.
- ◆ **PhD Scholarship from project (2011):** *Biodiversity and livelihood development in land-use gradients in an era of climate change”* of Prof. S. D. Didegger (Biodiversity and Conservation Unit, Swiss Federal Research Institute WSL).
- ◆ **Research Scholar (May, 2010):** Missouri Botanical Garden, Saint Louis. *Training Focus:* Study of Asian Commelinaceae, Curatorial and molecular techniques.
- ◆ **Smithsonian Fellowship (June, 2010):** Smithsonian Institution (US National Herbarium), Washington DC. *Training Focus:* Study of Asian Commelinaceae, Curatorial, anatomical and cytological and basic molecular techniques.

EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT :

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment

June 2020 to June 2021	<p>Udaya (P.) Ltd.,</p> <p>Position: Forestry Expert</p> <p>For References: Mr. Rakesh Regmi Director , Udaya</p> <p>Phone: +977-01-4471884</p> <p>E-mail: udayaconsltingpvtltd@gmail.com</p>	Nepal	<ul style="list-style-type: none"> • Feasibility Study, Detailed Engineering Survey & Design and Environmental Impact Assessment Studies of Nalsing Gad Hydropower Project, Jajarkot District, Nepal (Storage Project – 410 MW)
April 2014 to April 2020	<p>Employer: NESS (P.) Ltd.</p> <p>Title / Position: Botanist / Ecologist / Forest Expert / Team Leader</p> <p>Ref. Name: Mr. Salil Devkota</p> <p>Phone No.: 01-4244989</p> <p>E-mail: ness@mos.com.np</p>	Nepal	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment (ESIA) Study of Karnali Chisapani Multipurpose Project (10800 MW) • EIA Study of 132 kV TL for Nupche Likhu HEP (57.5 MW)-Ramechhap District • IEE for 132 kV TL for Sanjen Khola HEP (78 MW), Rasuwa. • IEE Study of LungriKhola HPP (4.4MW), Rolpa • EIA Study of Sharada Babai HEP (93 MW), Dang and Salyan Districts
January 2019 to February 2020	<p>Employer: NESS (P.) Ltd.</p> <p>Title / Position: Botanist / Ecologist / Forest Expert / Team Leader</p> <p>Ref. Name: Mr. Salil Devkota</p> <p>Phone No.: 01-4244989</p> <p>E-mail: ness@mos.com.np</p>		<ul style="list-style-type: none"> • Biological Environment for 312 km 400kV double circuit Transmission Line for MCA Nepal. • Field Coordinator and Lead for write up for biological environment for 312 km
May 2010 to June 2014	<p>Employer: ERMC (P.) Ltd.</p> <p>Title / Position: : Forestry Expert/ Natural Resource Manager / Botanist</p> <p>Ref. Name: Mr. Uddab Raj Chaulagain, MD</p>	Nepal	<ul style="list-style-type: none"> • Feasibility Study and Environmental Impact Assessment (EIA) Study of Sankhuwa Khola Hydropower Project (41.06 MW), Sankhwasabha and Bhojpur District • Feasibility Study and Initial Environmental Examination (IEE) Study of Ikhuwa Khola

	<p>Phone No.: 01-4483064</p> <p>E-mail: ermc@ermcnepal.com</p>		<p>Hydropower Project, Sankhwasabha District (30 MW)</p> <ul style="list-style-type: none"> • Preparation of VDC level land resource maps (Present Land Use Map, Soil Map, Land Capability Map, Land Use Zoning Map, VDC Profile for Land Use Zoning and Superimpose of Cadastral Layers), database and reports (Package - 8, Amarpatti, Amaw, Babuain, Laxmipur Kotwali, Bishanpurwa, Dewapur, Gadhal, Inarwamal, Kabahijabdi, Khopawa, Kudawa, Madhurijabdi, Mahendra Adarsha, Narahi, Paterwa, Pathara, Pipra Basatpur, Simhasani, Tedhakatti VDCs of Bara District (Total 19 VDCs) • Detail Engineering Design of Bheri-Babai Diversion Hydropower Project (48 MW) • Preparation of Urban Mapping of Bheem Datta Municipality • EIA of Arun Hydropower Initial Environment Examination (IEE) Study of Nepal Portion for 400 KV D/C Transmission System for Evacuation of Power from Arun-3 HEP Dhalkebar in Nepal • Environment Impact Assessment (EIA) of Num-Kimanthanka Road (72 km) of North South (Koshi) Highway (GESU/NS (KH)-01/066/067) • District Level Land Use Map Updating, Preparation of District Level Land Use Zoning Maps, Preparation of GIS Database and Preparation of District Profile for Land Use Zoning (25 Districts)
January 2009 to April 2010	<p>Employer: ITECO Nepal (P.) Ltd.</p> <p>Title / Position: Botanist</p> <p>Ref. Name: Mr. Tuk Lal Adhikari</p> <p>Phone No.: 01-4621764</p>	Nepal	Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of forest loss due to submergence with respect to type of forest,

	E-mail: iteco@mos.com.np	assessment of the effect of these losses on community, designed mitigation measures
--	---------------------------------	---

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS AND PUBLICATIONS: N/A

LANGUAGE SKILLS :

	<u>Speaking</u>	<u>Reading</u>	<u>Writing</u>
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent
Hindi	Good	Excellent	Good

ADEQUACY FOR THE ASSIGNMENT :

DETAILED TASKS ASSIGNED ON CONSULTANT'S OF EXPERTS	REFERENCE TO PRIOR WORK/ASSIGNMENTS THAT BEST ILLUSTRATES CAPABILITY TO HANDLE THE ASSIGNED TASKS
<ul style="list-style-type: none"> • Manage the field for biological data collection and forest inventory • Coordinate the ecological and vegetation survey and study • Assist EIA team leader to prepare and submit Scoping and TOR document 	<p>Name of Assignment or Project: EIA Study of 400 kV TL for MCA Nepal (312 km); Year: January 2019 to February 2020; Location: Central Nepal; Client: MCA Nepal; Main Project Features: EIA Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Management for two season biological data collection and write up on behalf of ERM, etc.</p>
<ul style="list-style-type: none"> • Use aerial photographs and delineate the different forest/vegetation types and status and transfer it to topographic maps for field survey • Identify vegetation samplings plots in the topographic plots for all forest types and status for direct impact zones and representative sites for 	<p>Name of Assignment or Project: Detail Design and EIA Study of 132 kV Tl for NupcheLikhu HEP (57.5 MW); Year: May 2017 to December 2017; Location: Ramechhap, Nepal; Client: Private; Main Project Features: Detail Design and EIA Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of forest loss due to submergence with respect to type of forest, assessment of the effect of these losses on community, designed mitigation measures etc.</p>
	<p>Name of Assignment or Project: Detail Design and IEE Study of 132 kV Tl for Sanjen Khola HEP (78 MW); Year: May 2017 to December 2017; Location: Rasuwa, Nepal; Client: Sinohydro, China; Main Project</p>

<p>indirect impact zones</p> <ul style="list-style-type: none"> • Use quadrant method for the field study for sampling plots in the direct impact zones to record biodiversity, status, wood volume, other NTFP etc. • Use transects methods for the field study for the indirect impact zones to record biodiversity, status, wood volume, other NTFP etc. • Prepare baseline of the terrestrial flora with maps for direct and indirect impact zones to show forest types and distribution, plant categories, status of endangered, rare, threatened, vulnerable and protected plant species, plant biodiversity, lichen flora, biomass volume etc. • Forest inventory and biomass loss estimation • Support and provide input to the EIA team leader during the preparation of EIA report 	<p>Features: Detail Design and IEE Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of forest loss due to submergence with respect to type of forest, assessment of the effect of these losses on community, designed mitigation measures etc.</p>
	<p>Name of Assignment or Project: Feasibility Study, Detailed Engineering Survey & Design and Environmental Impact Assessment Studies of Nalsing Gad Hydropower Project, Jajarkot District, Nepal (Storage Project – 410 MW); Year: June 2020 to June 2021; Location: Jajarkot District, Nepal; Client: DoED; Main Project Features: Environmental Survey and IEE study of hydropower project; Position Held: Forestry Expert; Activities Performed: Responsible for: i) Depict environmental baseline, prediction and evaluation of environmental impacts/issues, focus group discussion, propose appropriate mitigation measures ii) Support in Preparation of EIA reports including Environmental Management and Monitoring (iii) Forestry survey, forestry and botanical data collection forest clearance, preparation of tree cutting plan and tree cutting approval as per rules from forest offices and preparation of tree plantation plan and bio engineering works.</p>
	<p>Name of Assignment or Project: Environmental and Social Impact Assessment (ESIA) Study of Karnali Chisapani Multipurpose Project (10800 MW); Year: March 2020 to April 2020; Location: Achham, Doti, Kailali, Bardiya and Surkhet Districts in Nepal; Client: Department of Electricity Development / NEA; Main Project Features: Environmental Survey and ESIA Study of Hydropower Project; Position Held: Forestry Expert/ Natural Resource Manager; Activities Performed: Responsible for: i) Depict environmental baseline, prediction and evaluation of environmental impacts/issues, focus group discussion, propose appropriate mitigation measures ii) Forestry survey, forestry and botanical data collection forest clearance, preparation of tree cutting plan and tree cutting approval as per rules from forest offices and preparation of tree plantation plan and bio engineering works iii) Support in Preparation of EIA reports including Environmental Management and Monitoring Plan.</p>
	<p>Name of Assignment or Project: Feasibility Study and Environmental Impact Assessment (EIA) Study of Sankhuwa Khola Hydropower Project (41.06 MW), Sankhwasabha and Bhojpur District; Year: January 2019 to February 2020; Location: Sankhwasabha District; Client: Department of Electricity Development (DOED), Ministry of Energy; Main Project</p>

	<p>Features: Feasibility Study and Environmental Impact Assessment (EIA) Study; Position Held: Forestry Expert/ Natural Resource Manager / Botanist; Activities Performed: Responsible for: i) Depict environmental baseline, prediction and evaluation of environmental impacts/issues, focus group discussion, propose appropriate mitigation measures ii) Support in Preparation of EIA reports including Environmental Management and Monitoring (iii) Forestry survey, forestry and botanical data collection forest clearance, preparation of tree cutting plan and tree cutting approval as per rules from forest offices and preparation of tree plantation plan and bio engineering works.</p> <p>Name of Assignment or Project: IEE Study of Sikta Irrigation Project; Year: January 2018 to December 2018; Location: Nepalgunj, Banke, Nepal; Client: Sikta Irrigation Project; Main Project Features: IEE Study; Position Held: Botanist / Ecologist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of forest loss due to submergence with respect to type of forest, assessment of the effect of these losses on community, designed mitigation measures etc.</p>
	<p>Name of Assignment or Project: EIA Study of 400 kV TL for MCA Nepal (312 km); Year: January 2019 to February 2020; Location: Central Nepal; Client: MCA Nepal; Main Project Features: EIA Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Management for two season biological data collection and write up on behalf of ERM, etc.</p>
	<p>Name of Assignment or Project: Detail Design and EIA Study of 132 kV Tl for NupcheLikhu HEP (57.5 MW); Year: May 2017 to December 2017; Location: Ramechhap, Nepal; Client: Private; Main Project Features: Detail Design and EIA Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of forest loss due to submergence with respect to type of forest, assessment of the effect of these losses on community, designed mitigation measures etc.</p>
	<p>Name of Assignment or Project: Detail Design and IEE Study of 132 kV Tl for Sanjen Khola HEP (78 MW); Year: May 2017 to December 2017; Location: Rasuwa, Nepal; Client: Sinohydro, China; Main Project Features: Detail Design and IEE Study; Position Held: Botanist / Forest Specialist; Activities Performed: Responsible for Characterization of forest types in the study area, calculation of extent of forest type, study of vegetation pattern and floral density, species frequency, density, abundance. Assessment of</p>

forest loss due to submergence with respect to type of forest, assessment of the effect of these losses on community, designed mitigation measures etc.

Name of Assignment or Project: Detail Design and EIA Study of Sharada Babai HEP (93 MW); **Year:** December 2014 to September 2015; **Location:** Dang & Salyan District, Nepal; **Client:** DoED; **Main Project Features:** Detail Design and EIA Study; **Position Held:** Botanist / Forest Specialist; **Activities Performed:** Responsible for review literature on biological environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, Compile the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, and present the EIA report to the review committee.

Name of Assignment or Project: Feasibility Study and Initial Environmental Examination (IEE) Study of Ikhuwa Khola Hydropower Project, Sankhwasabha District (30 MW); **Year:** September 2013 to March 2014; **Location:** Sankhwasabha District; **Client:** Department of electricity Development (DOED), Ministry of Energy; **Main Project Features:** Feasibility Study and Initial Environmental Examination (IEE) Study; **Position Held:** Forestry Expert/ Natural Resource Manager; **Activities Performed:** Responsible for: i) Depict environmental baseline, prediction and evaluation of environmental impacts/issues, focus group discussion, propose appropriate mitigation measures ii) Forestry survey, forestry and botanical data collection forest clearance, preparation of tree cutting plan and tree cutting approval as per rules from forest offices and preparation of tree plantation plan and bio engineering works iii) Support in Preparation of EIA reports including Environmental Management and Monitoring Plan.

Name of Assignment or Project: Preparation of VDC level land resource maps (Present Land Use Map, Soil Map, Land Capability Map, Land Use Zoning Map, VDC Profile for Land Use Zoning and Superimpose of Cadastral Layers), database and reports (Package - 8, Amarpatti, Amaw, Babuain, Laxmipur Kotwali, Bishanpurwa, Dewapur, Gadhal, Inarwamal, Kabahijabdi, Khopawa, Kudawa, Madhurijabdi, Mahendra Adarsha, Narahi, Paterwa, Pathara, Pipra Basatpur, Simhasani, Tedhakatti VDCs of Bara District (Total 19 VDCs); **Year:** May 2013 to August 2013; **Location:** Bara District; **Client:** NLUP/DoS; **Main Project Features:** Forestry survey, data collection, analysis and reporting; **Position Held:** Ecologist / Agro-Forester; **Activities Performed:** Responsible for agro-forestry, forestry data collection, livestock management and preparation of maps.

Name of Assignment or Project: Detail Engineering Design of Bheri-Babai Diversion Hydropower Project (48 MW); **Year:** July 2012 to April 2013; **Location:** Banke District, Nepal; **Client:** DOI, GoN; **Main Project Features:** Detail Engineering Design; **Position Held:** Botanist / Forestry Expert / Ecologist; **Activities Performed:** Responsible for baseline data collection on forestry, botany and biodiversity, consultation with site peoples, Scoping: problems identification, Impact assessment, prediction, Management plan preparation, during the management program preparation, sustainable development of the project areas, poverty alleviation, probable local infrastructure development, etc. have been discussed, Monitoring plan and audit program.

Name of Assignment or Project: Preparation of Urban Mapping of Bheem Datta Municipality; **Year:** January 2012 to June 2012; **Location:** Nepal; **Client:** DUDBC; **Main Project Features:** Preparation of Urban Mapping; **Position Held:** Botanist / Ecologist / Forestry Expert; **Activities Performed:** Responsible for (i) Review all the relevant maps of the project area including LRMP maps, documents and other maps; (ii) Prepare reports on land use classification system, existing land use pattern and model of GIS data base; (iii) Collect necessary data on physical aspect, soils and other characteristics, forestry, agriculture and food production etc.; (iv) Prepare profile of the selected VDCs with data base on physical and environment aspects, and land resource, forest etc.

Name of Assignment or Project: Feasibility Study and TOR/Scooping of ESIA of Lower Manang Marsyangdi Hydroelectric Project ,140.5 MW; **Year:** August 2010 to December 2010; **Location:** Manang District; **Client:** Butwal Power Company limited; **Main Project Features:** Feasibility Study and TOR/Scooping of ESIA; **Position Held:** Forestry Expert/ Natural Resource Manager; **Activities Performed:** Responsible for: i) Depict environmental baseline, prediction and evaluation of environmental impacts/issues, focus group discussion, propose appropriate mitigation measures ii) Forestry survey, forestry and botanical data collection forest clearance, preparation of tree cutting plan and tree cutting approval as per rules from forest offices and preparation of tree plantation plan and bio engineering works iii) Support in Preparation of EIA reports including Environmental Management and Monitoring Plan.

Name of Assignment or Project: District Level Land Use Map Updating, Preparation of District Level Land Use Zoning Maps, Preparation of GIS Database and Preparation of District Profile for Land Use Zoning (25 Districts); **Year:** May 2010 to July 2010; **Location:** Nepal; **Client:** Land Use Zone / DoS; **Main Project Features:** Preparation of GIS Database and Preparation of District Profile; **Position Held:** Botanist / Forestry Expert / Ecologist; **Activities Performed:** Responsible for review all the relevant maps of the project area including LRMP maps, documents and other maps; review all the relevant maps of the project area including present land use, topography, forestry etc. and collect necessary data on physical aspect, soils and other characteristics, forestry, agriculture and food production etc.

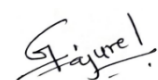
EXPERT'S CONTACT INFORMATION

E-mail [jyoti.gajurel@ermcnepal.com](mailto: jyoti.gajurel@ermcnepal.com)

Phone No.: 9851243732

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



Dr. Jyoti Prasad Gajurel

{day/month/year}

Name of Expert

Signature

Date: April 1, 2022

CURRICULUM VITAE

Position Title and No:	Hydropower Engineer
Name of Expert:	Umesh Dhital
Date of Birth	07-07-1990
Citizenship:	Nepali/441037/34, Gorkha
Permanent Address:	Kharibot-8, Gorkha

NEC Registration No : 8 7 1 9 “ C i v i l ” “ A ”
 NEA Registration No : 13384

EDUCATION

Degree	University/College	Date, BS
M. Sc. in Water Resource Engineering	IOE, Pulchowk Campus	2073
B. E. in Civil Engineering	IOE, Pulchowk Campus	2069

ACADEMIC INVOLVEMENT

- Working as a **part time Lecturer in Kathmandu Engineering College, Kalimati, Kathmandu** since 2012
- Working as a **part time Lecturer in Karthford Engineering College, Lalitpur** since 2014.
- Worked as a **part time Lecturer in Cosmos Engineering College, Lalitpur** at 2014.
- Worked as a **part time Lecturer in Kantipur City College, Putalisadak** since 2012.
- Worked as a **Part Time Lecturer in HIST Engineering College, Sinamangal** since 2014.

Employment Record Relevant to the Assignment:

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
Nov 2020 to July 2021	<p>Employer – Niyatra Consult Pvt.Ltd</p> <p>Position – Senior Civil Engineer</p> <p>FOR REFERENCE: Tel: 9851056075 Mr. Umeshdhital, Director E-mail : niyatraconsult@gmail.com</p>	Nepal	<p>Worked as a Civil Engineer in</p> <ul style="list-style-type: none"> • Detail Site Survey for Implementation of Solar Mini Grid Project and Preparing the Detail Feasibility Project Report-Cluster 1 <p>Client: APEC</p> <p>Project Location: Kalikot, Surkhet, Jumla, Dang</p> <ul style="list-style-type: none"> • Detailed Feasibility Study of Solar Mini Grid Project <p>1. Dho Taksi SMG, Shey Phoksundo RM, Dolpa</p>

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
			<p>2. Ranma Maikot SMG, Ranma RM, East Rukum</p> <p>Client:DAI</p> <p>Project Location: Dolpa, East Rukum</p>
Nov 2019 to July 2020	<p>Employer – Shreeya Consultancy Pvt.Ltd</p> <p>Position - Senior Civil Engineer</p> <p>FOR REFERENCE:</p> <p>Tel: 9851155333</p> <p>Mr. Rabindra Sharma, Director</p> <p>E-mail : shreeyaconsult.org@gmail.com</p>	Nepal	<p>Worked as a Civil Engineer in Pre –Feasibility Study of Lift/Solar Water Pumping System For Drinking And Irrigation Purpose In Tar Of And Right Banks Of Sunkoshi River (From Dolalghat To Barahakshetra)</p> <p>Client: Water and Energy Commission Secretariate (WECS, Singhadurbar)</p> <p>Project Location: Kavre, Ramechhap, Sindhuli, Bhojpur, Udayapur.</p>
Feb-19 to Sep-19	<p>Employer – GOEC Nepal-Next-Aragon (JV)</p> <p>Position - Civil Engineer</p> <p>FOR REFERENCE:</p> <p>Tel: 9841056075</p> <p>Mr. Man Bahadur Shahi, Director</p> <p>E-mail : nextconsult15@gmail.com</p>		<p>Worked as a Civil Engineer in Preparation of Operation and Maintenance Manual of Rani, Jamara and Kulariya Irrigation Systems</p> <p>Client: Rani Jamara Kulariya Irrigation Project</p> <p>Project Location: Kailali</p>
Jan 2019 to July 2019	<p>Employer – Niyatra Consult Pvt.Ltd</p> <p>Position - Civil Engineer</p> <p>FOR REFERENCE:</p> <p>Tel: 9851056075</p> <p>Mr. Umesh Dhital, Director</p> <p>E-mail : niyatraconsult@gmail.com</p>		<p>Worked as Civil Engineer in following Projects:</p> <ul style="list-style-type: none"> • Preparation of Detailed Feasibility Study of Bagada Kaba Irrigation Water Lift Project (10Ha) (Solar Lift) • Preparation of Detailed Feasibility Study of Bhaisisen Mayjuila Water Lift Irrigation Project (31 Ha) (Solar Lift) <p>Client: Panchal Jharana Rural Municipality, Kalikot</p> <p>Location: Kalikot</p>

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
From Jan 2018 to August 2018	<p><u>Employer</u> - Great Himalayan Research and Consult Pvt.Ltd</p> <p><u>Position</u> - Civil Engineer</p> <p><u>FOR REFERENCE:</u> dhakal.subbi@gmail.com</p>		<p>Worked as Civil Engineer in following Projects:</p> <ul style="list-style-type: none"> • Detailed Feasibility Study of Ghatg aun Irrigation Project (Solar Pumping Project)-300ha. This project is supported by Water Resource and Irrigation Development Division Office, Surkhet. • Detailed Feasibility Study of Chaukune Irrigation Project 35ha. This project is supported by Water Resource and Irrigation Development Division Office, Surkhet.
Jan, 2018 July 2018	<p><u>Employer</u> – ESA Consult Pv.Ltd</p> <p><u>Position-Civil Engineer</u></p> <p><u>FOR REFERENCE:</u> Tel: 9851063147 Mr. Ramesh Subedi, Managing Director E-mail : esaconsult11@gmail.com</p>		<p>Worked as a Civil Engineer in</p> <ol style="list-style-type: none"> 1.Detailed Feasibility Study of Dhara Khola Irrigation Project. 2. Detailed Feasibility Study of Dhara Khola Santada Irrigation Project, <p>Client: Irrigation Development Division office, Salyan Project Location: Salyan</p>
Jan 2017 to Jul 2017	<p><u>Employer</u> – Niyatra Consult Pvt.Ltd</p> <p><u>Position</u> – Irrigation/Design Engineer</p> <p><u>FOR REFERENCE:</u> Umesh Dhital, MD 9851056075 Email: niyatraconsult@gmail.com</p>		<p>Worked as Design Engineer in</p> <p>Conducting detail survey, designing, estimation and preparation of Project Report of Paskunda Budhasatak ISP, Dobhan-9,Palpa.</p> <p>Client: Irrigation Development Division, Palpa Location: Palpa</p>
August 2016 to Nov 2016	<p><u>Employer</u> – Niyatra Consult Pvt.Ltd</p> <p><u>Position</u> – Irrigation/Design Engineer</p>		<p>Worked as Irrigation/Design Engineer in</p> <p>Detailed Feasibility Study of Lamtiya Badh Irrigation Project, Kapilvasthu.</p>

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
	<p><u>FOR REFERENCE:</u> Umesh Dhital, MD 9851056075 Email: niyatraconsult@gmail.com</p>		<p>Client: Irrigation Development Division, Palpa Location: Kapilvastu</p>
<p>August 2015 to Nov 2015</p>	<p><u>Employer</u> – Niyatra Consult Pvt.Ltd <u>Position</u> – Irrigation/Design Engineer <u>FOR REFERENCE:</u> Umesh Dhital, MD 9851056075 Email: niyatraconsult@gmail.com</p>		<p>Worked as Irrigation/Design Engineer in Preparation of Detailed Feasibility Study of Gadthaghat Irrigation Project, Chairai Khola, Kapilvastu.</p> <p>Client: Irrigation Development Division, Palpa Location: Kapilvastu</p>
<p>2071 to date</p>	<p>Niyatra Consult Pvt.Ltd Email: niyatraconsult@gmail.com Web:niyatraconsult.com.np</p>	<p>Nepal</p>	<p>Worked as Water Supply and Sanitation Design Specialist in following Projects.</p> <ul style="list-style-type: none"> • Detailed Engineering Survey and Design of Dalleji Dahakot & Gothepani Bramatola water supply and sanitation project, Baura Client: Water Supply and Sanitation Sub Division Office, Baura • Detailed Project Report Preparation of Chaurikhola Dhokadnda (Arid Zone) water Supply and Sanitation Project, Kavre Client: Arid Zone Water Supply and Sanitation Project, Panipokhari. • Detailed Project Report Preparation of Sorukot Brihat water Supply and Sanitation Project, Mugu Client: Arid Zone Water Supply and Sanitation Project, Panipokhari. • DPR Preparation of Various Water Supply Schemes within Thakre Rural Municipality, Dhading Client:Thakre Rural Municipality

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
			<ul style="list-style-type: none"> • DPR Preparation of Kanyam Panchakanya Water Supply and Sanitation Project, Ilam. <p>Client: Climate Resilient Large Water Supply and Sanitation Project</p> <ul style="list-style-type: none"> • Preparation of Detailed Project Report and Cost Estimate of Pumping Water Supply and Sanitation Project in Sarawal Rural Municipality, Nawalparasi. <p>Client: Sarawal Rural Municipality, Nawalparasi</p> <ul style="list-style-type: none"> • Preparation of Feasibility Study of Santipur Water Supply Project, Sanitpur-Gulmi. <p>Client: Sahalagani Water Supply and Sanitation Project.</p> <ul style="list-style-type: none"> • Preparation of Detailed Project Report of Juniya Water Supply Project. <p>Client: Satyawati Rural Municipality, Gulmi.</p> <p>Worked as Hydrologist for Hydrological Study, Calculation, analysis and design of various structures on following Projects.</p> <ol style="list-style-type: none"> 1. DPR Preparation of Koto to Hulaki Odar Road, Manang (13 km). Client: DDC, Manang 2. DPR preparation of Kaliraha to Gharigaun Road (upto Mid hill highway) (3.3KM), Lamjung. Client: Rainas Municipality, Lamjung 3. Preparation of Detailed Project Report of Road and Drain of Core City Area of Bhimeswor Municipality (7.158 Km),

Period	Employing organization and your title/position	Country	Summary of activities performed relevant to the assignment
			Dolakha, Client: DUDBC, Division Office, Dolakha
2069 to 2073	Consultant: Executive Consulting and Engineering and Planners Pvt.Ltd Reference: Er. Laxman KC, Executive Director. Web:executivececp.com/	Nepal	<ul style="list-style-type: none"> • Worked as a Irrigation System Designer in Katikuti Irrigation Project, Dolaka. • Worked as a Irrigation System Designer in Mahabhir Irrigation Project, Dolakha. • Worked as a Irrigation System Designer in Kachal Irrigation Project, Palpa Client: Medium Irrigation Project (MIP), Department of Irrigation .

TRAINING

- One Month Training on **AUTOCAD 2D,3D** and **Land Development** at Glossoft computer Institute.
- A research project and model present **Earthquake shake table”** .
- Three day **Design of MicroHydropower[™]** .
- Three days **Skill Tests Training** organized by CTEVT, NSTB and EVENT Project.
- Three day **Leadership/Peace Vision Education Seminar** organized by GLOBLE YOUTH PEACE CORPS Nepal.
- Participated on the 7 days Training on GIS/Remote Sensing ERDAS Image at Institute of Engineering, Pulchowk Campus, Lalitpur.
- Participated on 7 Days Online Training on Solar Lift Irrigation Project Design.
- Completed Course on “Interna-credit course authorized by L by University of Geneva and Offered through Coursera.

COMPUTER SKILL

- Auto CAD.
- ARCGIS/ ARCVIEW, ERDAS IMAGINE
- Hec-Ras, Flow Master.
- FORTRAN Programming Language.

■ Adequacy for the Assignment :

Detailed Tasks Assigned on Consultant's T	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
<ul style="list-style-type: none"> • Assist other experts during Site Investigations works; • Prepare working drawings as and when necessary; • Conduct Structural engineering related design and calculate • Prepare rate analysis and cost estimates; • Other works as required by Project; • Assessment of technical needs based on client Needs 	<p>Name of Project (1): Pre –Feasibility Study of Lift/Solar Water Pumping System For Drinking And Irrigation Purpose In Tar Of And Right Banks Of Sunkoshi River (From Dolalghat To Barahakshetra)</p> <p>Location: Kawnre, Ramechhap, Sindhurajapur.</p> <p>Period: Nov 2019 to July 2020 (9 months input)</p> <p>Client: Water and Energy Commission Secretariate (WECS, Singhadurbar)</p> <p>Employer – Shreeya Consultancy Pvt.Ltd</p> <p>Position: Civil Engineer</p> <p>Project Description: To assess the possibility of Solar and right bank of the Sunkoshi supply and irrigation water for the Taras for the purpose of feasibility analysis of lifting project.</p> <p>Activities performed:</p> <ul style="list-style-type: none"> • Assist other experts during Site Investigations works; • Prepare working drawings as and when necessary; • Conduct Structural engineering related design and calculate • Prepare rate analysis and cost estimates; • Other works as required by Project; • Assessment of technical needs based on client Needs
	<p>Name of Project (2): <i>Preparation of Operation and Maintenance Manual of Rani, Jamara and Kulariya Irrigation Systems</i></p> <p>Location – Kailali</p> <p>Period: Feb-19 to Sep-19 (8 months)</p> <p>Client: <i>Rani Jamara Kulariya Irrigation Project</i></p> <p>Employer – GOEC Nepal-Next-Aragon (JV)</p> <p>Position: Senior Civil Engineer</p>

Project Details: Socio economic, agro economic data collection, Study of existing irrigation, canal operation, periodic and regular maintenance practices, study of traditional operation and maintenance of local farmers, consultation with farmers, key informants, Rani Jamara Kulariya Project officials and preparation of comprehensive Operation and Maintenance report.

A c t i v i t i e s p e r f o r m e d :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (3): Preparation of Detailed Feasibility Study of Bagada Kaba Irrigation Water Lift Project (10Ha) (Solar Lift)

Preparation of Detailed Feasibility Study of Bhaisisen Mayjuila Water Lift Irrigation Project (31 Ha) (Solar Lift)

L o c a t i o n : K a l i k o t

Period: Jan 2019 to July 2019 (6 months)

Client: Panchal Jharana Rural Municipality, Kalikot.

Employer – Niyatra Consult Pvt.Ltd

P o s i t i o n : C i v i l E n g i n e e r

P r o j e c t D e t a i l s : desk study and data collection on projects from secondary, field visits to the existing water lift projects. Identify potential economic viability and tentative benefit cost ratio, prepare cost based on the viability and design the preparation of detail project report

A c t i v i t i e s p e r f o r m e d :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (4): Detailed Feasibility Study of Ghatgaun Irrigation Project (Solar Pumping Project)-300ha. This project is supported by Water Resource and Irrigation Development Division Office, Surkhet.

Detailed Feasibility Study of Chaukune Irrigation Project 35ha. This project is supported by Water Resource and Irrigation Development Division Office, Surkhet.

Location

Period: Jan 2018 to August 2018 (8 months)

Client: Water Resource and Irrigation Development Division Office, Surkhet.

Employer – Great Himalayan Research and Consult Pvt.Ltd

Position Civil Engineer

Project Details desk study and field investigation of projects from secondary, field survey and water table the existing measurements of water table and groundwater. Identify potential alternative schemes for irrigation economic viability and cost estimation. Tentative beneficiary list based on the viability and detail analysis preparation of detail project report

Activities performed:

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (5): Conducting detail survey, designing, estimation and preparation of Project Report of Paskunda Budhasatak ISP, Dobhan-9, Palpa.

Location – Dobhan-9, Palpa.

Period: Jan 2017 to Jul 2017 (7 months)

Client: Irrigation Development Division, Palpa

Employer – Niyatra Consult Pvt.Ltd

Position Civil Engineer.

Project Details desk study and field investigation of projects from secondary, field survey and water table the existing measurements of water table and groundwater. Identify potential alternative schemes for irrigation economic viability and cost estimation. Tentative beneficiary list based on the viability and detail analysis, preparation of cost estimation of the project, detail analysis, preparation of project report

Activities performed :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (6): Detailed Feasibility Study of Lamtiya Badh Irrigation Project, Kapilvasthu.

Location – Kapilvastu

Period: August 2016 to Nov 2016 (4 months)

Client: Irrigation Development Division, Kapilvastu

Employer – Niyatra Consult Pvt.Ltd

Position Civil Engineer

Project: Detailed desk study and literature review projects from secondary, field visits to the existing project area, identify potential areas, identify potential feasibility, economic cost ratio, and recommend viability and detail analysis, preparation detail project report

Activities performed :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (7): Preparation of Detailed Feasibility Study of Gadthaghat Irrigation Project, Chairai Khola, Kapilvastu.

Location – Kapilvastu

Period: August 2015 to Nov 2015 (4 months)

Client: Irrigation Development Division, Kapilvastu

Employer – Niyatra Consult Pvt.Ltd

Position Civil Engineer

Project: Detailed desk study and literature review projects from secondary, field visits to the existing project area, identify potential areas, identify potential feasibility, economic cost ratio, and recommend viability and detail analysis, preparation detail project report

Identify potential environmental impacts of the project, economic viability and do for soil, water, air, noise, and vibration. Prepare cost estimation of the project, detail analysis, preparation of detailed report

Activities performed :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (8): Conduct Detailed Assessment of Educational and Physical Infrastructure of the Proposed Model School, and Prepare School Specific Multi Year Coasted Master Plan of Mahendra Secondary School, Gulmi

Location – Gulmi

Period: Dec, 2017 to Jan 2019

Client: Mahendra Secondary School, Gulmi

Employer – Niyatra Consult Pvt.Ltd

Position: Civil Engineer

Project Details: Identify the required Infrastructure and Facilities of School according to Model School Guidelines 2074. Prepare Architectural, Engineering Design, Master Plan, Quality and Cost Estimate, Bidding Documents of Designed Structures.

Activities performed :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (9): - Detailed Feasibility Study of Solar Mini Grid Project

1. Dho Taksi SMG, Shey Phoksundo RM, Dolpa

2. Ranma Maikot SMG, Ranma RM, East Rukum

Location: Dolpa, East Rukum

Period: March-15th June 2022

Client: DAI GLOBAL UK LTD

Position held: Civil Engineer

Project - Detailed Feasibility Study of Dhara Khola Irrigation Project at different 8 locations with financial and tariff scenarios with the project implementation

Activities performed: Conduct Baseline survey, energy demand survey

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (10): Detailed Feasibility Study for Implementing the Detailed Feasibility Project at Kankot, Surkhet, Jumla, Dang
Period: 6 months

Client: APEC

Position: Civil Engineer

Project - Detailed Feasibility Study of Dhara Khola Irrigation Project at different 8 locations with financial and tariff scenarios with the project implementation

Activities performed: Conduct Baseline survey, energy demand survey

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;
- Assessment of technical needs based on client Needs

Name of Project (11): 1. Detailed Feasibility Study of Dhara Khola Irrigation Project.

2. Detailed Feasibility Study of Dhara Khola Santada Irrigation Project,

Client: Irrigation Development Division office, Salyan

Project Location: Salyan

Period: Jan, 2018 July 2018 (6 months)

Employer – Niyatra Consult Pvt.Ltd

Position: Civil Engineer

Project: Detailed Feasibility Study of Dhara Khola Irrigation Project at different 8 locations with financial and tariff scenarios with the project implementation. Identify potential economic viability of the project.

prepare cost estimation of the project, detail analysis, preparation of detailed report

Activities performed :

- Assist other experts during Site Investigations works;
- Prepare working drawings as and when necessary;
- Conduct Structural engineering related design and calculate
- Prepare rate analysis and cost estimates;
- Other works as required by Project;

Assessment of technical needs based on client Needs

Name of Project (12): Municipality Transport Master Plan of Sunawal Municipality, Nawalparasi.

Location – Nawalparasi

Period: January 2015 to May 2015

Client: Sunawal Municipality, Nawalparasi

Employer – Shreeya Consultancy Pvt.Ltd

Position: Civil Engineer

Project Details: Master Plan Preparation

Activities performed :

- Attending various meetings and coordinate with client, consultant, users and other concern authorities, letter corresponding etc.
- Presentation and Coordination for the preparation of MRCC
- Survey and data processing
- Transport Master Plan Preparation and assisting the Team Leader for the design and drafting.

Name of Project(13): Preparation of Architectural design and structural Drawing of District Hospital, Baitadi.

Location – Baitadi

Period: July 2014 to Dec 2014.

Client: DUDBC

Employer – Technocrat Consultancy Pvt.Ltd

Position: Civil Engineer

Project Details: DPR Preparation .

Activities performed :

- Survey data processing and analysis
- Co-Ordinate with Architect and Client (DUDBC) and design of building
- Structural design and drawing preparation of building.
- Attending various meetings and coordinate with client, consultant, users and other concern authorities, letter corresponding etc.

--

LANGUAGE PROFICIENCY:

Nepali : Excellent
English : Excellent
Hindi : Good in listening, speaking and reading.

Expert's contact e-mail: umeshdhtal47@gmail.com / phone: +9851056075)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



Umesh Dhital {day/month/year}

Name of Expert

Signature

Date: April 1, 2022

PERSONAL INFORMATION **ABINASH ARYAL**

📍 Asherdi, Ward No. 1, Rambha Gaunpalika, Palpa, Lumbini Province, Nepal

☎ +977-9860378723, +977-9823419440

✉ aryalabinash7@gmail.com

💬 Skype ID: aryalabinash7

Sex: Male | Date of Birth: 1996 | Nationality: Nepali

WORK EXPERIENCE

April – Research Assistant (Environment)
NOW Nepal Rural and Advancement Commi
Anamnagar, Ka-Nmahdu 44600
Involved in environmental research assi

29th March – 2nd IEE/ EIA Team member

15th October **Raj Bandhu Services Pvt. Ltd.**

Baluwatara, Kathmandu

Involved as team member in different level development projects.

- Myagdi Khola A Hydropower Project District
- Upper Dudh Khola Hydropower Project District
- Saligram Corridor Road Project District
- Kaavoti Roads and Drain Expansion Nawalparasi East
- Thobang Khola Mini Hydropower (Khimbit-Dhharapani Road (15.0851

21st July - 2nd Program Officer

8th March **Campaign Nepal (NGO)**

New Baneshwor, Buddhanagar, Kathmandu

- Worked as a coordinator for the Capacity Building in the field

of the Box (SIOB), PLANTING CIT
People in Volunteerism (MIPV), and
Service (FCS).

- Developing and coordinating pro
- Organizing and monitoring Progr
- Coordinating national and Europ
- Participating in organisations' s
representative
- Represented -b a n d a f f a c i o f i t a g a d i s a t
meetings and seminars in Italy

Organisati-Conv eTrypmentNaln Organisati
29th September European Youth Worker and Educatio
7th December (Job Shadowing)

Per Esempio Onlus

Via Saladino, 3/5, 90134 Palermo

- Participated in the J -A b t s i b a n d d w i l
the European Union g E i a s t m u s E a r p y
Palermo, Italy
- Participation and Presentation
- Observation of educational syst
- Engaging with the school stud e i
programs

Project Type: Capacity Building f
2nd February President

21 February **Golden Gate Bachelor's Science Clu**

Golden Gate International College,

- Planning, o a g n a y i n g n g u a n t h e r e s p
- Monitoring the club's progress
- Motivating students and establi
- Organized and managed over 10 p

Organisation Type: Students Association

22 February Secretary

21 February **Golden Gate Bachelor's Science Clu**

Golden Gate International College,
 ➤ Writing letters and handling mail
 ➤ Prepare the agenda and recording
 ➤ Primary representation for the
 ➤ Organized over 15 programs under
 CHAPTER 11. Organisation Type: Students Association

15 May 2020 Volunteer

20 July Campaign - Nepal Ch (A G G N)

New Baneshwor, Kathmandu
 ➤ Organization and participation
 Organizational - Environmental Organization

EDUCATION

2018/2020 Masters in Environmental Science
 Tribhuvan University, Kathmandu,
 Golden Gate International College,
 • Main Subjects: Environmental Ec
 Management, Ecology
 • Thesis study under "Butterflies
 pollinators to urbanization and
 Lalitpur District of Kathmandu

2018/2019 Bachelor Environmental Science
 Tribhuvan University, Kathmandu,
 Golden Gate International College,
 ➤ Main Subjects: Environmental Sc
 Methodology

2012/2013 Higher Secondary Education relevant
 Higher Secondary Education Board,
 Liverpool International College,
 ➤ Main Subjects: Compulsory Engli
 Biology, Mathematics

2010 / School Certificate (SLC) Exa

**Office of the Controller of Exami
of Nepal**

Societal Higher Secondary School,

- Main Subjects: Compulsory English
Mathematics, Compulsory Science
Health, Population and Environn
Optional Office Management and

TRAINING

9th April 1st April 2016

IEE Training Program

Environment Protection and Study

Baneshwor Height, Kathmandu

- Introductory training to IEE
- Field visit

18th November Training on Election Observ
Writing, Butwal, Rupendehi

**Election Observation Committee Ne
Buddhanagar, Kathmandu**

- Importance of observation in an
- Roles, Duties and excellences o
- Methods and practice in Nationa
election process

5th Septe-13th Septe-18th Septe-25th Septe-
September Training Course on Voluntee reld
Sicily

CESIE, Italy

- Increase quality and recognitio
management
- Acquire new neonmpoertiengce easn di nvolut
- Acquire new methods for youngst

0th Septe-12th Septe-25th Septe-
September Regional Level Training of Trainee
Social Protection Civil Society Network (SPCVN),

Anamnagar, Kathmandu

- Concept of Social Protection

- Historical Development of Social
- Social Protection Instruments
- Opportunities and Challenges of
- Implementation Issues, Design I
- Role of Local Bodies and Civil

26 January 2014 Proposal Writing Skills Dev

2014 Human Resources Development Centre
Pulchowk, Lalitpur

- Proposal Writing
- Letter and Email Writing
- Understanding Donors

27 July 2014 Photography, Documentary and Film
Collective Campaign for Peace (CCP)
Anamnagar, Kathmandu

- Photography: Techniques, Compos
- Documentary and Film Making: Vi
- and video editing

PERSONAL SKILLS

Mother tongue: Nepali

Other language	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C1	C1
Hindi	B1	B1	B1	B1	B1

Levels: A1/B2 / 2 Basic level certificate

Communication: Good communication skills developed

different nationalities and culture of tolerance, always open to meet with new people and learn having -grteiavtasiedf and being able all the time.

Organisational Managerial More than 2 years of experience in project management, assess, and achieve goals for a team, work under a team and have management and coordination

Other Basic level Graphic Designer; Competent in Photoshop, Video Editing Software

Other Experience Worked as an Election Observer in state and national level election types of workshops, programs and of Golden Gate College; Provided guidance under PALS WEB TV project; Participated in meetings and seminars in Italy in

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



Abhinash Aryal

{day/month/year}

Name of Expert

Signature

Date: April 1, 2022

Annex 5: Deed of Enquiry



Salasungi Power Pvt.Ltd.
सालासुङ्गी पावर प्रा.लि.

Changshuihuang, Anxianzhen MSB
Kathmandu, Nepal
Tel: 977-01-4411012
Email: info@salasungi.com.np


च.नं. २०७९/६०/६१


मिति: २०७९/१२/०९

श्री आमाछोदिङमो गाउँपालिका वडा नं. ५को कार्यालय
रसुवा जिल्ला, बागमती प्रदेश

विषय: प्रमाणित सूचना टाँसको मुचुल्का गरी सहयोग गरिदिने बारे

बागमती प्रदेश रसुवा जिल्ला आमाछोदिङमो गाउँपालिकामा सालासुङ्गी पावर प्रा.लि., बालुवाटार, काठमाडौं द्वारा सान्जेन खोला जलविद्युत् आयोजना (७८ मे.वा.) को निर्माण कार्य अघि बढिरहेको छ। सोहि अनुरूप आयोजनाले वातावरणीय प्रभाव मुल्यांकन गरि आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केहि संरचना हेरफेर गर्नुपर्ने भएकाले यो पुरक वातावरणीय प्रभाव मुल्यांकन गर्नुपर्नेको छ। यस पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण ऐन २०७६ र वातावरण संरक्षण नियमावली २०७७ को प्रावधानका आधारमा तयार पारिएको पूरक सम्भाव्यता अध्ययन प्रतिवेदनको एक अंश हो। यस प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्न सक्ने प्रभावको सम्बन्धमा प्रस्तावकले वातावरणीय अध्ययन प्रतिवेदन तयारीको सिलसिलामा प्रस्तावको कार्यान्वयनबाट प्रभावित हुने क्षेत्रमा प्रस्तावको बारेमा राय सुझाव सङ्कलन गर्न सार्वजनिक सूचना प्रकाशित गर्नुपर्ने भएकाले सूचना प्रकाशित गर्नु अघि प्रस्तावकद्वारा प्रमाणित सूचना यस कार्यालयको सूचना पाटिमा टाँस गरी मुचुल्का गरिदिनुहुन यसै पत्र मार्फत अनुरोध छ। यस पत्र साथ एक प्रतिवेदन समेत समावेस गरिएको छ।


Zhou Zhiyan
(Managing Director)


दावा गोम्बो तामाङ
वडा अध्यक्ष



Salasungi Power Pvt.Ltd.
सालासुङ्गी पावर प्रा.लि.

Chapankhola, Annapurna Marg
Kathmandu-4, Nepal
Tel: 01-4019674
Email: info.salasungi@gmail.com

च.न. २०७९/८०/८०

मिति: २०७९/१२/०५

श्री आमाछोदिडमो गाउँपालिकाको कार्यालय
रसुवा जिल्ला, बागमती प्रदेश

बिषय: प्रमाणित सूचना टाँसको मुचुल्का गरी सहयोग गरिदिने बारे

बागमती प्रदेश रसुवा जिल्ला आमाछोदिडमो गाउँपालिकामा सालासुङ्गी पावर प्रा.लि., बालुवाटार, काठमाडौं द्वारा सान्जेन खोला जलविद्युत् आयोजना (७८ मे.वा.) को निर्माण कार्य अघि बढिरहेको छ। सोहि अनुरूप आयोजनाले वातावरणीय प्रभाव मूल्यांकन गरि आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केहि संरचना हेरफेर गर्नुपर्ने भएकाले यो पूरक वातावरणीय प्रभाव मूल्यांकन गर्नुपर्नेको छ। यस पूरक वातावरणीय प्रभाव मूल्यांकन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण ऐन २०७६ र वातावरण संरक्षण नियमावली २०७७ को प्रावधानका आधारमा तयार पारिएको पूरक सम्भाव्यता अध्ययन प्रतिवेदनको एक अंश हो। यस प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्न सक्ने प्रभावको सम्बन्धमा प्रस्तावकले वातावरणीय अध्ययन प्रतिवेदन तयारीको सिलसिलामा प्रस्तावको कार्यान्वयनबाट प्रभावित हुने क्षेत्रमा प्रस्तावको बारेमा राय सुझाव सङ्कलन गर्न सार्वजनिक सूचना प्रकाशित गर्नुपर्ने भएकाले सूचना प्रकाशित गर्नु अघि प्रस्तावकद्वारा प्रमाणित सूचना यस कार्यालयको सूचना पाटिमा टाँस गरी मुचुल्का गरिदिनुहुन यसै पत्र मार्फत अनुरोध छ। यस पत्र साथ एक प्रतिवेदन समेत समावेस गरिएको छ।

Zhou Zhiyan
(Managing Director)

Received
April
9/2/08



Salasungi Power Pvt.Ltd.
सालासुङ्गी पावर प्रा.लि.

Chitwan, Nepal
Kathmandu, Nepal
Tel: 977-01-4411624
Email: info@salasungi.com.np

च.नं. २०७९/८०/८१

मिति: २०७९/१२/०९

श्री आमाछोदिङमो गाउँपालिका वडा नं. १को कार्यालय

रसुवा जिल्ला, बागमती प्रदेश

विषय: प्रमाणित सूचना टाँसको मुचुल्का गरी सहयोग गरिदिने बारे

बागमती प्रदेश रसुवा जिल्ला आमाछोदिङमो गाउँपालिकामा सालासुङ्गी पावर प्रा.लि., बालुवाटार, काठमाडौं द्वारा सान्जेन खोला जलविद्युत् आयोजना (७८ मे.वा.) को निर्माण कार्य अघि बढिरहेको छ। सोहि अनुरूप आयोजनाले वातावरणीय प्रभाव मूल्यांकन गरि आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केहि सरचना हेरफेर गर्नुपर्ने भएकाले यो पुरक वातावरणीय प्रभाव मूल्यांकन गर्नुपर्नेको छ। यस पुरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण ऐन २०७६ र वातावरण संरक्षण नियमावली २०७७ को प्रावधानका आधारमा तयार पारिएको पुरक सम्भाव्यता अध्ययन प्रतिवेदनको एक अंश हो। यस प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्ने सक्ने प्रभावको सम्बन्धमा प्रस्तावकले वातावरणीय अध्ययन प्रतिवेदन तयारीको सिलसिलामा प्रस्तावको कार्यान्वयनबाट प्रभावित हुने क्षेत्रमा प्रस्तावको बारेमा राय सुझाव सङ्कलन गर्न सार्वजनिक सूचना प्रकाशित गर्नपर्ने भएकाले सूचना प्रकाशित गर्नु अघि प्रस्तावकद्वारा प्रमाणित सूचना यस कार्यालयको सूचना पाटिमा टाँस गरी मुचुल्का गरिदिनुहुन यसै पत्र मार्फत अनुरोध छ। यस पत्र साथ एक प्रतिवेदन समेत समावेस गरिएको छ।

Zhou Zhiyan
(Managing Director)

दावा गोम्बो तामाङ
वडा अध्यक्ष

Annex 6: 7-Day notification



सौर्य दैनिक

www.souryaonline.com

बर्ष १९

अंक ३६

सोमवार, १३ चैत २०७९

SOURYA NATIONAL DAILY

Monday, 27 March 2028

सान्जेन खोला जलविद्युत् आयोजना (७८ मे.वा.) को पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयारी सम्बन्धी सार्वजनिक सूचना

प्रकाशित मिति: २०७९/१२/१३

बागमती प्रदेश रसुवा जिल्ला आमाछोदिङमो गाउँपालिकामा सालासुङ्गी पावर प्रा.लि., चपल कारखाना, काठमाडौं द्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ। वातावरण संरक्षण ऐन, २०७६ र वातावरण संरक्षण नियमावली, २०७७ अनुसार यस प्रस्तावको कार्यान्वयनबाट वातावरणमा पर्न सक्ने प्रभावको सम्बन्धमा प्रस्तावकले वातावरणीय अध्ययन प्रतिवेदन तयारीको सिलसिलामा प्रस्तावको कार्यान्वयनबाट प्रभावित हुने क्षेत्रमा प्रस्तावको बारेमा राय सुझाव सङ्कलन गर्न सार्वजनिक सूचना प्रकाशित गर्नपने भएकाले यो सूचना प्रकाशित गरिएको छ।

प्रस्तावकको नाम र ठेगाना	सालासुङ्गी पावर प्रा.लि., चपल कारखाना, काठमाडौं, ईमेल: info.salasungi@gmail.com, फोन नं. ९७७-०१४४३९८४९
प्रस्तावको व्यहोरा	सालासुङ्गी पावर प्रा.लि.ले नेपालको बाग्मती प्रदेशको रसुवा जिल्लाको आमाछोदिङमो गाउँपालिका, वडा नं. ५ मा निर्माण कार्य गरिरहेको छ। सोहि अनुरूप आयोजनाले वातावरणीय प्रभाव मूल्यांकन गरि आफ्नो निर्माण कार्य अघि बढाएकोमा हाल आयोजनाको केहि संरचना हेरफेर गर्नुपने भएकाले यो पूरक वातावरणीय प्रभाव मूल्यांकन गर्नुपरेको छ। यो पूरक वातावरणीय प्रभाव मूल्याङ्कन अध्ययन प्रतिवेदन नेपाल सरकारको वातावरण संरक्षण ऐन २०७६ र वातावरण संरक्षण नियमावली २०७७ को प्रावधानका आधारमा तयार पारिएको पूरक सम्भाव्यता अध्ययन प्रतिवेदनको एक अंश हो। यस आयोजनाको माथि कुनै अन्य प्रस्तावित वा हालका जलविद्युत् आयोजनाहरू छैनन् तर तल्लो भागमा सान्जेन खोलादेखि भोटेकोशी नदीको संगमसम्म तीन क्यास्केड परियोजनाहरू छन्। यस आयोजनाको वार्षिक उर्जा ४१२.४ गी.वा. रहेको छ। यस आयोजनाको कूल लागत ने.रु. १३,९९०.८६ मिलियन रहेको छ।
प्रभाव पर्ने सक्ने जिल्ला/गा.पा. वडा नं.	रसुवा जिल्ला, आमाछोदिङमो गाउँपालिकामा वडा नं. ५

माथि उल्लेखित प्रस्तावको पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गर्ने क्रममा सो क्षेत्रको प्राकृतिक भौतिक प्रणाली, जैविक प्रणाली, सामाजिक-आर्थिक तथा साँस्कृतिक प्रणालीहरू बीच के कस्ता प्रभाव पर्दछ भनी यकिन गर्न प्रस्ताव कार्यान्वयन हुने जिल्लाको आमाछोदिङमो गाउँपालिका, वडा नं. ५, नजीकका विद्यालय, अस्पताल, स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यस सार्वजनिक सूचना प्रकाशन भएको मितिले ७ दिनभित्र निम्न ठेगानामा आई पुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनु हुन अनुरोध गरिन्छ।

राय सुझावको लागि पत्राचार गर्ने ठेगाना:

प्रस्तावकको नाम र ठेगाना	सालासुङ्गी पावर प्रा.लि., चपल कारखाना, काठमाडौं ईमेल: info.salasungi@gmail.com, फोन नं. ९७७-०१४४३९८४९
परामर्शदाताको नाम र ठेगाना	नेपाल रुलर एण्ड एडभान्समेन्ट कर्मिटी प्रा. लि., अनामनगर, काठमाडौं, ईमेल: info.nracnepal@gmail.com; ९८५१२४३७३२

Annex 7: Minutes

आज तिथि 20/03/2021। लाल माल मंडिगम 92 गते घस व्याक्त खोल -
 मलविधुत आपेजा (60 मी.व.) की शुरु लागणलीय शमाव शलपाइत
 धमवारी शरुवति सुवारी कर्कक यश आ लागती चदेग रपुव।
 मितलाका कामादोदिस गकुपावलीकाई नडिं-2 तावोपनी जाके मित
 आपेजा शलपा आपेजा। समपित बिन्ना वातिका, कापेलिच, मलानय
 ल्या विभा, खासी तिकापनाट पालाशुला मलानय, इडिडिनि, विमिल
 कामा लुके, कलव) गगति लमज तथा लोकापाला मिकप, पादयदम)
 लोया तेषल कुल ऐव एडभापमेट कर्मि (NRAP) प्र. लि. का मला
 की शुरुपक, लालाशुगी पार (कर्मिक, इडिडिनीच प्रतिमिधि, लमपला
 वेदपला इलकल गरी निग रूप कुमाव दिइये।

क्र.सं.	नाम	ठेगाना - नडि	संकेत	संकेत
1	चाण्डिका लमाड.	आ.दौ. जा.पा.	9841008303	Chaf
2	दावा शोरो	नमर	3 3M1652330	3
3	सुवेक प्रसाद कपकाटी	वन तथा इलेकन विभाग, काकाडा		3
4	अरिल शेमी	डि.व.का, डि.व.का	मुवा	3
5	जितेक महंग	(तावोपनी प्र.वि. प्र.अ.)	9804729667	अप
6	पुके देवाड. लमाड.	न	9849488756	अप
7	पेम्पा खिडि लमाड.		9813424736	अप
8	मासाड. डिडिडि लमाड.		9882683055	अप
9	दावा कागी लमाड.		9863195102	अप
10	डिडिडि लुपु लमाड.		9860019738	अप
11	सानाम डुके लमाड.		9269602225	अप
12	डिडिडि लमाड.		9823756142	अप
13	मिमा हासी लमाड.			अप
14	काले लमाड.			अप
15	दावा देवाड. लमाड.			अप
16	कमा कुटी लमाड.		9860056495	अप
17	कापी सीतर लमाड.			अप
18	डिडि. दोजे लमाड.			अप
19	सांभार लमाड. (साचिष पारागाड ल.व.ड.प.)		9803668847	अप
20	मिकप लमाड.			अप
21	कालसाड. वाड.दी लमाड.			अप

23	राजकुमार वादी	राजकुमार
24	पु.ना. वि. जे.ना. वि. जे.ना. वि.	राजकुमार
25	विद्यु पाठशाला	विद्यु पाठशाला
26	Cuileisje	विद्यु पाठशाला
26.	Xia Ding	विद्यु पाठशाला
27	Zhang Wei	विद्यु पाठशाला
28	Qiankehu	विद्यु पाठशाला
29	दीर्घा धर तामाड	विद्यु पाठशाला
29	राजकुमार जे.ना. वि.	Environmental/Monitoring Officer
30	विपिन यादव	" "
31	प्रकाश चिमी	कार्मिक विभाग (NCAE)
32	डा. ज्योति प्रताप जनेल	लेडी प्रमप
MAR 32	मारु तामाड	MARO
33	दिवा जे.ना. वि.	दिवा
34	दादा तामाड	दादा
35	जयराज तामाड	जयराज
36	लाला वाडच्यु तामाड	लाला
37	चिमी तामाड	चिमी
38	पंढरा तामाड	पंढरा
39	निमा साठगा तामाड	निमा

राज तथा युगावहक

- १) बीइगा हेरिब तातोपाती सप्तको सुडको गुणाल, गली आवहक च्यागता हलाय, उभानित्त गाली र हडको गुणाल मिलायने
- २) तातोपातीमा खाल्य सुविधा तथा एण्डलेसको व्यवस्था गर्नुपर्ने
- ३) विद्यालयको हकमा तातोपाती छा.वि.मा सिद्ध, धरावन तथा पहिलो रोकथामको लागि उभानित्त गालिको व्यवस्था गर्नुपर्ने
- ४) माया फाइदि. बुलको व्यवस्थापन गर्ने
- ५) टासीलिड बुला निर्माणमा सहयोग गर्नुपर्ने
- ६) आशोडनाले उभानित्त स्थानीयस्तरमा सेवा उपलब्ध गराउनुपर्ने
- ७) आशोडनाले हेरिब, टूल निर्माण तथा मर्मतमा सहयोग गर्नुपर्ने
- ८) रोक तथा चरतक्षेत्रको उचित व्यवस्थापन गर्नुपर्ने
- ९) तातोपातीको विकास तथा मुहान संरचनामा सहयोग गर्नुपर्ने
- १०) आवहक परेको च्यागता पहिलो रोकथाम तथा वातावरण संरक्षणको काम गर्नुपर्ने
- ११) जंगलमा वाडि बढेका कडहरू छाटाएरु गरि व्यवस्थापन गर्नुपर्ने
- १२) स्थानीयस्तरले बुझ्ने नेपाली भाषामा वातावरणीय सुधारका उपाय सुझाइकरी रिपोर्ट तथा पार्नुपर्ने
- १३) मक तथा स्याङ्गको उचित व्यवस्थापनमा रमात दिनुपर्ने
- १४) आशोडनाले काम वातावरण किन र कत प्राविधिको व्यवस्था गर्नुपर्ने
- १५) आशोडनाले कत व्यवस्थापनको लागि नर्सरीको व्यवस्था गर्नुपर्ने
- १६) तातोपातीमा सामुदायिककको भवन तथा कत हेरालु रहनुपर्ने
- १७) वाटावरणको कृषक भएको गरेटा वाटा, बुइगास्पको तथा लडेका किडका र लोडरीको रोकथाम तथा न्युनिकरणमा कार्यहरू गर्नुपर्ने
- १८) पडुगार्गमा उडने बुलाको उचित व्यवस्थापन गर्नुपर्ने, पानी झर्ने ट्याङ्कालो व्यवस्थापन गर्नुपर्ने
- १९) गाल बुड. वैशीमा केली विज निर्माण गर्नुपर्ने (पाकुड. तिमपुरेण पुस्त निर्माण)
- २०) आशोडनाले कोपना गाडि तथा मेशिनरीलाई सतत-सततमा मर्मत गर्नुपर्ने
- २१) आशोडनाको स्यागारीमा (मारीमलाई) उभानित्त दिनुपर्ने
- २२) आशोडनाले जोडनेला व्यवस्थापन गर्ने लोनी सो नो निर्माण गर्नु ।

(Handwritten signatures and marks)

Annex 8: Recommendation



आमाछोदिङमो गाउँपालिका गाउँकार्यपालिकाको कार्यालय



पोल्खुडवेगी, रसुवा

प.सं. : ०६५/८०

च.नं. : ४८९

बागमति प्रदेश

मिति : २०८०/०१/०५

श्री सालासुङ्गी पावर प्रा.लि.,
चप्पल कारखाना, काठमाडौं,

विषय: राय/सुझाव सहित सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा योजना सालासुङ्गी पावर प्रा.लि., चप्पल कारखाना, काठमाडौं प्रस्तावक रहेको सान्ज्नेन खोला जलविद्युत् आयोजना (७८ मे.वा.) को पूरक वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन आयोजना निर्माण सम्बन्धि मिति २०७९/१२/१३ गते सौर्य दैनिक पत्रिकामा प्रकाशित सूचना अनुसार प्रस्तावले यस क्षेत्रमा निम्नानुसार प्रभाव पर्न जाने देखिन्छ ।

क) सकारात्मक प्रभाव

१. राष्ट्रिय उर्जा उत्पादनमा विकास
२. स्थानीय रोजगारीको अवसर

ख) नकारात्मक प्रभाव

१. बायु, ध्वनि, जल प्रदूषण
२. कामदार शिविरबाट निष्कासन हुने फोहोरमैला तथा व्यवस्थापन
३. पानीको मुहान सुक्न सक्ने सम्भावना
४. पहिरो जान सक्ने सम्भावना
५. संस्कृतिक खलबलति सक्ने अवस्था

उल्लेखित प्रभावहरुको आधारमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यून गर्ने वातावरणीय व्यवस्थापन योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव बढी हुने देखिएकाले उल्लेखित प्रस्ताव कार्यान्वयन गर्न सकिने व्यहोरा सिफारिस गरिएको छ ।

शर्त

आयोजनालाई वातावरणमैत्री तरिकाले निर्माण र संचालन गर्नुपर्ने ।

बुचुङ तामाङ
गाउँपालिका अध्यक्ष

Annex 9: Water Quality Report



SWAT/F/C/04
Version no: 01
Issue no: 02
Revision no: 03
Effective date: 2021/08/01



Soil Water and Air Testing Laboratories Pvt. Ltd.
VAT No: 605928743
Tel: +977-01 4249480
Email: swatlab2017@gmail.com
PO Box: 25752, Kathmandu, Nepal
Sisir Marga 11, Babarmahal, Kathmandu, Nepal

WATER ANALYSIS REPORT

Name of Client:	NRAC	Lab Code:	22/12-877 (b)
Collector:	Srijana Sharma	Location:	Rasuwa
Source:	Water- 2 (Camp)	Sampled By:	Client
Sampling Date/Time:	2022/12/21	Test Performance Date:	2022/12/23-2022/12/26
Receipt Date:	2022/12/23	Issued Date:	2022/12/28

Parameters	Results	Unit	NDWQS	Method
Physical				
pH	7.38	-	6.5-8.5	4500 H+ B. APHA 23 rd edition
Electrical Conductivity	70	µS/cm	1500 (max)	2510 B. APHA 23 rd edition
Dissolved Oxygen	7.4	mg/L	-	DO Meter
Chemical				
Alkalinity	38	mg/L	2000	2320 B. APHA 23 rd edition
Biological Oxygen Demand	1.8	mg/L	500	5210 B. APHA 23 rd edition
Chemical Oxygen Demand	<5	mg/L	-	5220 D., APHA 23 rd edition
Nitrate	0.36	mg/L	50	4500 NO ₃ ⁻ B. APHA 23 rd edition
Phosphate	<0.01	mg/L	2	4500-P E. APHA 23 rd edition
Total Hardness	16	mg/L as CaCO ₃	500	2340 C. APHA 23 rd edition
Chloride	4.99	mg/L	250	4500-Cl- B., APHA 23 rd edition
Sulphate	2.20	mg/L	250	4500-SO ₄ E., APHA 23 rd edition
Sodium	2.36	mg/L	-	-
Potassium	3.33	mg/L	-	3500-K B., APHA 23 rd edition
Calcium	12.02	mg/L	200	3500-Ca D., APHA 23 rd edition
Magnesium	1.46	mg/L	-	-
Iron	0.05	mg/L	0.3(3)	3500-Fe B. APHA 23 rd edition

NDWQS=National Drinking Water Quality Standard (2062)

Note: The integrity of the sample and results are dependent on the quality of sampling. The results refer only to the parameters tested of the samples provided/collected for analysis

Remarks: All the observed values of tested parameters are found to be within the limit of NDWQS 2062.

Analyzed and Checked By



Authorized By
Er. Lokesh Sapkota

The report shall not be reproduced except in full, without approval of the laboratory.



SWAT/F/C/04
Version no: 01
Issue no: 02
Revision no: 03
Effective date: 2021/08/01

Soil Water and Air Testing Laboratories Pvt. Ltd.
VAT No: 605928743
Tel: +977-01 4249480
Email: swatlab2017@gmail.com
PO Box: 25752, Kathmandu, Nepal
Sisir Marga 11, Babarmahal, Kathmandu, Nepal



WATER ANALYSIS REPORT

Name of Client:	NRAC	Lab Code:	22/12-877 (a)
Collector:	Srijana Sharma	Location:	Rasuwa
Source:	Water- 1 (Head)	Sampled By:	Client
Sampling Date/Time:	2022/12/21	Test Performance Date:	2022/12/23-2022/12/26
Receipt Date:	2022/12/23	Issued Date:	2022/12/28

Parameters	Results	Unit	NDWQS	Method
Physical				
pH	7.41	-	6.5-8.5	4500 H+ B. APHA 23 rd edition
Electrical Conductivity	50	µS/cm	1500 (max)	2510 B. APHA 23 rd edition
Dissolved Oxygen	7.3	mg/L	-	DO Meter
Chemical				
Alkalinity	14	mg/L	2000	2320 B. APHA 23 rd edition
Biological Oxygen Demand	0.6	mg/L	500	5210 B. APHA 23 rd edition
Chemical Oxygen Demand	<5	mg/L	-	5220 D., APHA 23 rd edition
Nitrate	0.06	mg/L	50	4500 NO ₃ ⁻ B. APHA 23 rd edition
Phosphate	<0.01	mg/L	2	4500-P E. APHA 23 rd edition
Total Hardness	<1	mg/L as CaCO ₃	500	2340 C. APHA 23 rd edition
Chloride	11.99	mg/L	250	4500-Cl- B., APHA 23 rd edition
Sulphate	12.03	mg/L	250	4500-SO ₄ E., APHA 23 rd edition
Sodium	0.63	mg/L	-	-
Potassium	0.47	mg/L	-	3500-K B., APHA 23 rd edition
Calcium	<1	mg/L	200	3500-Ca D., APHA 23 rd edition
Magnesium	<1	mg/L	-	-
Iron	0.09	mg/L	0.3(3)	3500-Fe B. APHA 23 rd edition

NDWQS=National Drinking Water Quality Standard (2062)

Note: The integrity of the sample and results are dependent on the quality of sampling. The results refer only to the parameters tested of the samples provided/collected for analysis

Remarks: All the observed values of tested parameters are found to be within the limit of NDWQS 2062

Analyzed and Checked By



Authorized By
Lokesh Sapkota

The report shall not be reproduced except in full, without approval of the laboratory.



SWAT/F/C/04
Version no: 01
Issue no: 02
Revision no: 03
Effective date: 2021/08/01



Soil Water and Air Testing Laboratories Pvt. Ltd.
VAT No: 605928743
Tel: +977-01 4249480
Email: swatlab2017@gmail.com
PO Box: 25752, Kathmandu, Nepal
Sisir Marga 11, Babarmahal, Kathmandu, Nepal

WATER ANALYSIS REPORT

Name of Client:	NRAC	Lab Code:	22/12-877 (d)
Collector:	Srijana Sharma	Location:	Rasuwa
Source:	Water- 4 (Powerhouse)	Sampled By:	Client
Sampling Date/Time:	2022/12/21	Test Performance Date:	2022/12/23-2022/12/26
Receipt Date:	2022/12/23	Issued Date:	2022/12/28

Parameters	Results	Unit	NDWQS	Method
Physical				
pH	7.61	-	6.5-8.5	4500 H+ B. APHA 23 rd edition
Electrical Conductivity	60	µS/cm	1500 (max)	2510 B. APHA 23 rd edition
Dissolved Oxygen	7.2	mg/L	-	DO Meter
Chemical				
Alkalinity	26	mg/L	2000	2320 B. APHA 23 rd edition
Biological Oxygen Demand	15.6	mg/L	500	5210 B. APHA 23 rd edition
Chemical Oxygen Demand	<5	mg/L	-	5220 D., APHA 23 rd edition
Nitrate	1.16	mg/L	50	4500 NO ₃ ⁻ B. APHA 23 rd edition
Phosphate	<0.01	mg/L	2	4500-P E. APHA 23 rd edition
Total Hardness	<1	mg/L as CaCO ₃	500	2340 C. APHA 23 rd edition
Chloride	6.99	mg/L	250	4500-Cl- B., APHA 23 rd edition
Sulphate	10.95	mg/L	250	4500-SO ₄ E., APHA 23 rd edition
Sodium	1.23	mg/L	-	-
Potassium	1.04	mg/L	-	3500-K B., APHA 23 rd edition
Calcium	<1	mg/L	200	3500-Ca D., APHA 23 rd edition
Magnesium	<1	mg/L	-	-
Iron	<0.01	mg/L	0.3(3)	3500-Fe B. APHA 23 rd edition

NDWQS=National Drinking Water Quality Standard (2062)

Note: The integrity of the sample and results are dependent on the quality of sampling. The results refer only to the parameters tested of the samples provided/collected for analysis

Remarks: All the observed values of tested parameters are found to be within the limit of NDWQS 2062.

Analyzed and Checked By

Authorized By
Er. Lokesh Sapkota

The report shall not be reproduced except in full, without approval of the laboratory.



SWAT/F/C/04
Version no: 01
Issue no: 02
Revision no: 03
Effective date: 2021/08/01

Soil Water and Air Testing Laboratories Pvt. Ltd.
VAT No: 605928743
Tel: +977-01 4249480
Email: swatlab2017@gmail.com
PO Box: 25752, Kathmandu, Nepal
Sisir Marga 11, Babarmahal, Kathmandu, Nepal



WATER ANALYSIS REPORT

Name of Client:	NRAC	Lab Code:	22/12-877 (c)
Collector:	Srijana Sharma	Location:	Rasuwa
Source:	Water- 3 (Damsite)	Sampled By:	Client
Sampling Date/Time:	2022/12/21	Test Performance Date:	2022/12/23-2022/12/26
Receipt Date:	2022/12/23	Issued Date:	2022/12/28

Parameters	Results	Unit	NDWQS	Method
Physical				
pH	7.83	-	6.5-8.5	4500 H+ B. APHA 23 rd edition
Electrical Conductivity	140	µS/cm	1500 (max)	2510 B. APHA 23 rd edition
Dissolved Oxygen	7.3	mg/L	-	DO Meter
Chemical				
Alkalinity	68	mg/L	2000	2320 B. APHA 23 rd edition
Biological Oxygen Demand	17.4	mg/L	500	5210 B. APHA 23 rd edition
Chemical Oxygen Demand	<5	mg/L	-	5220 D., APHA 23 rd edition
Nitrate	0.50	mg/L	50	4500 NO ₃ ⁻ B. APHA 23 rd edition
Phosphate	<0.01	mg/L	2	4500-P E. APHA 23 rd edition
Total Hardness	36	mg/L as CaCO ₃	500	2340 C. APHA 23 rd edition
Chloride	1.99	mg/L	250	4500-Cl- B., APHA 23 rd edition
Sulphate	15.69	mg/L	250	4500-SO ₄ E., APHA 23 rd edition
Sodium	0.56	mg/L	-	-
Potassium	0.85	mg/L	-	3500-K B., APHA 23 rd edition
Calcium	12.02	mg/L	200	3500-Ca D., APHA 23 rd edition
Magnesium	1.46	mg/L	-	-
Iron	<0.01	mg/L	0.3(3)	3500-Fe B. APHA 23 rd edition

NDWQS=National Drinking Water Quality Standard (2062)

Note: The integrity of the sample and results are dependent on the quality of sampling. The results refer only to the parameters tested of the samples provided/collected for analysis

Remarks: All the observed values of tested parameters are found to be within the limit of NDWQS 2062.

Analyzed and Checked By



Authorized By
Er. Lokesh Sapkota

The report shall not be reproduced except in full, without approval of the laboratory.

Annex 10: Proof of Foreign Investment

(बका ४६ को उपरफा (१) सँग सम्बन्धित)
सानाबुही पावर लिमिटेड

को
रोयल्टिको दर्ता किताब

दि न १२४०३३

क्र. नं.	शेयरधर्ताको नाम हर उपासक नाम	बाबु / पतिको नाम	नागरिकता को प प न.	रोयल्टिको दर्ता नं.	संख्या		कुला भएको रकम रु	कुला हुन बाकी रकम	शेयरधर्ताको नाम दर्ता भएको मिति	शेयरधर्ताको व्यक्तिगत नाम हर र देउवाला	शेयरधर्ताको पता
					सम्पन्न	जम्मा					
१	श्री विजय राज अधिकारी का नं. का. म. नं. च. काठमाडौं, बहा. नं. ३४	श्री योगनाथ उपासनाथ	१९९६ काठमाडौं	००१	२००,०००	२००,०००	२००,००,००/-	रु. ०			
२	China Harbour Engineering Company Ltd. No. 9, Chuanxiu Road, Dongcheng District, Beijing, China का नं. का. म. नं. च. काठमाडौं			२००,००१	३४,२००,०००	३४,२००,०००	३४,२०,००,०००	रु. ०			
			कुल जम्मा				३४,२०,००,०००				

प्राथमिक दर्ता रकमबाट -
नाम - विजय राज अधिकारी
दर्ता - काठमाडौं
मिति - २०३५/०३/०२

आ. उपासनाथ

 रोयल्टिको दर्ता




 रोयल्टिको दर्ता

Annex11: Comments Incorporation Matrix

Comments/Suggestions Sheet for Review Committee Meeting of Environment Study (EIA/IEE Related) Reports

Name of the Project: Sanjen Khola HEP

Type of Report: SEIA

Date of Review Meeting: 2080-02-28

SN	Comments	Incorporated Part	
1.	Attach documents related to foreign investment in the annex.	Incorporated in Annex 10	
2.	Revise rationality as per EPR 2077 and also mention why the report is prepared in the English language.	Has been revised as suggested on page 2 last paragraph	
3.	Show the project area in the protected area on the map.	The project does not lie in the protected area while the distance is 9 km which has been mentioned in section 5.2 on page 34	As there is no additional data collected for the biological environment, the map has been added
4.	Mention about disposal area with coordinate, area, and quantity.	The disposal areas are given with coordinates on page 23	
5.	What about the change in muck volume after changes in the design of structures?	There is a decrease in volume compared to the EIA report and has been mentioned on page 23	The volume remains the same so no change has been done
6.	State that the previously approved EIA report is part of this report.	The statement has been kept in chapter 10 page 5	
7.	Use Unicode font and make it consistent throughout the report.	The formatting has been done throughout the document	
8.	In the salient feature, comparison renames the change column to remarks and writes the reason for the change (increase/decrease) in the parameter instead of Yes/No.	The Yes/No has been changed to the design change in salient features table 2 pages 4 to 10	
9.	Give justification for catchment area change, Hydrology change, E-flow change, etc., also clarify that with the increase 4d access		The changes are due to the design change of the Chinese

	road and changed muck disposal area how the land requirement has not changed.		
10.	Better to add a recent land use map.	Only a recent Google map in Fig 10 page 24 has been added as the existing environment is the same as in the approved EIA	
11.	Check the whole report for language and write-up errors.	Corrected	
12.	Better to attach drawings of major structures.	The drawing has been kept in Chapter 2 pages 13 to 17	
13.	Use the English language in maps and drawing.		The design is done in Chinese so both names are kept
14.	Revise mitigation for the sudden release of water.		The mitigation has been kept as per EIA and no other impacts than the approved EIA
15.	Are the changed components already constructed on-site? Check the write-up carefully.	The correction has been done throughout the document	
16.	Better to keep EMP for changed and additional impacts only. Check the guiding documents mentioned.	The changed EMP has been added in Chapter 8	
17.	What will happen to excess land already reused by the government?		MOFE need to decide
18.	Mention how the conditions given during EIA approval are being implemented in the construction phase.		The comparative tables have been added in salient features and the monitoring has been done so not included in the report
19.	It is not clear about the cumulative impacts mentioned in the report.		The cumulative impacts are not the scope
20.	Check monitoring cost.		The monitoring cost remains the same as in the approved EIA
21.	House repair, COVID protection charge, access road, etc. are not related to CSP also what does it mean by water supply cement?	The water supply cement has been corrected as Water supply support	CPS has been prepared by the local bodies

22.	Reformat the land requirement table with ownership and purpose(permanent/temporary).	The land table has been changed in Chapter 2	
23.	Make the Nepali summary more descriptive.	The Nepali summary has been revised	The summary is based on the only change that has been included in SEIA
24.	Better to specify why the previously proposed surge shaft is not needed now.		The surge shaft has been removed from the design
25.	Check the whole report for language and write-up errors.	Corrected	
26.	CV and declaration from the study team and declaration from the proponent.	Added in Annex 4	