

Requesting country or countries:	Nepal
Request title:	Comprehensive technical and economic feasibility study for Integrated Cement and Green Hydrogen based Urea Production in Nepal
NDE	Mr. Maheshwar Dhakal, Joint Secretary, Ministry of Forests and Environment, Singhadurbar, Kathmandu, Nepal, Tel: +977-1-4211641, email: maheshwar.dhakal@gmail.com
Request Applicant:	Contact Person: Biraj Singh Thapa Position: Team Leader at Green Hydrogen Lab, Block-28 A, Kathmandu University, Dhulikhel-4, Kavre, Bagmati Province Email: bst@ku.edu.np

Climate objective:

- Adaptation to climate change
 Mitigation of climate change
 Combination of adaptation and mitigation of climate change

Geographical scope:

- Community level
 Sub-national
 National
 Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change:

Nepal is highly vulnerable to climate change, facing rising temperatures, melting glaciers, erratic rainfall, floods, and droughts, despite contributing only 0.04% of global emissions.¹ In response, Nepal ratified the Paris Agreement in 2016 and has pledged to achieve net-zero emissions by 2045 through its Nationally Determined Contributions (NDCs).

Agriculture remains central to Nepal's economy, with 3.1 million hectares of arable land and a growing demand for fertilizer². Yet the country is almost entirely dependent on imported urea

¹ Worldometer. 2022. "Nepal CO₂ Emissions." <https://www.worldometers.info/co2-emissions/nepal-co2-emissions/>.

² R. H. Timilsina, G. P. Ojha, P. B. Nepali, and U. Tiwari, 'Agriculture Land Use in Nepal: Prospects and Impacts on Food Security' (2019) 3 *Journal of Agriculture and Forestry University*.

https://www.researchgate.net/publication/342672699_Review_Article_AGRICULTURE_LAND_USE_IN_NEPAL_PROSPECTS_AND_IMPACTS_ON_FOOD_SECURITY

fertilizer. Annual urea demand is estimated at 800,000 metric tons³ costing the government significant foreign exchange, even after government subsidies. Attempts to establish domestic urea factories since 1984 have failed due to high costs and financial barriers. The country faces a critical choice: importing natural gas for fertilizer production, cheaper but fossil fuel dependent, or producing hydrogen from surplus hydropower, which could be costlier but climate-friendly, energy-secure, and aligned with sustainable development.

At the same time, Nepal's hydropower potential remains vastly underutilized. The country has an estimated electricity generation potential of 120,000 MW, including approximately 48,000 MW from reservoir-based hydropower projects.⁴ However, renewable energy accounted for only about 10% of total energy consumption in 2024. **Error! Reference source not found.** Nepal has only installed and operationalized about 3,300 MW to date, revealing a significant underutilization of its clean energy resources. This underuse of clean energy exacerbates reliance on fossil fuel imports and limits industrial decarbonization. Effectively harnessing this hydropower for hydrogen-based fertilizer production could unlock multiple benefits, including greenhouse gas (GHG) emission reductions, enhanced energy security, and long-term socio-economic gains.

The Koshi Province Government has initiated a Green Fertilizer project that integrates green hydrogen production by renewable electricity, carbon capture and utilization (CCU) from the Udayapur Cement Factory, and low-carbon urea synthesis under a Public–Private Partnership. Without this project, Nepal would continue relying entirely on fossil-fuel-based imports, and CO₂ from Udayapur Cement Factory would be released directly into the atmosphere, increasing emissions. However, the absence of a comprehensive technical and economic feasibility study remains the core barrier to moving forward to attract the investments. Without such an evidence base, Nepal risks losing opportunities to utilize renewable resources effectively, establish enabling policies and standards, build national capacity, and attract follow-up investments from development partners, including the Green Climate Fund (GCF), as well as private sector financiers.

Past and on-going efforts to address the problem:

Over the years, Nepal has pursued a range of initiatives to address climate, energy, and fertilizer challenges, involving multilateral and bilateral support, technical networks, national studies, and policy reforms:

- **Multilateral/bilateral Initiatives:**

- In 1984 JICA conducted Nepal's first fertilizer feasibility study, recommending a 275-ton/day urea plant near Hetauda Cement Factory using local coal and CO₂.

³ T. K. Blank, "green-steel-insight-brief," Washington, D.C, Sep. 2019. Accessed: Jul. 23, 2024. [Online].

Available: WWW.RMI.ORG

⁴ IPPAN Silver Jubilee 2025 Report (2025) Independent Power Producers' Association, Nepal. https://www.ippan.org.np/wp-content/uploads/2025/04/ippan-Day-Pratibedan-2081_English.pdf?utm_source=chatgpt.com

- ADB (2020, 2024) and the World Bank (2021) conducted studies on hydrogen potential for fertilizer and ammonia production. Their recommendations emphasized detailed technical studies, cost reduction strategies, regional cooperation, and phased investment planning.
- Nepal has been engaged with Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiatives since 2008, supported by the World Bank, Norwegian Agency for Development Cooperation (NORAD), and the United States Agency for International Development (USAID). Under the 2021 agreement with the World Bank's Forest Carbon Partnership Facility (FCPF), Nepal stands to earn up to USD 45 million by 2025 for cutting 9 million tons of carbon dioxide (CO₂), having already received USD 12.2 million by 2024. This has strengthened carbon accounting and local capacity, with over 22,000 CFUGs managing 2 million hectares, gaining international recognition.
- The Green Climate Fund approved a US\$49.2 million project to mitigate GHG emissions through modern, efficient, and climate-friendly clean cooking solutions (CCS) in October 2021, with a grant of US\$21.1 million to AEPC.
- The ADB-funded Energy Access and Efficiency Improvement Project in Nepal upgraded power lines, hydropower plants, and renewable energy systems, improving electricity access, efficiency, and reliability. Supported by \$0.3 million from the Climate Change Fund and \$4.2 million from the Clean Energy Fund, the project promoted clean energy, reduced carbon emissions, and strengthened local capacity, successfully enhancing energy supply and operations in the target areas.
- **UN Recommendations:**
 - UNDP recommended that Nepal expand carbon credits from forests to energy and industrial systems, set clear VCM policies, create a national registry with streamlined procedures, develop a national carbon credit handbook, and issue guidelines to protect investments. Strengthening data management, institutional capacity, and coordination between government and private stakeholders is essential for effectively using carbon markets and achieving NDC targets.
- **Technical networks (2022-2024):**
 - Kathmandu University, the Global Green Growth Institute (GGGI), and Hariharpurgadhi Rural Municipality carried out feasibility work on green urea production using surplus hydropower and CO₂ from cement plants, demonstrating potential for emission reduction and private investment.
 - In 2022, GGGI facilitated Memorandum of Understanding between Nepal and Sweden for bilateral cooperation under Article 6 of the Paris Agreement
- **National level feasibility studies (2015–2021):**
 - The Investment Board Nepal (IBN), Ministry of Agriculture and Livestock Development, and other agencies examined options using natural gas, coal, hydro, and biomass. Natural gas was initially identified as the most viable, while later studies explored green hydrogen and renewable-based systems despite higher costs.

- Since 2005, the Alternative Energy Promotion Centre (AEPCC) has expanded its portfolio to eight projects (biogas-related, water mills, microhydro, etc), capable of producing over 800,000 Certified Emission Reductions (CERs) annually.
- **Policy and institutional progress:**
 - The Government of Nepal established the Green Hydrogen Coordination Committee and the Committee on Chemical Fertilizer Production Based on Green Hydrogen, leading to the Green Hydrogen Policy 2024. Successive budgets have provided fiscal incentives, R&D funding, and subsidies to promote green fertilizer production.
- **Provincial initiative:**
 - The Koshi Province Government signed an MoU with Green Hydrogen Company Pvt. Ltd. to prepare a Detailed Project Report for an Integrated Cement and Green Urea Production Project, targeting 200,000 tons of annual urea output using green hydrogen and captured CO₂ under a PPP model.

Specific technology⁵ barriers:

Despite Nepal's progress in renewable energy and forestry carbon initiatives, several technology-related barriers limit the country's ability to fully implement complex, cross-sectoral industrial projects such as the Integrated Cement and Green Urea Plant in the Koshi Green Industrial Hub.

Nepal faces several technological barriers to implementing complex industrial projects like the Integrated Cement and Green Urea Plant.

- Limited access to advanced technologies: Equipment and processes required for green hydrogen production and its integration into urea synthesis are not readily available in Nepal. Dependence on imported technology significantly raises costs and slows deployment.
- Institutional and technical capacity gaps: Engineers, industries, and policymakers have limited exposure to the design, operation, and regulation of advanced hydrogen-based systems. This lack of practical expertise hampers informed decision-making and safe technology adoption.
- Absence of enabling standards and guidelines: Nepal currently lacks technical standards, safety protocols, and policy frameworks for hydrogen production, storage, and utilization, making it difficult to scale such innovations in a regulated and secure manner.
- Weak coordination mechanisms: Fragmented engagement among government, academia, industry, and development partners limits the ability to mobilize collective action and align investments in emerging industrial decarbonization technologies.

⁵ "any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)

The requested CTCN technical assistance is designed to overcome these barriers within scope by:

- Conducting a comprehensive technical and economic feasibility study of green hydrogen and urea integration, establishing an evidence base for investment.
- Preparing a policy/standards brief to guide hydrogen adoption, safety, and power integration in Nepal's industrial sector.
- Delivering capacity-building programs (training materials, workshops) with explicit gender and youth inclusion targets to strengthen technical and institutional know-how.
- Establishing a stakeholder coordination platform to align national actors and promote joint planning.
- Developing follow-up project linkage strategies and draft concept notes to connect Nepal with financing opportunities from the Green Climate Fund (GCF) and other partners.

By addressing these barriers through an integrated feasibility study, the technical assistance will lay the foundation for a scalable, climate-smart industrial transformation, ensuring that Nepal's Green Urea Project is technically sound, financially viable, socially inclusive, and aligned with both national development strategies and international climate commitments.

Contribution to Programme of Work 2023-2027:

As per 3rd Programme of Work of the CTCN⁶, please indicate the system transformation area, key enablers and cross-sectoral themes related to the request:

System transformation areas (mandatory)

Water-Energy-Food Nexus

Sustainable Mobility

Energy Systems

Buildings and Infrastructure

Business and Industry

Key enablers (optional)

National Systems of Innovation

Digitalization

Cross-sectoral themes (optional)

Gender

Youth

Indigenous Peoples

⁶ <https://www.ctc-n.org/resources/ctcn-third-programme-work-2023-2027>

Sectors:

Please indicate the main sectors related to the request:

- | | | | |
|---|---|---|--|
| <input type="checkbox"/> Coastal zones | <input type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input type="checkbox"/> Infrastructure and Urban planning |
| <input type="checkbox"/> Marine and Fisheries | <input checked="" type="checkbox"/> Water | <input checked="" type="checkbox"/> Agriculture | <input checked="" type="checkbox"/> Carbon fixation |
| <input type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input checked="" type="checkbox"/> Industry | <input checked="" type="checkbox"/> Renewable energy |
| <input type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Technical assistance requested:

The requested CTCN technical assistance aims to conduct a comprehensive technical and economic feasibility study for Nepal's Green Urea Project, which integrates hydropower-based hydrogen production with CO₂ capture from the Udayapur Cement Factory for low-carbon ammonia/urea synthesis. This request is firmly aligned with Nepal's Green Hydrogen Policy 2024, which already prioritizes fertilizer production as a key application of green hydrogen. By responding to a nationally endorsed policy priority, the assistance ensures that the intervention is nationally owned, not externally driven. The technical assistance will generate critical evidence, policy guidance, and capacity-building outputs to advance industrial decarbonization, enhance fertilizer security, and utilize Nepal's renewable energy potential in line with its NDCs and Paris Agreement commitments.

Anticipated Groups of Activities:

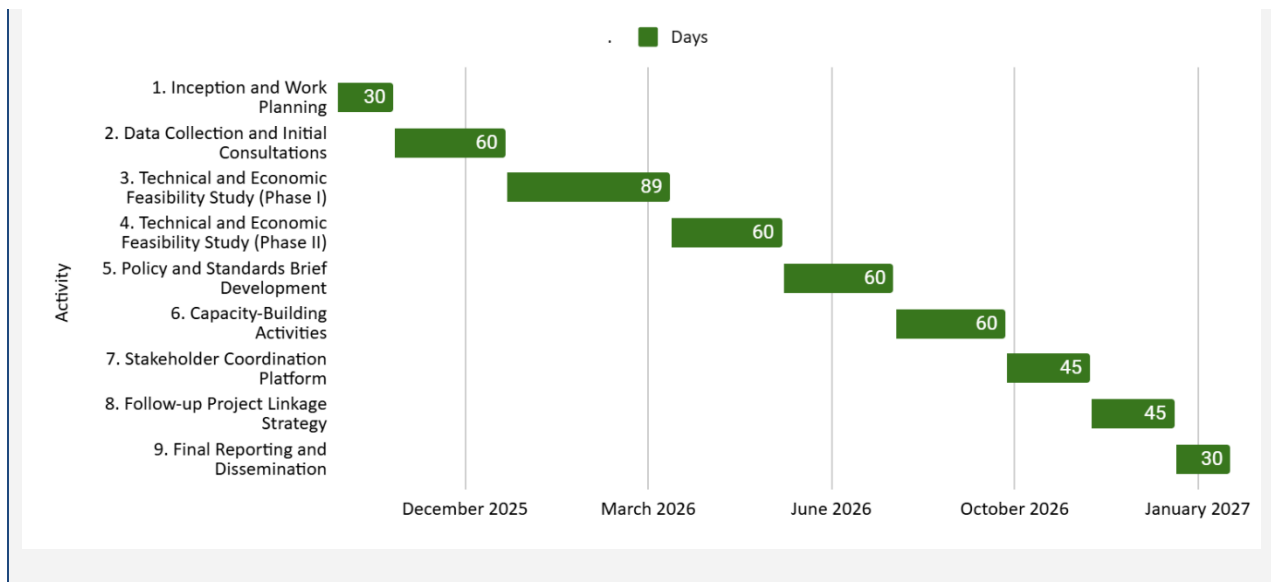
1. Comprehensive Technical and Economic Feasibility Study
 - Conduct integrated technical, economic, and financial assessments for hydrogen production, CCU, and low-carbon urea synthesis.
 - Assess technical pathways and economic viability of integrating green hydrogen production with urea synthesis.
 - Identify key infrastructure, technology, and investment requirements.
2. Policy and Standards Development
 - Prepare a policy/standards brief to address hydrogen safety, power integration, and industrial decarbonization.
 - Provide recommendations to inform Nepal's future energy and industrial strategies.
3. Capacity Building and Knowledge Transfer

- Organize and deliver training, workshops, and technical demonstrations for engineers, policymakers, and industry representatives, with clear inclusion of women and youth.
 - Develop technical manuals, guidelines, and training materials to strengthen institutional expertise and support technology adoption and replication.
4. Stakeholder Coordination and Engagement
 - Facilitate stakeholder workshops and a coordination mechanism during the TA period to align government, industry, academia, and development partners.
 - Support dialogue and information-sharing to enable joint action.
 5. Follow-up Project Linkage and Financing Strategies
 - Identify follow-up project opportunities and potential financing sources.
 - Prepare draft concept notes for institutions such as the Green Climate Fund (GCF) and other partners to enable scaling-up and sustainability.

Anticipated Products

1. Main Feasibility Report
 - A comprehensive technical and economic analysis of green hydrogen production from hydropower and its integration into urea synthesis.
 - Identification of infrastructure, technology, and investment requirements.
2. Policy and Standards Brief
 - Practical recommendations on hydrogen safety, power integration, and industrial decarbonization.
 - Guidance for future regulatory and policy development in Nepal.
3. Training Package
 - Technical manuals, guidelines, and workshop materials tailored to national needs.
 - Capacity-building sessions with clear inclusion targets for women and youth.
4. Stakeholder Coordination Platform
 - Facilitate stakeholder workshops and a coordination mechanism during the TA period.
 - Documentation of stakeholder engagement, dialogue, and coordination outcomes.
5. Follow-up Project Linkage Strategy
 - A report outlining financing opportunities and sustainability pathways.
 - Draft concept notes for submission to institutions such as the Green Climate Fund (GCF) and other development partners for impact funds for further project developments.

Expected timeframe: 15 months



Anticipated gender and other co-benefits from the technical assistance:

The proposed CTCN technical assistance for Nepal's Green Urea Project will integrate gender equality and social inclusion and other co-benefits into every stage of implementation.

1. Gender and Youth Inclusion (anticipated from feasibility study)

- Ensure at least 40% of participation of women and youth in feasibility study workshops and stakeholder consultations.
- Include at least 30% women and youth representation in project advisory groups and technical review committees guiding the TA.
- Train at least 30 Nepali women and youth professionals on hydrogen, CCU, and hydrogen-based fertilizer production.

2. Economic Benefits (anticipated from study outputs)

- Identify pathways to mobilize USD 200-300 million in potential follow-up investment from development partners and the private sector.
- Support potential creation of 20–30 skilled green jobs in industrial decarbonization and fertilizer production once the plant is implemented, helping retain Nepali youth talent.

3. Environmental Benefits

- Estimate potential CO₂ emissions reduction per year from integrated green urea and cement production.
- Provide guidance to reduce fertilizer-related emissions contributing to improved soil and water health.
- Highlight co-benefits for air quality and reduced reliance on imported fossil-based fertilizers.

4. Social and Cultural Benefits

- Conduct 4–5 national or regional awareness sessions during the feasibility study, reaching more than 100 stakeholders, with balanced participation of men, women, and youth.
- Inform strategies to improve rural resilience to smallholder farmers, with at least 40% women farmers targeted, once the project is implemented.

5. Institutional and Policy Benefits

- Train 50 government and industry representatives to strengthen institutional capacity.
- Deliver policy briefs and recommendations to support future regulations on industrial decarbonization.

6. Cross-Cutting Benefits

- Document and share methodologies, lessons, and good practices that can inform future low-carbon solutions in at least two other industrial sectors (e.g., cement, energy, or fertilizer).
- Provide scalable insights and approaches to support replication and adaptation in similar contexts.

Overall, the technical assistance ensures climate action is technically robust, socially inclusive, economically viable, and environmentally sustainable, maximizing benefits for women, youth, marginalized communities, and the broader society.

Anticipated follow-up activities after this technical assistance are completed:

Following the completion of this technical assistance, the outputs and deliverables will serve as critical building blocks for Nepal’s industrial decarbonization and climate finance mobilization. The primary follow-up activities are expected to include:

Anticipated Follow-Up Activities:

- Investment Proposals – Ministries will use feasibility outputs to prepare bankable proposals for GCF, multilateral banks, and private investors.
- Climate Finance Mobilization – Stakeholders will leverage financial models to access domestic and international funding, including PPPs.
- Policy and Standards Integration – Recommendations on hydrogen safety, power integration, and industrial decarbonization will inform national strategies.
- Provincial and Sectoral Applications – Outputs will guide pilot and scaled-up green urea projects across provinces and industrial sectors.
- Capacity Development Continuation – Training materials and manuals will be adopted by universities, research centers, and vocational institutions.
- Private-Sector Engagement – Companies will use outputs to explore PPPs and operationalize green urea production.
- Pilot and Demonstration Projects – Feasibility evidence will support early-stage plant implementation and technology validation.

- Scaling and Replication – Lessons and frameworks will guide replication in other industrial hubs, contributing to Nepal’s NDCs.

Next Steps:

- Launch pilot green urea projects based on feasibility findings.
- Integrate policy recommendations into national strategies.
- Continue capacity building and stakeholder engagement.
- Explore financing and PPP opportunities for full-scale implementation.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	The NDE will serve as Nepal’s focal point for the CTCN, coordinating stakeholders, ensuring alignment with national climate goals and NDCs, promoting inclusive participation, facilitating data and capacity-building, and guiding policy integration, financing, and sectoral replication to sustain outcomes beyond CTCN support.
Request Applicant	The applicant will coordinate project activities, provide technical data and expertise, ensure gender and social inclusion, facilitate stakeholder consultations and pilot testing, validate methodologies locally, and collaborate with the NDE and partners to align outcomes with national priorities and support replication across sectors.
Government & Regulatory Agencies:	<ul style="list-style-type: none"> • Ministry of Energy, Water Resources, and Irrigation (MoEWRI): Oversee energy and water use, coordinate industrial decarbonization. • Ministry of Agriculture and Livestock Development (MoALD): Support sustainable fertilizer production and agricultural integration. • Ministry of Industry, Commerce and Supplies (MoICS): Coordinate industrial stakeholders and provide project approvals. • Ministry of Finance (MoF): Approve financing mechanisms and fiscal incentives. • Department of Environment: Provide environmental data and ensure compliance with regulations. • Koshi Provincial Ministries: Coordinate provincial policies and support local implementation.

Local Governments & Communities	<ul style="list-style-type: none"> • Municipalities of Sundari and Udaypur Districts: Provide local permitting and coordinate project activities. • Representatives of women, youth, and marginalized groups: Participate in consultations and capacity-building activities.
Banking and Financial Institutions	<ul style="list-style-type: none"> • Nepal Investment Mega Bank Limited: As a GCF-accredited national implementing entity, provide project financing, support public-private partnerships, and facilitate access to Green Climate Fund (GCF) resources. • Nepal Infrastructure Bank Limited (NIFRA): Regulate technical standards, environmental compliance. • Multilateral Development Banks: Asian Development Bank (ADB), World Bank/IFC, and other bilateral donors to provide project funding and technical support.
Industry and Private Sector	<ul style="list-style-type: none"> • Udayapur Cement Factory: Provide design and operational projections to model CO₂ emissions and assess potential for carbon capture utilization (CCU) within the evaluation framework. • Proposed Green Urea Plant developer (Nepal Green Hydrogen Company Private Limited): Supply technical specifications, production forecasts, and energy use data. • Hydropower producers: Share planned electricity generation data. • Technology providers (CCU, green hydrogen, ammonia/urea systems): Advise on process efficiency, emissions factors, and system integration assumptions to ensure realistic and accurate methodology development. • Other industrial stakeholders: Companies in fertilizer, cement, and chemicals sectors for potential replication.
Research and Academia	<ul style="list-style-type: none"> • National Academy of Science and Technology (NAST): Provide research and innovation support. • Academia- Industry Cooperation Kathmandu University (AIC-KU) • International research institutions: Collaborate on industrial decarbonization, green hydrogen technologies, and feasibility assessments.
Civil Society & NGOs:	<ul style="list-style-type: none"> • Climate-focused NGOs: Support awareness-raising, advocacy, and stakeholder engagement. • Women's organizations and youth networks: Facilitate inclusive participation in training, consultations, and decision-making.

	<ul style="list-style-type: none"> Community-based organizations (CBOs): Assist in local engagement and dissemination of project benefits.
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Alignment with national priorities:

The proposed technical assistance is consistent with Nepal’s national climate priorities.

- Nepal’s NDC 3.0 emphasizes that opportunities for the production, consumption, transportation, and storage of green hydrogen will be explored and outlines the country’s commitment to the Paris Agreement.
- National Adaptation Plan 2021–2050 (Program 38) outlines the vision to strengthen institutions, advance technologies, develop policies and data resources, and build capacity and awareness to foster climate-resilient industry, transport, and infrastructure.
- Agricultural Development Strategy (ADS, 2015–2035) calls for feasibility studies and a pragmatic fertilizer supply strategy, balancing subsidies with long-term efficiency, promoting bio/organic fertilizers, and strengthening supply to boost productivity.
- Nepal's Long-term Strategy for Net-zero Emissions (2021) plans carbon capture in the cement industry, major investment in clean power, and policies to attract funding.
- Nepal’s Green Hydrogen Policy 2024 encourages the use of green hydrogen and its by-products in chemical fertilizer production and other industrial applications.
- Nepal’s 2019 Climate Change Policy plans to mobilize financial resources through bilateral, multilateral, and carbon trading mechanisms.

Reference document (please include date of document)	Extract (please include chapter, page number, etc.).
Nepal’s Nationally Determined Contribution (NDC) 3.0 (14 th May 2025)	Chapter II (B) 1 (i); Page 7 (Green Hydrogen)
National Adaptation Plan 2021-2050	Chapter 7.5; Program 32; Page 78
Green Hydrogen Policy 2024	Policy Objective 8; (Page 3-4)
Agricultural Development Strategy (ADS, 2015–2035)	Part 1 Chapter 2 ; 2.4; Page 27 Chapter 4; 4.5.2; Table 22; No. 2.8; Page 66 Chapter 5; 5.3.8; Point 351, 352; Page 103, 104 Part 2 A2.4; Page 5, 6 , 7
Nepal's Long-term Strategy for Net-zero Emissions (2021)	Chapter 1.4; Page: 6 Chapter 2.4; Page: 18 Chapter 4.3; Page: 27

	Chapter 4.5; Page: 29
Nepal's Climate Change Policy (2019)	Section: 8.12 Strategies and Working Policies (a); Page 20 Section: 10 Federal level (a); Page 23 Section: 12 (a) (d); Page 24, 25
Add others here as relevant	-

Development of the request (up to 2000 characters including spaces):

Nepal, one of the most climate-vulnerable countries, faces melting glaciers, erratic rainfall, and extreme weather despite contributing minimally to global GHG emissions. The country also relies heavily on imported urea fertilizer, exposing the economy to trade deficits and global price shocks. To advance fossil fuel substitution, Kathmandu University (KU) established the Green Hydrogen Laboratory to lead research, awareness, and capacity building, while contributing to national strategies under the Ministry of Energy, Water Resources, and Irrigation. In parallel, KU has undertaken extensive research and technical studies, including PhD and Master's projects, to support hydrogen technology development.

The Nepal Hydrogen Initiative Program assessed the potential for hydrogen hubs, including one in Koshi Province linked to the integrated urea and cement factory project. Building on this, KU prepared technical studies, project design, and documentation for the urea plant, addressing financial viability. These efforts led to an MOU between Koshi Province and Nepal Green Hydrogen Company, followed by a feasibility study for the Green Urea Plant. The project integrates carbon capture from Udayapur Cement Factory with hydrogen production from surplus hydropower, producing green urea. Initial studies show significant emission reduction potential, aligned with national policies and international climate commitments.

This technical assistance was designed to address climate change by promoting emission reductions and bridging the financial gaps of the Integrated Urea Project through a thorough feasibility study and financial analysis, improving its potential for future Green Climate Fund support. The team held consultations with provincial and national government agencies, private sector representatives, and development partners to assess the project's feasibility. These discussions confirmed the need for Nepal-specific technical support, with Kathmandu University (KU) taking a leading role in knowledge creation, technology transfer, and building skilled human resources for hydrogen-based industrial applications.

Background documents and other information relevant for the request:

The following are the background documents referred to during the development of the technology concept.

- Detailed Report About Koshi Green Hydrogen Industrial Hub: [Click here](#)
- Detailed Report About Integrated Cement and Urea Plant: [Click here](#)

- About Udaypur Cement: [About Udaypur Cement](#)
- Green Hydrogen Policy (In Nepali) <https://moewri.gov.np/content/38/green-hydrogen-policy-2080/#flipbook-flipbookContainer/1/>
- The Government of Nepal made [green hydrogen a priority in its Policy, Program, and Annual Budget for Fiscal Year 2082/83](#).
- Government of Nepal, Third Nationally Determined Contributions (2025) <http://climate.mohp.gov.np/acts/31-acts/180-nationally-determined-contribution-ndc-3-0>
- Government of Nepal. (2021). National Adaptation Plan 2021–2050. Ministry of Forests and Environment, https://unfccc.int/sites/default/files/resource/NAP_Nepal_2021.pdf
- Nepal’s Climate Change Policy (2019), https://www.icimod.org/wp-content/uploads/2021/07/National-Climate-Change-Policy_english_2019_compressed.pdf
- Government of Nepal. Agriculture Development Strategy, 2015–2035 (Nepal). Kathmandu: Government of Nepal, 2015. Accessed September 3, 2025. <https://lpr.adb.org/resource/agriculture-development-strategy-2015-2035-nepal>
- Government of Nepal. (2021). Nepal's Long-term Strategy for Net-zero Emissions, <https://unfccc.int/sites/default/files/resource/NepalLTLEDS.pdf>
- United Nations Development Programme. (2024, May 10). Voluntary Carbon Market [Report]. UNDP Nepal. <https://www.undp.org/nepal/publications/voluntary-carbon-market>
- Global Green Growth Institute. (2022, June 9). GGGI facilitates Memorandum of Understanding between Nepal and Sweden for bilateral cooperation under Article 6 of the Paris Agreement. <https://gggi.org/gggi-facilitates-memorandum-of-understanding-between-nepal-and-sweden-for-bilateral-cooperation-under-article-6-of-the-paris-agreement/>
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- Uprety, B. (2024, September 1). Two decades of journey on carbon trade. New Spotlight Magazine. <https://www.spotlightnepal.com/2024/09/01/two-decades-journey-carbon-trade/>
- Asian Development Bank. (2010, November 11). Nepal: Energy Access and Efficiency Improvement Project — Loan Agreement & Grants Administration. Retrieved from <https://www.adb.org/documents/nepal-energy-access-and-efficiency-improvement-project#:~:text=SHARE%20THIS%20PAGE,IED%20overall%20assessment:%20Successful>

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures. This includes the active engagement as NDE together with the key project proponent / beneficiary in regular project steering meetings.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country. This includes the completion of NDE feedback and post-implementation forms.

Signature:

NDE name: Mr. Maheshwar Dhakal

Date: 12/12/2025

Signature:



THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.

