

Implementation Plan

Basic Information	
Title	Development of National Green Hydrogen Roadmap for accelerating Carbon Neutrality
Technical assistance reference number	2024000042
Country/ countries	The Kingdom of Cambodia
NDE focal point and organisation	Mr. Ou Chantharith, Director of Department of Science and Technology, The General Directorate of Policy and Strategy, Ministry of Environment
Sector(s) addressed	Carbon fixation, Energy Efficiency, Renewable Energy, Transport
Technologies supported	Establishing national strategy
Implementation period and total duration	July 2025 – June 2026 (12 months)
Total budget for implementation	KRW 300,000,000 (USD 210,000)
Designer of the response plan	National Institute of Green Technology, Korea
Implementer of response plan	National Institute of Green Technology, Korea

1. Objectives of the TA

The principal objective of this Technical Assistance (TA) is to support Cambodia in developing a comprehensive National Hydrogen Roadmap that will serve as the strategic foundation for achieving long-term carbon neutrality, strengthening national energy security, and building the institutional and industrial capacity necessary for a sustainable hydrogen economy.

Specific objectives are as follows:

- To systematically analyze Cambodia’s hydrogen supply potential and utilization sectors in order to assess the current status and feasibility of hydrogen adoption;
- To develop a Cambodia National Green Hydrogen Roadmap aligned with national visions, NDC, and relevant policy goals;
- To enhance local understanding of hydrogen technologies and policies through stakeholder consultations and capacity-building programs;
- To establish climate finance linkage strategies and prepare follow-up project concept notes to ensure the sustainability of roadmap implementation.

2. Detailed Plan of the TA

● Output 1: Analysis of the current status and feasibility study on green hydrogen technology

To conduct a comprehensive assessment of Cambodia’s hydrogen supply capacity and utilization potential, thereby identifying priority sectors and feasible technology options for roadmap development.

Activity 1.1: Baseline assessment of hydrogen utilization in Cambodia

This activity will review Cambodia’s overall energy mix, greenhouse gas emission profile, and existing national strategies to establish baseline conditions for hydrogen utilization. It will also benchmark global hydrogen strategies and roadmaps to provide best practice references, ensuring Cambodia’s assessment remains consistent with international trends while reflecting domestic realities.

Activity 1.2: Sectoral analysis and feasibility assessment of hydrogen utilization

Building on the baseline review, this activity will focus on identifying priority end-use sectors such as transport, industry, and power generation. Each sector will be assessed according to policy alignment, economic significance, technical feasibility, and energy demand. Climate benefit and cost-benefit analyses will be conducted to justify the prioritization process, ultimately selecting one to two key sectors as the focus for hydrogen introduction.

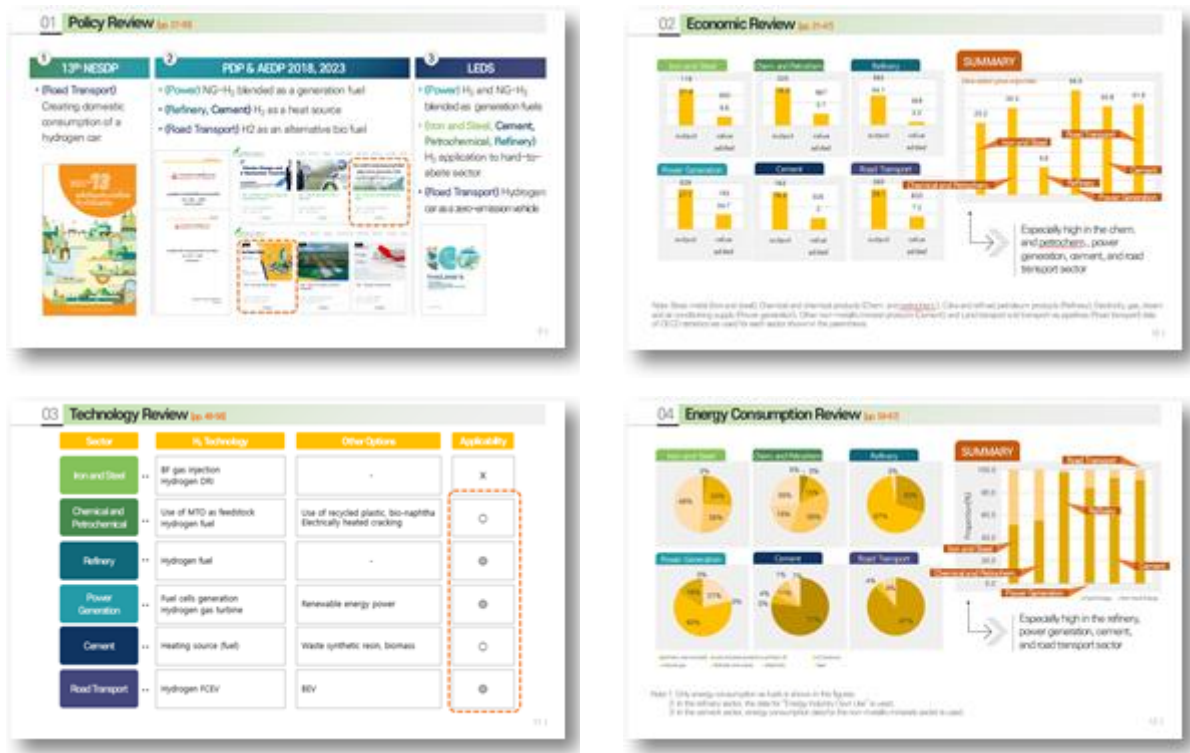


Figure 1. Assessment of hydrogen utilization (example)

Activity 1.3: Assessment of hydrogen supply potential and technology options

In parallel, this activity will examine Cambodia’s renewable energy resources—including solar, hydropower, and biomass—together with its current energy structure to assess supply potential for green hydrogen. Applicable production technologies (e.g., electrolysis, biological methods) will be evaluated, alongside storage and transportation solutions, in order to recommend feasible technology pathways. These findings will provide the technical basis for Cambodia’s future national hydrogen roadmap.

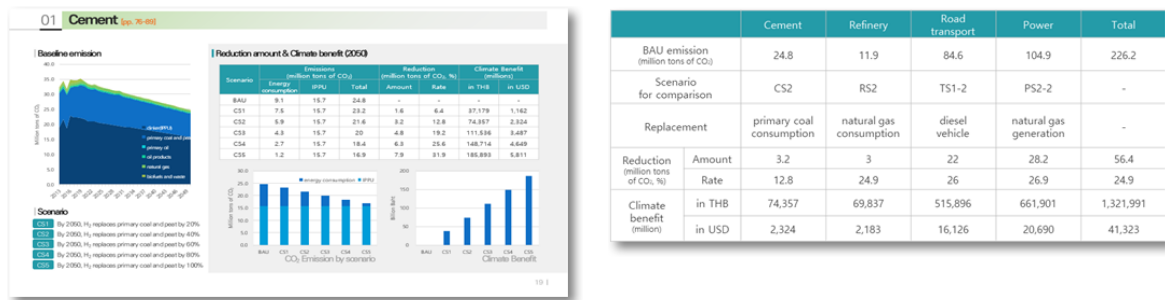


Figure 2. Assessment of hydrogen supply potential (example)

Deliverables

Deliverable	Delivery date
Green Hydrogen Technology Analysis Report (covering baseline conditions, priority utilization sectors, supply potential, and recommended technology options)	December 2025

- Output 2: Development of a green hydrogen roadmap concept and stakeholder consultation workshop**

To prepare a conceptual draft of Cambodia’s Green Hydrogen Roadmap and refine it through broad-based stakeholder consultation, thereby ensuring national ownership and alignment with policy priorities.

Activity 2.1: Preparation of a concept of Green Hydrogen Roadmap

Building on the results of the baseline assessment and feasibility analysis, this activity will develop a conceptual draft of Cambodia’s Green Hydrogen Roadmap. The draft will outline the vision, objectives, scope, and indicative structure of the roadmap, ensuring consistency with the country’s policy frameworks such as the NDCs and National Green Growth Strategy. It will integrate lessons from international hydrogen roadmaps, while also incorporating specific needs expressed by Cambodia through the TA request and the kickoff meeting. The outcome will be a well-structured draft roadmap that provides a clear direction for subsequent national discussions and refinement.

Activity 2.2: Organization of a stakeholder consultation workshop

This activity will convene a two-day workshop in Cambodia to present both the results of the hydrogen technology assessment and the conceptual draft roadmap. Policymakers, industry actors, academia, and civil society will be invited to provide feedback and discuss priorities. Day 1 will focus on sharing the draft roadmap and assessment results, while Day 2 will host group discussions on sectoral strategies, regulatory frameworks, and financing mechanisms. Feedback collected during the workshop will be consolidated to strengthen the draft roadmap and build a cooperative network for future implementation.

Table 1. Consultation workshop program (example)

Day	Mains sessions	Key participants
Day 1 – Plenary Workshop	- Presentation on Green Hydrogen Technology Analysis Report & Green Hydrogen Roadmap Concept - Panel discussions on strategic directions of the roadmap	Cambodia NDE, NIGT, Key stakeholders, etc.
Day 2 – Core Stakeholder Discussions	- Group discussions on policy and regulatory framework, renewable energy – hydrogen integration, technology and infrastructure development, financing options for hydrogen projects	Regulatory agencies, Funding agencies, Industry Stakeholders, etc.

Deliverables

Deliverable	Delivery date
Draft Green Hydrogen Roadmap (conceptual framework)	January 2026
Stakeholder consultation workshop report	January 2026

● **Output 3: Development of the National Green Hydrogen Roadmap for Cambodia**

To provide Cambodia with a comprehensive National Green Hydrogen Roadmap that defines a long-term vision, sectoral strategies, and an implementation framework to guide the transition toward a hydrogen economy.

Activity 3.1: Formulation of vision, goals, and strategic framework

This activity will set out Cambodia’s long-term vision for the hydrogen economy and establish measurable national goals. Drawing on the results of the consultation workshop and alignment with higher-level strategies such as Cambodia’s NDCs and Climate Change Strategic Plan, a strategic framework will be developed. The framework will address the full value chain—production, storage

and transport, utilization—alongside enabling conditions such as research and development, regulatory incentives, and workforce training.

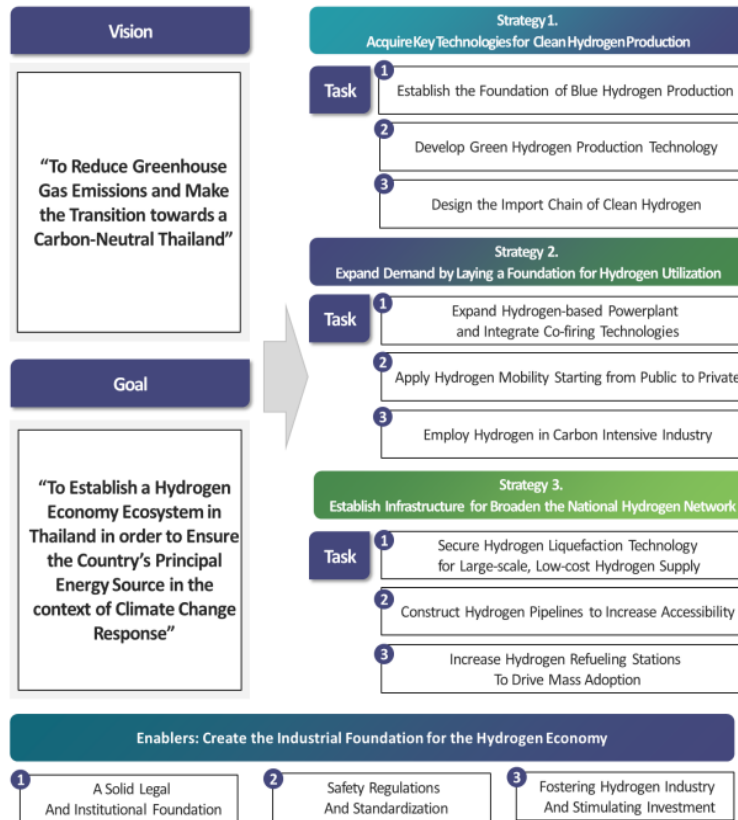


Figure 3. Thailand Green Hydrogen Roadmap (example from CTCN TA project)

Activity 3.2: Identification of sectoral strategies and action areas

This activity will translate the strategic framework into concrete sectoral strategies and detailed action areas. The process will benchmark leading hydrogen policies from advanced economies while also incorporating relevant experiences from developing countries. Priority will be given to renewable energy integration, foreign investment mobilization, technology transfer, and Cambodia’s participation in the global hydrogen supply chain. Feasibility will be validated through consultations with experts from government, academia, and industry to ensure local applicability.

Activity 3.3: Establishment of phased targets, responsibilities, and monitoring mechanisms

This activity will operationalize the roadmap by defining phased targets for each sectoral strategy, designating responsible institutions, and introducing mechanisms for monitoring and review. Bottom-up inputs from Cambodian stakeholders will inform realistic target setting, while a governance framework will be proposed to designate a lead coordinating body and ensure accountability. Periodic monitoring cycles will be designed to track progress and enable adaptive management of the roadmap.

Appendix 2. Survey Questionnaire

Part A. Hydrogen-related Technology (General)

Q1-1: From the perspective of expert, please specify the Technology Maturity from the perspective of expert, please assess the Technology readiness level (TRL) of existing one hydrogen for developing hydrogen

Technology	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Steam Methane Reforming	1	1	1	1	1	1	1	1	1	1	1	1
Carbon Capture, Utilization, and Storage (CCUS)	1	1	1	1	1	1	1	1	1	1	1	1
Alkaline Electrolysis (ALK)	1	1	1	1	1	1	1	1	1	1	1	1
Polymer Electrolyte Membrane Electrolysis (PEM)	1	1	1	1	1	1	1	1	1	1	1	1
Anion Exchange Membrane Electrolysis (AEM)	1	1	1	1	1	1	1	1	1	1	1	1
Solid Oxide Electrolysis Cell (SOEC)	1	1	1	1	1	1	1	1	1	1	1	1

Q1-2: From the perspective of expert, please specify the Technology Maturity from the perspective of expert, please assess the Technology readiness level (TRL) of existing one hydrogen for developing hydrogen

Q1-3: From the perspective of expert, please specify the Technology Maturity from the perspective of expert, please assess the Technology readiness level (TRL) of existing one hydrogen for developing hydrogen

Q1-4: From the perspective of expert, please specify the Technology Maturity from the perspective of expert, please assess the Technology readiness level (TRL) of existing one hydrogen for developing hydrogen

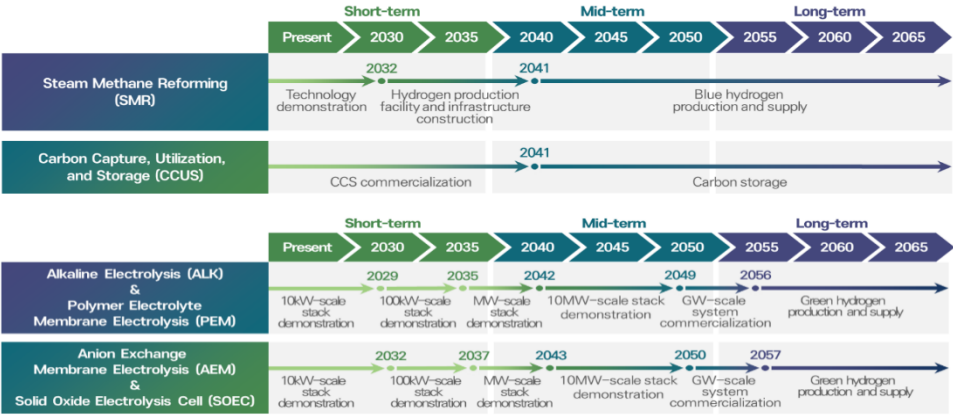


Figure 3. Defining phased targets for each sectors (example)

Deliverables

Deliverable	Delivery date
Cambodia National Green Hydrogen Roadmap	April 2026

● Output 4: Capacity building for Cambodian stakeholders

To enhance the knowledge, skills, and collaborative capacity of Cambodian policymakers, industry representatives, and technical experts, thereby strengthening national readiness for implementing the Green Hydrogen Roadmap.

Activity 4.1: Delivery of a capacity building program

This activity will design and implement a two-day capacity-building program tailored to Cambodia’s policy and technical needs. The program will provide participants with a comprehensive overview of the finalized roadmap, introduce international hydrogen policy and technology trends, and share lessons from global cooperation initiatives. Sessions will include expert presentations, panel discussions, and interactive group exercises, ensuring both knowledge transfer and practical application.

Table 2. Consultation workshop program (example)

Day	Mains sessions	Key participants
Day 1 – Plenary Workshop with Key Stakeholders	- Presentation on Green Hydrogen Roadmap, hydrogen policy trends in Korea and other countries, international cooperation trends and strategies, etc.	Cambodia NDE, NIGT, Key stakeholders, etc.
Day 2 – In-depth Capacity Building with Core Stakeholders	- presentation on global funding and investment trends in green hydrogen - discussion on linkage and coordination of initiatives - site visit: hydrogen related facilities in Cambodia	Regulatory agencies, Funding agencies, Industry Stakeholders, etc.

Activity 2.2: Stakeholder engagement and networking

This activity will create opportunities for dialogue and collaboration across government ministries, private sector actors, academia, and international partners. The program will emphasize inclusiveness by promoting balanced participation of stakeholders, including women and underrepresented groups, to ensure equitable capacity development. Structured networking sessions will build long-term partnerships and establish a collaborative platform to support the implementation of Cambodia’s hydrogen strategy and related future projects.

Deliverables

Deliverable	Delivery date
Capacity building workshop report Including program agenda, participant profiles, key discussion outcomes, and recommendations for follow up	June 2026

● **Output 5: Development of follow-up project linkage strategies for sustainability**

To ensure the sustainability of the Green Hydrogen Roadmap by identifying concrete follow-up projects, establishing a stakeholder coordination platform, and preparing financing strategies and concept notes for international funding institutions.

Activity 5.1: Establishment of a stakeholder coordination platform

This activity will establish a coordination platform composed of key Cambodian ministries, national universities and research institutes, international organizations with a presence in Cambodia, and representatives from KOICA. The platform will build on networks established through earlier project activities and serve as a mechanism for sharing results, validating priorities, and reinforcing national ownership. It will also provide an institutional space for continuous dialogue to align roadmap implementation with broader development strategies and donor coordination.

Activity 5.2: Identification of follow-up projects and financing opportunities

This activity will translate the National Green Hydrogen Roadmap into actionable follow-up projects and match them with relevant domestic and international climate finance resources. Potential projects may include technology transfer initiatives, overseas expansion of Korean hydrogen technologies, integrated infrastructure-and-capacity-building packages, and pilot projects for bilateral hydrogen trade. The analysis will focus on practical, high-impact opportunities where Cambodia’s needs and Korea’s expertise converge, thereby laying the foundation for future joint investment and cooperation.

Activity 5.3: Preparation of follow-up project concept notes

This activity will develop draft concept notes for selected follow-up projects, with particular emphasis on GCF Readiness and other climate finance mechanisms. Each concept note will outline objectives, scope, financing structures, and proposed implementation arrangements. These documents will serve as key instruments for resource mobilization, enabling Cambodia to advance from strategy development to project execution in partnership with development partners and financing institutions.

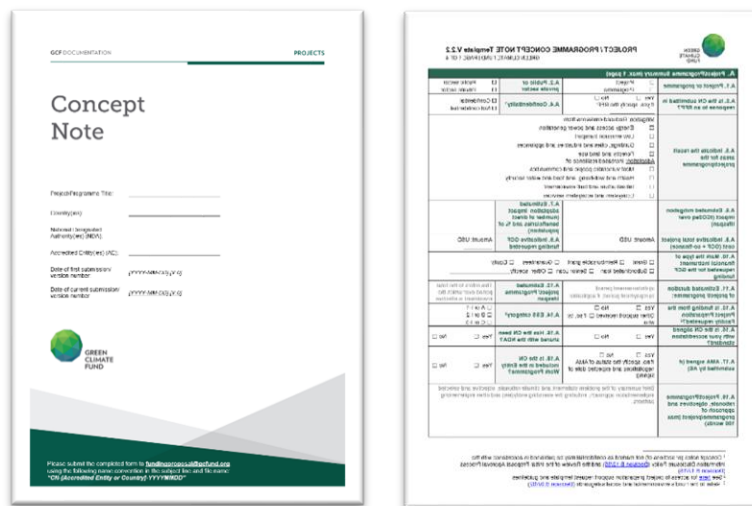


Figure 2. Template of Concept Note

Deliverables

Deliverable	Delivery date
Follow-up project linkage strategy report	June 2026
Draft Concept Note for financing institutions	June 2026