Implementation of the Joint Work Programme of the Technology Mechanism : 2023-2027

Digitalization :

Green Technology Databases
Distributed Ledgers (Blockchain)

CTCN AB - **Friday 19th April 2024**

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UN environment programme | CTCN
UN Climate Technology Centre & Network

Background

- At 22nd AB , draft joint concept notes on green technology databases and distributed ledgers, which included an overview of WIPO's database for green technology (Document. AB/2023/22/5.5/A) - the Marketplace for Sustainable Technology, and the potential of distributed technology ledgers for clean energy and other applications

- TEC and the CTCN AB agreed to a further revision of two concept notes on green technology databases and distributed ledgers for consideration and invite WIPO

- A joint taskforce (14 members of TEC and CTCN AB) was created, which met on 8th Feb 2024. 6 taskforce members were present during the meeting.

- The Secretariats presented the progress on revision of concept notes and also some of the barriers and bottlenecks on Distributed Ledger to the taskforce members.

Green Technology Database – Explored

NO.	TITLE	REMARKS
1	Solution Explorer	by Solar Impulse Foundation
2	ETP Clean Energy Technology Guide	by IEA
3	CTis	by NIGT, Korea
4	Green Technology Database	by Green Technology Bank, China
5	Green Tech DB	by Green Tech DB Team
6	OECD stats on 'Patents by technology : Patents in environment-related technologies'	Statistics by OECD
7	Technologies to Support Climate Change Adaptation in Developing Asia	Publication by ADB

ETP Clean Energy Technology Guide

Hosted by	**IEA (International Energy Agency)**
Web site	https://www.iea.org/data-and-statistics/data-tools/etp-clean-energy-technology-guide
Users	**Open to Public**
Description	The ETP Clean Energy Technology Guide is an interactive framework that contains information for over 550 individual technology designs and components across the whole energy system that contribute to achieving the goal of net-zero emissions. For each of these technologies, it includes information on the level of maturity and a compilation of development and deployment plans, as well as cost and performance improvement targets and leading players in the field.
Area of the Database	**Energy Technology in 5 categories** (each with several sub-categories) (a) Buildings; (b) Industry; (c) Transport; (d) CO2 management; (e) Energy transformation;
Number of Information	551 technologies(Last updated 14 Sep 2023)
Pros	The Clean Tech Guide is an online, freely available database tracking clean energy technology developments globally, put together by the International Energy Agency (IEA). The IEA regularly updates and tweaks the database, so changes may occur between downloads.
Cons	This does not provide the information of suppliers of the solution. Also this provides a relatively limited amount of information. Limited to Energy related technologies.

OECD Patent Statistics in environment-related technologies

Hosted by	**OECD (Organisation for Economic Co-operation and Development)**
Web site	https://stats.oecd.org/index.aspx?queryid=29068
Users	**Open to Public**
Description	Patent Statistics by country (58 countries) from the year of 1976 to 2022
Area of the Database	**Environment Technology Patent Statistics in 7 categories** (a) Climate change mitigation technologies related to buildings; (b) Climate change mitigation technologies related to energy generation, transmission or distribution; (c) Capture, storage, sequestration or disposal of greenhouse gases; (d) Environmental management; (e) Climate change mitigation technologies related to transportation; (f) Climate change mitigation technologies in the production or processing of goods; (g) Climate change mitigation technologies related to wastewater treatment or waste management
Number of Information	N/A
Pros	The database is free, public resource, and financed by OECD. The database is openly searchable by the public. It shows the flow of environmentally-related patents over time.
Cons	It does not provide information on who has the technology, nor does provide specific information about each patent.

Technologies to Support Climate Change Adaptation in Developing Asia

Hosted by	**ADB (Asian Development Bank)**
Web site	**Publication** (downloadable at https://www.adb.org/publications/technologies-support-climate-change-adaptation-developing-asia)
Users	**Open to Public** (especially for AP region)
Description	This report discusses specific climate change impact and vulnerabilities, and identifies technologies needed to help reduce those vulnerabilities. It then presents examples of existing technologies that will meet those needs for six sectors: agriculture, coastal resources, human health, transportation, water resources, and disaster risk management. The document includes information on the effectiveness, cost, benefits, and barriers, feasibility of implementation, etc. about each technology. This paper is organized by sector. Within each sector chapter is a discussion of impact, vulnerabilities, technology needs, and technology examples across the main ADB regions (East, Southeast, South, Central and West Asia, and the Pacific) based on published literature.
Area of the Database	**Climate Change Adaptation Technology in 6 categories** (a) Agriculture; (b) Coastal Resources; (c) Human Health; (d) Transportation; (e) Water Resources; (f) Disaster Risk Management.
Number of Information	**Total 41 technologies (as of 2014)**
Pros	This is free, public resource, fully financed by ADB. This covers detailed description and analysis of each technology.
Cons	This publication is outdated (published in 2014) and provides relatively less technologies only limited to Asia Pacific region.

Solution Explorer

Hosted by	**Solar Impulse Foundation**
Web site	https://solarimpulse.com/solutions-explorer
Users	**Open to Public**
Description	The Solutions Explorer is the Search-Engine for Climate Action that showcases profitable climate solutions from all over the world which are part of an ever-growing, curated, and publicly accessible database.
	With a network of more than 400 experts and a dedicated Solar Impulse Team, thousands of solutions were identified and assessed in a verified and transparent process. In April 2021, the Foundation labeled its 1000th solution. Taken together, these solutions have the potential to help the world fight climate change while growing our economies.
Area of the Database	**Green Solutions in 9 categories**
	(a) Buildings & Shelters; (b) Industry & Consumer Goods; (c) Energy; (d) Waste & Pollution; (e) Water; (f) Food & Agriculture; (g) Infrastructures;
	(h) Mobility148; (i) Freight106;
Number of Information	1,564 Solutions(as of mid-Jan 2024)
Pros	This offers various sorting out options such as by sector, region of origin, tags, environmental benefits, target client profile, and company name.
	This provides the information of suppliers of the solution.
Cons	This focuses on solutions rather than the technology itself. Also this provides a relatively limited amount of information.

CTis (Climate Technology Information System)

Hosted by	**NIGT (National Institute of Green Technology, Korea)**
Web site	https://www.ctis.re.kr/en/index.do (Demand, Statistics & Analysis), https://www.ctis.re.kr/planet/tech/inventory.do (Technology Inventory)
Users	**Open to Public (sign-up required)**
Description	CTis has been developed to respond to the new Climate Regime by providing information about climate technology cooperation as follows; (1) Trends: You can check major domestic and international climate change response policy trends, news from international organizations, research data and publications. (2) Climate Technology: You can check major domestic and international climate change response technology trends, technology demand information from developing countries, domestic climate technology information, and investment status in the national R&D industry. (3) Climate Projects: You can check business information and project cases related to domestic and international climate technology cooperation. (4) Statics/Analysis: Provides various visualization data and customized analysis functions based on statistical data related to climate change and climate technology cooperation.
Area of the Database	**Green Technology in 7 categories** (each with several sub-categories) (a) Energy; (b) Water; (c) Farming and forestry; (d) Pollution and waste; (e) Transportation; (f) Products, materials and processes; (g) Building and construction.
Number of Information	741 Demand for Climate Technologies from Developing Countries The number of information from 'Technology Inventory' is not accessible. (as of mid-Jan 2024)
Pros	This provides detailed technical information (Technology Inventory)
Cons	'Technology Inventory' is only provided in Korean language and limited to the technologies of Korea. Technology demands are outdated (the latest update in 2019). The web site is unstable as well as requires sign-up. There is no demand-tailored search system.

Green Technology Database

Hosted by	**Green Technology Bank (GTB) , China**
Web site	https://www.greentechbank.com/greentech/en/achv/achivementList (Technology Bank) https://www.greentechbank.com/greentech/en/require/requireList (Demand Bank)
Users	**Open to Public**
Description	Green Technology Bank (GTB), a key initiative launched in 2016 by China's Ministry of Science and Technology (MOST) and the Municipal Government of Shanghai, focuses on boosting green technologies and green finance to meet the goals of the 2030 Agenda for Sustainable Development and the Paris Climate Change Agreement. GTB is enabling its role of a technology hub and networking centre because we possess the following attributes: • Most prestigious and large-scale platform in China with tech databases, information bank, technology library and pool of experts • Professional financial service platform for green projects • Tech transfer platform with integrated services • Major information platform covering and operating 7,500 substantial technology achievements
Area of the Database	**Green Technology in 5 categories** (each with several sub-categories) (a) Environmental Quality; (b) Resource Utilization; (c) Energy Utilization; (d) Life Health; (e) Ecological Safety.
Number of Information	N/A
Pros	This database provides an overview of the technology, provides information on the technology-owning organization, and recommends relevant experts.
Cons	This database is limited to Chinese-owned technology and requires sign-up for full access to the information.

Green Technology Database (by Green Tech DB Team)

Hosted by	**CSIC (Superior Council of Scientific Research of Spain)**
Web site	https://www.greentechdatabase.com/
Users	**Open to Public**
Description	This patent-based dataset was developed in order to address the lack of complete and transversal information about green innovation and the missing global mapping of the evolution of green technologies. On the side of the technologies, it provides an overview of their development, knowledge base and life cycle over time from 1970s to 2010. It also offers countries' contribution to green innovation and an assessment of their profile. It uses patent information in order to localize where green technologies are developed, and its intensity is evaluated counting the number of patent families (a patent family is a set of patents which cover a similar invention and share a priority date.)
Area of the Database	**Green Technology Patent Analysis in 8 categories** (a) Environmental management; (b) Water-related adaptation technologies; (c) energy generation, transmission or distribution; (d) Capture, storage, sequestration or disposal of greenhouse gases; (e) transportation; (f) Buildings; (g) wastewater treatment or waste management; (h) the production or processing of goods
Number of Information	Exact number of information is not disclosed
Pros	This site provides technical information by region and has a well-equipped interface. The overall status of green technology by country is systematically well organized, and it is effectively visualized using maps and graphs. This Provides additional information on independently produced climate technologies, such as technology life cycles.
Cons	This site only shows data up to 2010 and does not provide information on specific technologies, only patent-related numbers. It does not link technology and demand and provides information closer to academic research. Detailed information is not provided for individual technologies.

Distributed Ledger / Blockchain

- Limited number of institutions working on distributed ledger

- CTCN had earlier engaged with Blockchain Climate Institute for capacity building of NDEs

- UNEP has produced a publication on "Blockchain for sustainable energy and climate in the Global South - Use cases and opportunities" [saf-blockchain-report-final-2022.pdf (socialalphafoundation.org)](saf-blockchain-report-final-2022.pdf)

- CTCN has received request for technical assistance on application of DL/Blockchain – Thailand, Kenya, Burundi, Cote de Ivoire etc.

- Uncanny resemblance in all the TA requests received.

- CTCN is in the process of supporting one such request under the AFCIA programme on parametric insurance in agriculture sector. Lessons would be drawn from this TA

- The Secretariats needs more time to deep dive into the topic, with some additional resource implications for creating practical guidance to NDEs (upto 50000 USD)

Recommendations by taskforce

- This task force on digitalization should be merged with other taskforce : Digitalization activity group #AI4ClimateAction
- Creating linkages between CTCN Knowledge management system and WIPO green technology database

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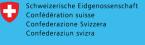Confederaziun svizra

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