

CTCN PALO

2026 Learning Visit on Green Hydrogen Production and Fuel Cell - Collaboration with KIST, KIER, and KRICT

14(Tues.)–16 (Thurs.) July 2026, Seoul and Daejeon, Republic of Korea

Concept Note

Background and objectives

For the past 12 years, the Climate Technology Centre and Network (CTCN) has facilitated the development and transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. Implementing the mandate of CTCN, we have focused on the stimulation of technology cooperation and enhancement of the development and transfer of climate technologies to developing countries. Taking its mandate, CTCN has supported over 110 countries benefited from climate technology innovation, transfer, and knowledge sharing to date.

One of the main objectives of the CTCN Partnership and Liaison Office (PALO) launched on 21 July 2022 is to strengthen existing efforts on innovation and collaborative research, development, and demonstration (RD&D) through greater collaboration with various organizations working on climate change issues. The specific role for the objective is to serve as a Centre of Excellence on Research, Development, and Demonstration (RD&D) on climate technologies. There is no doubt that one of the key actors in national systems of innovation, and RD&D of climate technology is research institutes and universities as well as private sector. One of many ways of collaborative RD&D is to train human resources through learning visits or exchange programme or joint RD&D projects and activities among researchers, research institutes and universities.

CTCN organized Asia and the Pacific Capacity Building Workshop on Green Hydrogen in conjunction with 2023 World Climate Industry Expo (WCE 2023) in Busan in May 2023. NDEs of Cambodia, Mongolia, Thailand and Vietnam expressed their interests in participating in learning visit programme on green hydrogen.

In 2024, the learning visit on green hydrogen was held from 25 to 27 July 2024 with the collaboration with Korea Institute of Science and Technology (KIST) and Korea Institute of Energy Technology (KIER) and nine participants from Cambodia, Mongolia, Thailand and Vietnam were invited. Participants highlighted the needs for capacity building on green hydrogen through training programme. Thailand NDE and KIER have been discussion the establishment of joint RD&D projects as a follow-up action since October 2024. They agreed to try to establish co-financing activity in condition that KIER can be supported through MSIT of Republic of Korea “demonstration project”.

In 2025, The learning visit on green hydrogen production and fuel cell was held from 22 to 24 July with the collaboration with KIST (Seoul), Korea Research Institute of Chemical Technology (KRICT, Daejeon) and Korea East-West Power Co. Ltd (Donghae and Samcheok). Two researchers from Panama (Technological University of Panama) and Zimbabwe (African Hydrogen Partnership) and three government officers from Maldives (Ministry of Tourism and Environment), Gambia (Ministry of Higher Education, Research, Science and Technology) and

Belize (Ministry of Public Utilities, Energy, Logistics and E-Governance) were invited. The participant from Zimbabwe mentioned that the CTCN TA on green hydrogen is needed and the communication among the participant, NDE of Zimbabwe and CTCN Secretariat was organized for the CTCN TA request proposal preparation. The research team of Technological University of Panama has been working with the PROCACEF Group (Processing and Characterization of Structural and Functional Ceramics) at the University of Zaragoza, led by Dr. Rosa Merino in advanced materials for high-temperature electrolyzers funded by the European Union through the Next Generation EU program showed the interest in collaboration with researchers from KIST and KRICT.

CTCN will continue the operation of learning visit programme with the topic of green hydrogen production and fuel cell in 2026. The 2026 survey on participation in PALO activities will be considered to select countries. The active countries in national strategy and actions on green hydrogen will be also considered. For example, in the LAC region, Chile, Colombia, Uruguay, and Brazil are actively integrating green hydrogen technology into their national energy policies and greenhouse gas emissions reduction objectives. In the Africa region, Egypt, Kenya, Mauritania, Morocco, Namibia and South Africa have formed the Africa Green Hydrogen Alliance to intensify collaboration and supercharge the development of green hydrogen projects on the African continent, and five additional countries, Algeria, Angola, Djibouti, Ethiopia and Nigeria, have recently joined the Alliance with ambitions to become green hydrogen leaders in the region.

Based on those criteria, CTCN PALO invites 9 researchers and professors, 1 from Indonesia (Asia and the Pacific), 5 from Egypt, Kenya, Namibia (2 people, one by self-funding), and South Africa (Africa) and 3 from Brazil, Chile, and Paraguay (LAC) in 2026 learning visit.

Expected Outcomes

1. Enhanced endogenous capacity and knowledge, and human resources on green hydrogen production and fuel cell of NDEs and researchers and professors of developing countries
2. Identified and implemented North-South, South-South and triangular RD&D collaboration activities and projects
3. Strengthened collaborative RD&D in respective country

2026 Programme

1. Dates: **14-16 July 2026**

2. Tentative Programme

KIST: Korea Institute of Science and Technology

KIER: Korea Institute of Energy Research

KRICT: Korea Research Institute of Chemical Technology

	13 July (Mon)	Day 1 (14) KIST	Day 2 (15) KRICT	Day 3 (16) KIER	17 July (Fri)
Morning	Arrival	Introduction Lecture 1 - Green Hydrogen Production	Introduction Lecture 1 - Green Hydrogen Production	Introduction Lecture 1 -Green Hydrogen Production	Departure
		Lunch Break			
Afternoon 1	Arrival	Lecture 2 - Fuel Cell	Lecture 2 - Fuel Cell	Lecture 2 - Fuel Cell	Departure
		Break			
Afternoon 2	Arrival	Lab Tour & Collaboration Discussion (Presentation by participants, TBC)	Lab Tour & collaboration Discussion (Presentation by participants, TBC)	Lab Tour & collaboration Discussion (Presentation by participants, TBC)	Departure
Travel at/to	Seoul	Seoul (Rent Car)	Daejeon (Rent Car)	Daejeon/ Seoul (Rent Car)	

Learning Programme at KIST on 14 July 2026 (Tentative)

- Venue: Rm. L3 235B, L3 Building

Activity	Time	Title	Presenter (Name, Position, Affiliation)
Lecture 1	10:30 ~ 11:00	R&D Activities at KIST for Low Temp Green H2 Production	Dr. Katie Heeyum Lim, Senior Research Scientist, Center for Hydrogen-Fuel Cell Research
Lecture 2	11:00 ~ 11:30	R&D of solid oxide cells for climate challenge @KIST	Dr. Deok-Hwang Kwon, Senior Research Scientist, Center for Energy Materials Research
Luncheon	11:30		
Presentations	13:30 (20 min for each presenter)	Presentations from CTCN participants	Presentation 1 Green hydrogen mini-value chain at HySA Infrastructure NWU Phillimon Modisha Associate Professor HySA Infrastructure Centre of Competence North-West University, South Africa
			Presentation 2 Egypt: A Global Platform for GH2 Collaboration Connecting Governments, Research, Industry and Innovation for the Global Hydrogen Economy Nadia Al-Ansary Assistant Professor, Nile University (NU) Director, STI Policy Hub, NU Lead, International GH2 Center
			Presentation 3 Chile strategy for H2 internal demand: the role of the fuel cell Josefa F. Ibaceta General Manager ECIT (Energía, Ciencias, Ingeniería y Tecnología: Energy, Science, Engineering and Technology)

Museum Visit	14:30	Visit to KIST History Museum	
Laboratory Tour	15:00	Lab. visit	

Learning Programme at KRICT on 15 July 2026
- Venue : 2nd Fl. Meeting Room, Didimdol Plaza

Activity	Time	Title	Presenter
	10:00~10:10	Introduction to participants and programme	
	10:10~10:30	Introduction of Korea Research Institute of Chemical Technology (KRICT)	Dr. Eunmi Park
Lecture 1	10:30~11:15	From Renewable Power to Transportable Hydrogen: LOHC research at KRICT	Dr. Hyunchul Jung
Presentation 1	11:15~11:40	Scalable Synthesis of van der Waals 2D Materials for the Hydrogen Evolution Reaction (HER): Liquid-Phase Exfoliation & Automatic Mechanical Exfoliation (AME)	Jorlandio F. Felix^{1,2} ¹ Institute of Physics, University of Brasília (IF-UnB), Brazil ² Visiting Researcher, University of Sunderland, UK
Lunch 11:40~13:30			
Lecture 2	13:30~14:15	Hydrocarbon-Based Proton Exchange Membranes for PEM Water Electrolysis	Dr. Soonyong So
Presentation 2	14:15~14:35	Paraguay and Green Hydrogen: Current State of Activities, National Policies, and Cooperation Prospects	MSc. Eng. Victor Alejandro Balbuena Rivarola Low Carbon Technologies Laboratory, PTI, Paraguay
Presentation 3	14:35~15:00	HYDROSYNERGY: An Integrated PtX-WEF Nexus Framework	Samuel John Department: Mechanical, Industrial and Electrical Engineering Namibia University of Science and Technology

			Andreas Elombo Director Namibia Energy Institute, Namibia University of Science and Technology
Laboratory Tour (40 min)	15:00~ 15:30	- N1 Research Bldg.	

Learning Programme at KIER on 16 July 2026
Medium Meeting Room 2, Eco Building (E2)

Activity	Time	Title		Presenter
Lecture 1 Lecture 20 min Q&A 10 min	10:00-10:30	Introduction to KIER Hydrogen Fuel Cell Technology		Dr. Yun Sik Kang, Principal Researcher, Hydrogen Fuel Cell Laboratory
Laboratory Tour 1 (40 min)	10:30-11:10	Laboratory Tour 1		
Lunch (80 min)	11:10-12:30	Lunch and Networking		All participants
KIER Overview (20 min)	12:30-12:50	Introduction to KIER's international collaboration activities		Ms. Jaekyung Yoo, Research Engineer, Global Strategy Team
Lecture 2 Lecture 20 min Q&A 10 min (2 sessions)	12:50-13:50	Recent Advances in Clean Hydrogen Production via SOEC at KIER	Part 1. SOEC Cell Technology	Dr. Yoonseok Choi, High Temperature Electrolysis Laboratory
			Part 2. SOEC Stack Technology	Dr. Hunmin Park, High Temperature Electrolysis Laboratory
Laboratory Tour 2 (15 min)	13:50-14:05	Laboratory Tour 2		Dr. Young-II Kwon, High Temperature Electrolysis Laboratory
Research Presentations and Discussion (85 min)	14:05-15:30	Research presentations and an open discussion with visiting researchers from developing countries		
	14:05-14:30	Presentation 1 Green hydrogen production and fuel cell RD&D: Indonesia's research, innovation and future collaboration opportunities		Deni Shidqi Khaerudini Research Professor

			Research Center for Energy Conversion Technology, National Research and Innovation Agency (BRIN), Republic of Indonesia
14:30-14:50	Presentation 2 Geospatial and techno-economic assessment of osmotic membrane systems for sustainable green hydrogen production in Kenya		Sarah A. Kwach Senior Research Scientist-KIRDI PhD Candidate in Renewable Energy Technology Kenyatta University, Kenya
14:50-15:10	Collaboration Discussion		

Invited Researchers nominated NDEs

	Countries	NDEs	Participating Researcher
Asia	Indonesia	Mr. Ary Sudijanto Ministry of Environment	Dr. Eng. Deni Shidqi Khaerudini Senior Research Scientist Research Center for Energy Conversion Technology, National Research and Innovation Agency, Republic of Indonesia Email: deni.shidqi.khaerudini@brin.go.id
Africa	Egypt	Ms. Lydia Elewa Ministry of Environment, Egyptian Environmental Affairs Agency	Dr. Nadia Al-Ansary Assistant Professor Nile University (NU) Director, STI Policy Hub, NU Lead, International GH2 Center. E-mail : NaAnsary@nu.edu.eg . Mobile: +201224153070
	Guinea	Ms. Adama Lewo Diakite Mr. Mamadou Hady Barry Ministère de L'Environnement et de Développement Durable	Mr. Souleymane Fanta KONATE Emerging Centre for Mines and Society, Higher Institute of Mines and Geology of Boké Guinea Souleymanefantaknte@gmail.com Phone: (+224) 620298687
	Kenya	Ms. Carolyn Njuguna Kenya Industrial Research and Development Institute	Sarah (Acholla) Kwach Kenyatta University Researcher/ Ph.D. student Email: sachokwach@gmail.com Phone: +254729044286
	Namibia	Dr. Jonathan Mutau Kamwi Department of Environmental Affairs	Dr Andreas Elombo Director, Namibia Energy Institute, Namibia University of Science and Technology Email: aelombo@nust.na Office Phone: +264612072361 Cell Phone: +264818685878 Prof. Samuel John (self-funded) Department: Mechanical, Industrial and Electrical Engineering

			Namibia University of Science and Technology Phone: +264 61 207 2548 Email: sjohn@nust.na
	South Africa	Ms. Kogilam Govender Department of Science and Innovation	Phillimon Modisha Associate Professor HySA Infrastructure Centre of Competence North-West University Email: phillimon.modisha@nwu.ac.za Phone: +27722377846
LAC	Brazil	Mr. Márcio Rojas da Cruz General Coordination of Climate Science, Ministry of Science, Technology and Innovation (MCTI)	Jorlandio F. Felix Associate Professor Institute of Physics, University of Brasília Email: jorlandio@unb.br Office phone : +5561981333354 Mobile phone: +556131077700 WhatsApp: +5561 98133 3354
	Chile	Mrs. Ximena Ruz Mr. Ambrossio Yobanolo Agency of Sustainability and Climate Change	Josefa (Fernanda)Ibaceta Director Chilean Hydrogen Association the General Manager ECIT (Energía, Ciencias, Ingeniería y Tecnología: Energy, Science, Engineering and Technology) E-mail: josefa.ibaceta@ecit.cl Phone: +569 9292 8506
	Paraguay	Mrs. Ethel Estigarribia, Directora Mrs. Nora C. Páez O Departamento de Adaptación, Dirección Nacional de Cambio Climático, Ministerio del Ambiente y Desarrollo Sostenible	Eng. Victor (Alejandro) Rivarola Balbuena PTI Paraguay (Parque Tecnológico Itaipu, Itaipu Technology Park Paraguay) victor.balbuena@outlook.com Phone: +595(993)280 596