Impact Statement

Basic Information	
Title of response plan	Development of a national hydrogen strategy and action plan for accelerating Thailand's net-zero target
Technical assistance reference number	CTCN 22-013
Country/ countries	Thailand
NDE focal point and organisation	Dr. Surachai Sathitkunarat, The Office of National Higher Education Science Research and Innovation Policy Council (NXPO)
Sector(s) addressed	Renewable Energy
Technologies supported	Establishing national strategy
Implementation period and total duration	October 2022 ~ March 2024 (18 months)
Total budget for implementation	USD 260,000
Designer of the response plan	National Institute of Green Technology (previously, Green Technology Center)
Implementer of response plan	National Institute of Green Technology (previously, Green Technology Center)

Impact Statement	
Challenge	The Thailand LEDS states that Thailand aims to more than half of its carbon emissions by 2050, and the energy sector is designated as a key sector to achieve to target. In achieving the national Net-Zero target, Thailand needs to fully utilize the potential of hydrogen in overall social sectors. However, Thailand does not have sufficient infrastructure to produce and utilize green hydrogen. Thus far, the identification of potential resources and applicable technologies for hydrogen production in Thailand is quite urgent. The TA aims to support Thailand in identifying the potential of domestic hydrogen production. Based on the analysis results, TA will deliver the framework of the national plan and technology roadmap to apply sustainable hydrogen production and develop the necessary infrastructure in Thailand. By suggesting the political and technological direction based on the current technology readiness level in Thailand, this TA can contribute to Thailand in achieving the national Net-Zero target.

CTCN assistance	This TA aims to support hydrogen production in Thailand with the following activities: • Techno-economic assessment of hydrogen production technologies including the comprehensive assessment of potential resources, technologies, geographical area(s), and so on. • Establishment of a national action plan for the implementation of the best suitable application area(s) and identified hydrogen production technologies • Development of hydrogen technology roadmaps to efficiently adopt the hydrogen production value chain in Thailand
Anticipated impact	• Enhancement of infrastructure resilience by suggesting an effective national hydrogen production plan with the following technology roadmaps • Contribution to achieving the national Net-Zero emission target by 2065 • Institutional capacity and coordination mechanisms in place to coordinate climate action relevant to NDE and STI policy units
Anticipated co-benefits from the TA	• The TA tries to promote the share of women researchers in Thailand. • The TA can evoke economic development in overall sectors by stimulating the expansion of hydrogen-related industries. • By suggesting well-organized guidelines to materialize the hydrogen economy, it can contribute to Just Transition in Thailand.
Gender aspects of the TA	The TA will design the framework of capacity building for hydrogen engineers, scientists, and policymakers and promote participation from women engineers, scientists, and policymakers. Also, it will offer workshops for Thailand policymakers to emphasize the importance of fostering women scientists and researchers. Similarly, this point will be addressed in a national action plan. The national action plan will contain a training program to secure proper human resources including scientists and researchers. In this plan, the sub-program for female researchers and scientists will be designed.
Anticipated contribution to NDC	• Establishment of the national plan and following technology roadmaps for developing hydrogen-related infrastructure • Priority listing of potential hydrogen production technologies including applicable resource(s) and geographical area(s)
The narrative story	Hydrogen production and application have become one of the global trends. The importance of hydrogen and its role as a key component for reducing carbon emissions has been emphasized in all of the international agreements and national Net-Zero plans over the globe. Thailand also announced its strong ambition in achieving a Net-Zero emission target by 2065 and included hydrogen application as one of the

	major assignments in their national plan. For example, in New Energy Power Policy, Thailand states hydrogen is one of the seven major components to achieve carbon neutrality. Also, in Innovation Roadmap for Industrial Decarbonization, the Thailand government emphasizes the importance of hydrogen production and application and aims to apply green hydrogen on a full scale by 2050-2065. Despite its great willingness, currently, Thailand still has not formulated its national strategies for hydrogen development and has not developed related infrastructure enough. As Thailand is in the extremely early stage of hydrogen application, it is urgent to assess relevant potential resources and identify applicable technologies. The goal of this Technical Assistance is to satisfy the strong willingness of Thailand in applying hydrogen adoption. By approaching the initial assessment stage, the project will identify applicable resources for hydrogen production in Thailand and the following technologies which have high efficiency considering local conditions. In the end, the project will design a local-customized national action plan to stimulate hydrogen application in Thailand and technology roadmaps for identified hydrogen production technologies.
Contribution to SDGs	The proposed CTCN TA support directly contributes to the UN Sustainable Development Goal(SDG) 7: Ensure access to affordable, reliable, sustainable, and modern energy for all. This TA will assess the potential hydrogen production technologies for Thailand and promote them to establish the relevant infrastructure for hydrogen technology development and its application by designing a proper national action plan and technology roadmaps. This TA can also contribute to SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation. By suggesting the framework of hydrogen application in Thailand, this TA will enhance the resiliency of relevant infrastructure in Thailand and stimulate sustainable economic development in overall social sectors. Last but not least, this TA can support Thailand in terms of SDG 13: Take urgent action to combat climate change and its impacts. As hydrogen is one of the most important components to achieve the Net-Zero target, it is necessary to identify applicable technology and resource options and design a national political framework to apply them. As this TA covers all the aforementioned activities, it will promote urgent action in Thailand to cope with the climate crisis.
Reference to knowledge products	UNFCCC (2016). “Enhancing Implementation of Technology Needs Assessments: Guidance for Preparing a Technology Action Plan”