WIPO GREEN

– The Marketplace for Sustainable Technology

March 17, 2026
DPMAnutzerforum

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Green Technology Liaison Officer, Climate Change Food Security
Global Challenges and Partnerships Sector, WIPO

WIPO | GREEN
The Marketplace
for Sustainable Technology

WIPO GREEN and Quantum Technology

- **Quantum Computing for Sustainability**
  - Optimization for low energy / less waste
  - Energy systems and grids
  - Supply chains and logistics
  - Material discovery for batteries, etc.
  - Climate simulation and risk analysis
  - Agriculture, food, and water
  - And so on…

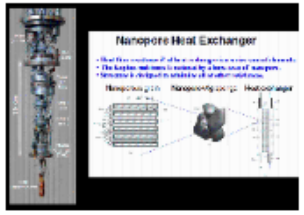
- **WIPO GREEN connects innovators and solution seekers and supports the deployment of green technology.**



Example: WIPO GREEN ID#138733

Compact 10mK 3He/4He Dilution Refrigerator using Nanopore Heat Exchanger that saves 3He Resource and reduces Energy Consumption in Operation

ENERGY > ENERGY EFFICIENCY | PRODUCT, MATERIALS AND PROCESSES > PRODUCTS THAT SAVE WATER/ENERGY |
PRODUCT, MATERIALS AND PROCESSES > IMPROVED MATERIALS



ID	138733
Owner	Tokai National Higher Education and Research System
Type	Technology
Source	Uploads
Published	2021/11/25
Updated	2021/12/02

EMAIL OWNER NO WEBSITE

Tokai National Higher Education and Research System

Description | Benefits | Additional Information | Also Working With

The 10mK 3He/4He dilution refrigerator is now used for quantum technologies to cool superconductor devices. The nanopore heat exchanger used in the refrigerator contributes to reduce the amount of 3He and the energy consumption in its work. The Kapitsa thermal resistance of the exchanger is reduced by a huge specific area of nanopore. Compact structure is designed for the exchanger. This makes the refrigerator to be compact, and saves the amount of 3He resource and its running cost.

The 3He/4He dilution refrigerator is used to cool below about 1 K down to a few mK. This refrigerator has contributed to many fields of the basic sciences. Recently, it has been used in quantum computers to cool superconductor devices. The 3He/4He dilution refrigerator uses 3He and 4He gas, and circulates 3He in its work. At the still about 0.7K, almost pure 3He gas evaporates from 3He/4He mixture liquid. The 3He gas is liquefied and return to the still again. The 3He liquid at 0.7K is pre-cooled by flowing through heat exchangers. At mixing chamber, the pre-cooled pure 3He liquid (c-phase) dilutes into 4He rich (93.6%) liquid (d-phase) accompanying the cooling power. In the heat exchangers, the c-phase 3He is cooled by the d-phase one flowing from the mixing chamber to the still. The exchanger is developed so as to reduce the heat flow resistance R from the c-phase 3He liquid to the d-phase one. The resistance R is a series-sum of elements. Below around 100mK, the Kapitsa resistance RK between the 3He liquids and solid surface increases due to strong temperature T dependence as 1/T^3. The Kapitsa resistance can be reduced by increasing the solid surface area. In case of the traditional heat exchanger, the area is of a sintered silver fine powder whose grain size is 70nm. The specific area of the 70nm-Ag sintered sponge is about 1 m2/g. Recently, our research group has developed a heat exchanger using nanoporous material whose specific area is about 1,000 m2/g. Structure of the exchanger is designed to minimize all of other element resistances. Due to an advantage of the huge (1,000 times larger) specific area, a compact heat exchanger is designed whose size is less than 1/10 of the traditional one with the same heat flow resistance. Consequently, our nanopore heat exchanger makes the 3He/4He dilution refrigerator to be compact. The amount of 3He required for the compact refrigerator becomes small corresponding to the down size. This saves the cost of the refrigerator and the 3He resource whose price is now growing up due to the world-wide shortage. Economic advantage is also to reduce the running cost for its operation. These contribute to SX of the 3He resource and the energy conservation in SDGs. A compact 3He/4He dilution refrigerator for our trial is composed of a usual tube-in-tube heat exchanger and two step-type nanopore exchangers (Step I and II), between the still and the mixing chamber (MC). From the temperatures at Step I and MC, the temperature ratio (T_I/T_MC)^1/2 for one step exchanger is 1.4-1.55 at the 3He circulation rate n3=25μmol/sec. At present, the lowest temperature at MC is 15.4mK at n3=18μmol/sec. In a single shot operation, the lowest temperature is 8mK.

TRL3-4 | TRL5-6 | TRL7 | TRL8 | TRL9

Example: WIPO GREEN ID#153434

Quantum computing in grocery optimization

ENERGY > ENERGY EFFICIENCY | ENERGY > ICT IN ENERGY AND ENERGY MANAGEMENT



ID	153434
Owner	D-WAVE QUANTUM INC.
Uploaded by	WIPO GREEN Admin
Type	Technology
Source	Uploads
Published	2024/10/01
Updated	2024/10/22

EMAIL OWNER VISIT WEBSITE

D-WAVE QUANTUM INC.

Description | Benefits | Additional Information

In grocery retail, quantum computers can help minimize waste and carbon footprint by optimizing tasks like product placement, efficient resource use, and delivery of perishable goods. D-Wave is a leading quantum computing company offering a full-stack technology solution, including systems, cloud services, development tools, and professional services to benefit business and society. They help businesses identify and solve problems that benefit from hybrid quantum technologies, providing online training, professional services, and access to the Leap quantum cloud. Save-On-Foods, a leading grocery retailer in Western Canada, is piloting innovative grocery optimization solutions to their business by leveraging D-Wave hybrid quantum algorithms. The results have been remarkable, with a key optimization task now being completed in just 2 minutes each week—a task that previously took 25 hours. Beyond the drastic reduction in time, the ability to optimize performance across all interactions is noteworthy, something that traditional methods cannot achieve. D-Wave is exploring quantum computing applications in various fields, including optimization problems relevant to energy management and refrigeration systems.



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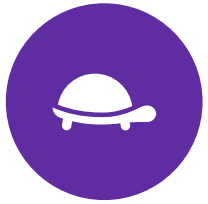
4 Green Technology Book Series

5 Partners Network & IPO Green

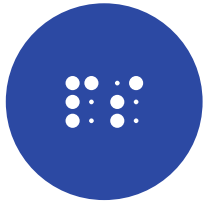
Why was WIPO GREEN established?



Innovation & technology are part of the solution to climate change



Many solutions are available, but uptake is too slow



Information on available solutions is low



IP crucial for technology development & dissemination

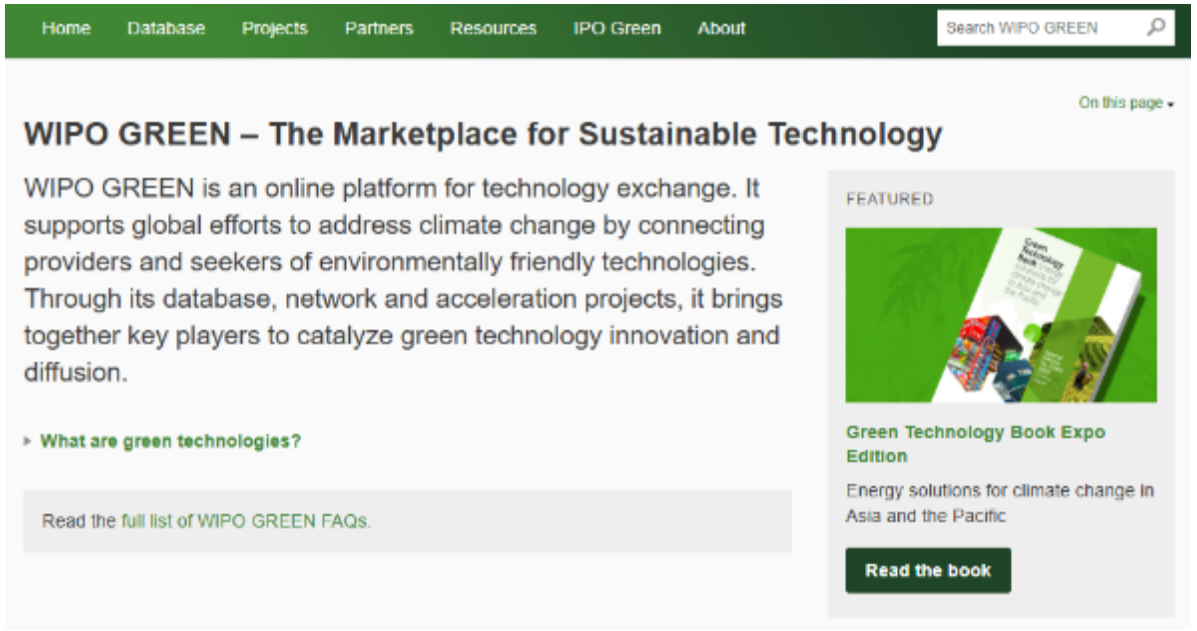


Collaboration between different actors are key

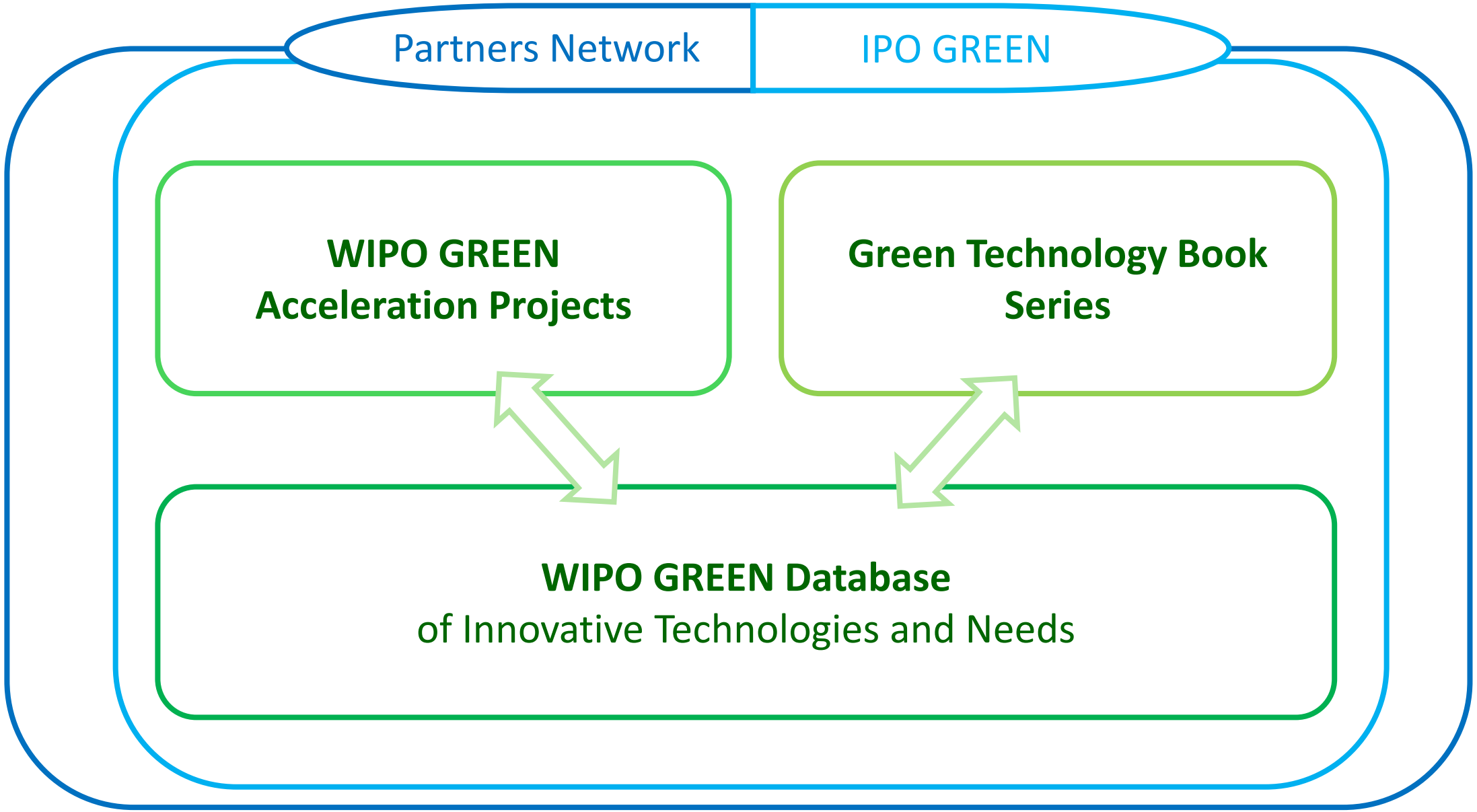


Growing demand for green innovation & technology

WIPO GREEN Platform



- Green technology matchmaking initiative
- Increase understanding of innovative potential
- Deploy innovation in the field
- WIPO GREEN platform, major visible implementation
- Combines all assets
  - Database
  - Projects
  - Partners
  - Resources / knowledge material


Partners Network
IPO GREEN
WIPO GREEN
Acceleration Projects
Green Technology Book
Series
WIPO GREEN Database
of Innovative Technologies and Needs

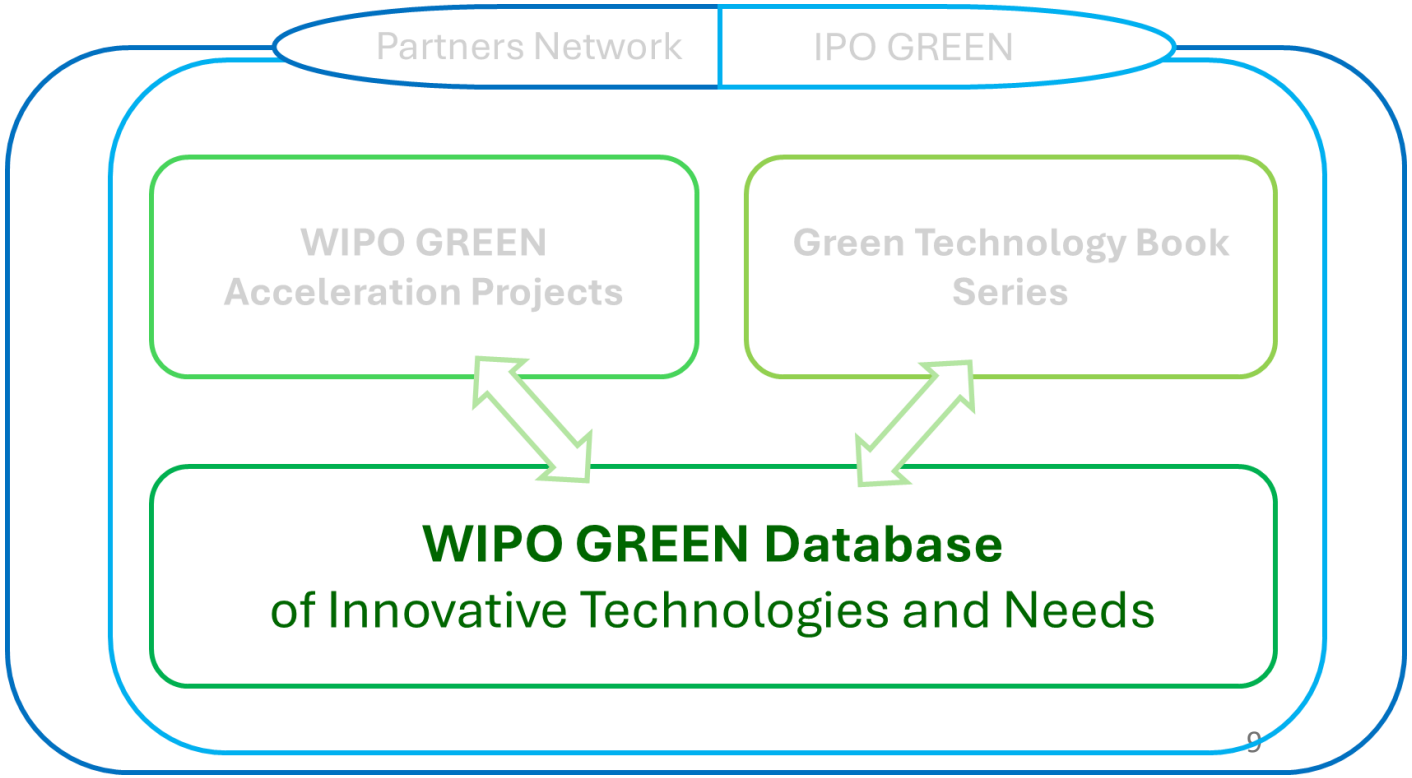
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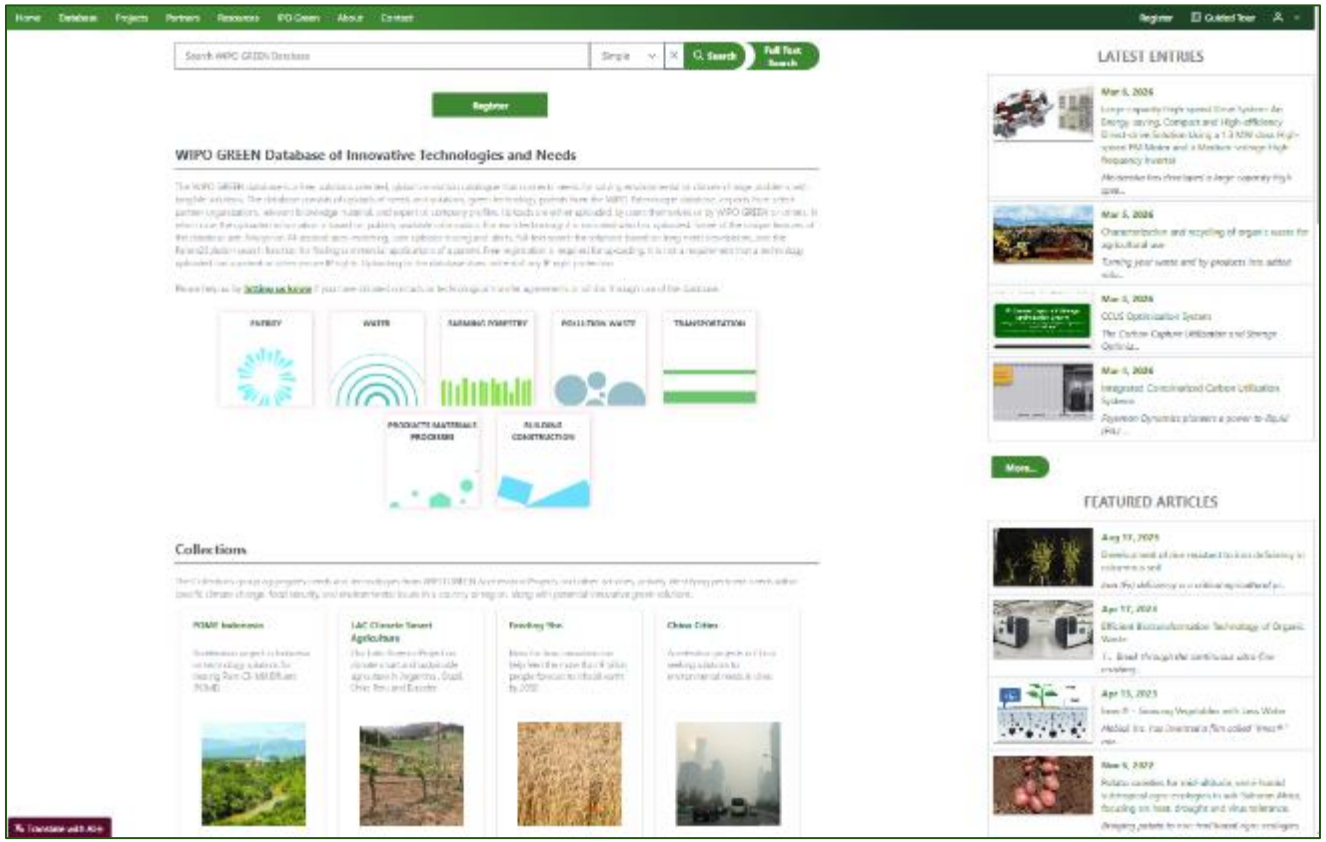
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WIPO GREEN Database - a central tool -

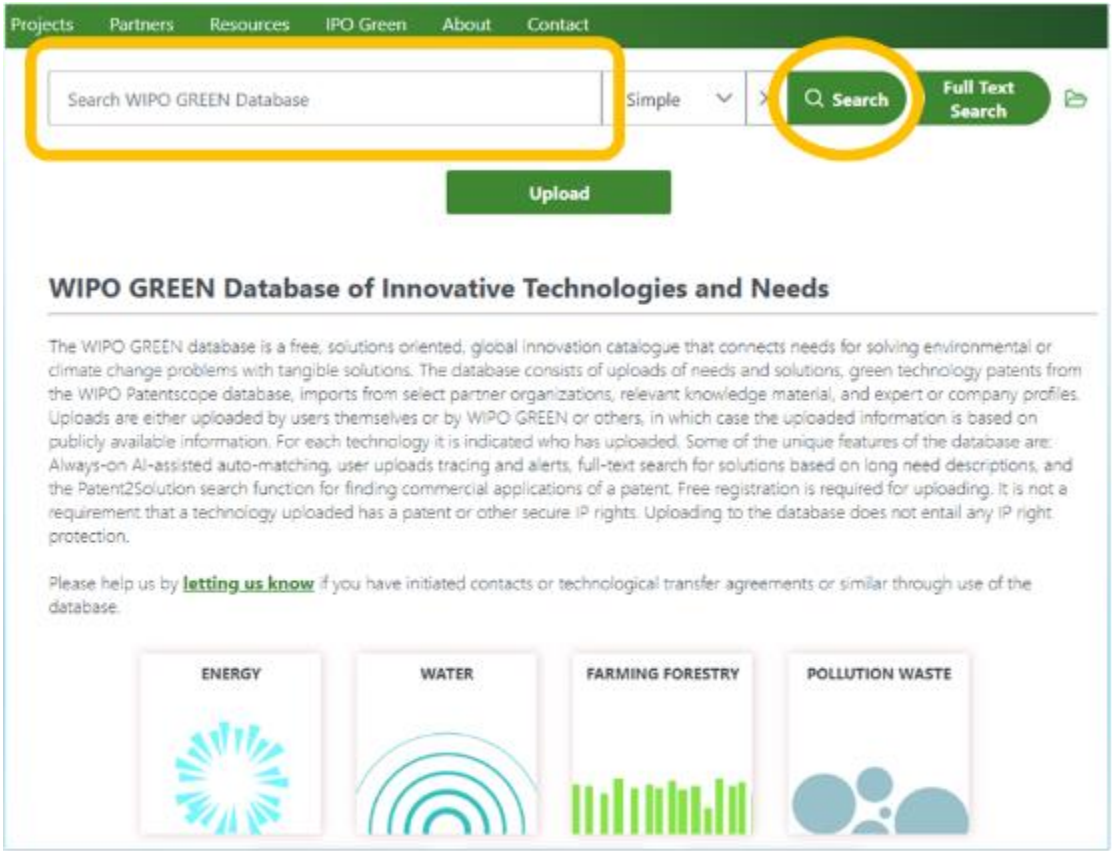
- Free UN-based public database
- Inclusive and accessible (164 languages, mobile devices)
- Major repository of innovative green technologies and needs
- AI-based automatic matchmaking
- >145,000 articles, 6700 uploads
- Unique AI-powered search functions
- Simple registration and upload
- No fees
- No requirement for patents or other IP rights

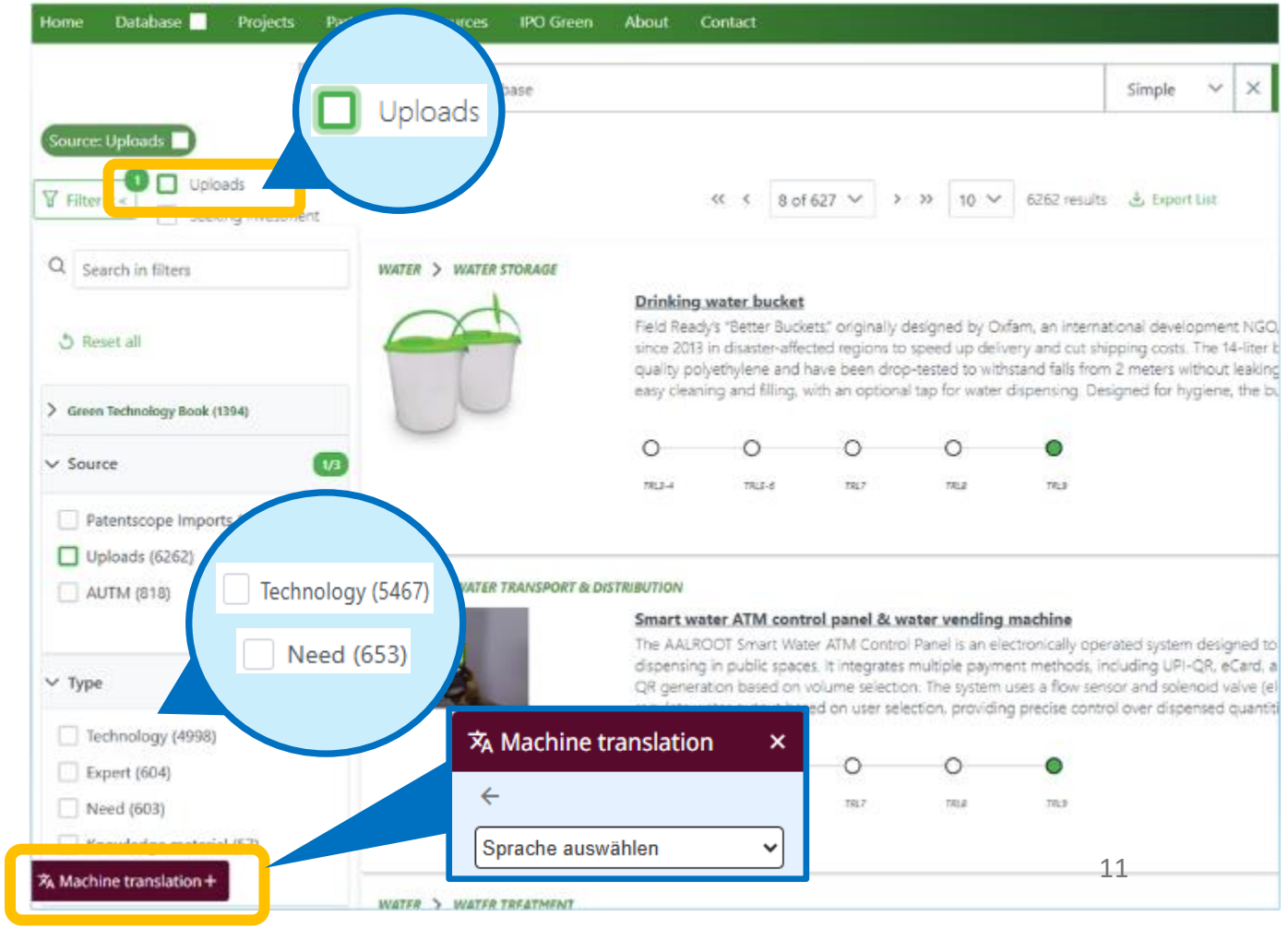


When you focus on “Uploads”

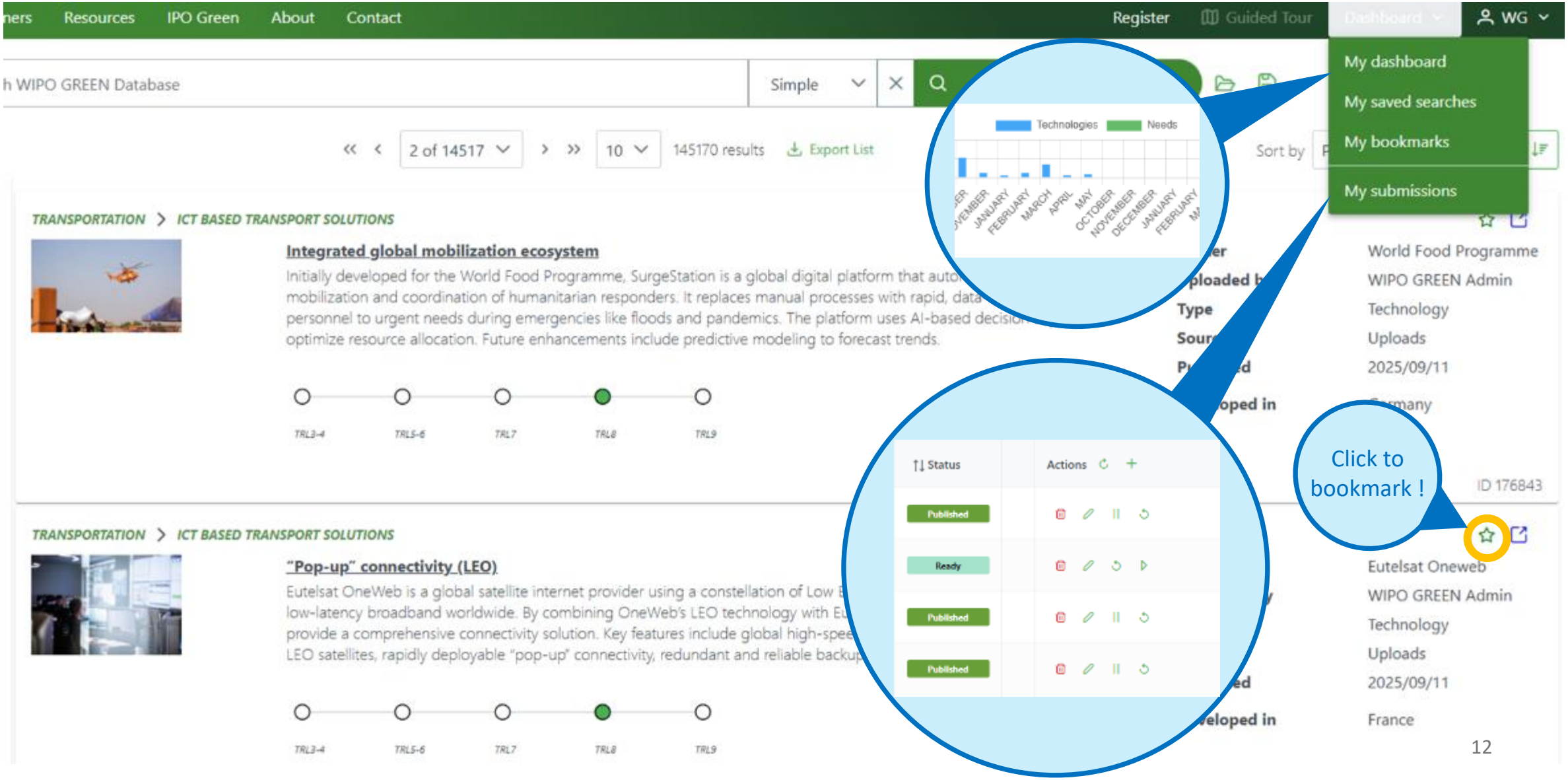
① On the top page,
just click “Search” button without any keywords

② Click “Uploads” filter
③ Select filters based on your search purposes
and/or search using keywords





Functions available for users



Details of a technology or need

Database Projects Partners Resources IPO Green About Contact Register

TestAgro NutriCheck Max

FARMING & FORESTRY > FARMING TECHNOLOGIES

Description Benefits



ID	148636
Owner	Teste Agro
Uploaded by	BioActiva
Type	Technology
Source	User uploads
Published	Sep 5, 2023
Updated	Sep 5, 2023

EMAIL OWNER VISIT WEBSITE

Teste Agro

Have you initiated contacts or technological transfer agreements? The WIPO GREEN database is a free resource, but please help us by letting us k
the database.

EN TestAgro Home Shop All Resources Search for... Log In

Growers & Agro
Meas

Contact the provider

Message* Maximum 4000 characters

From

Name WG WIPO GREEN Admin

Email address wipogreen.admin@wipo.ir

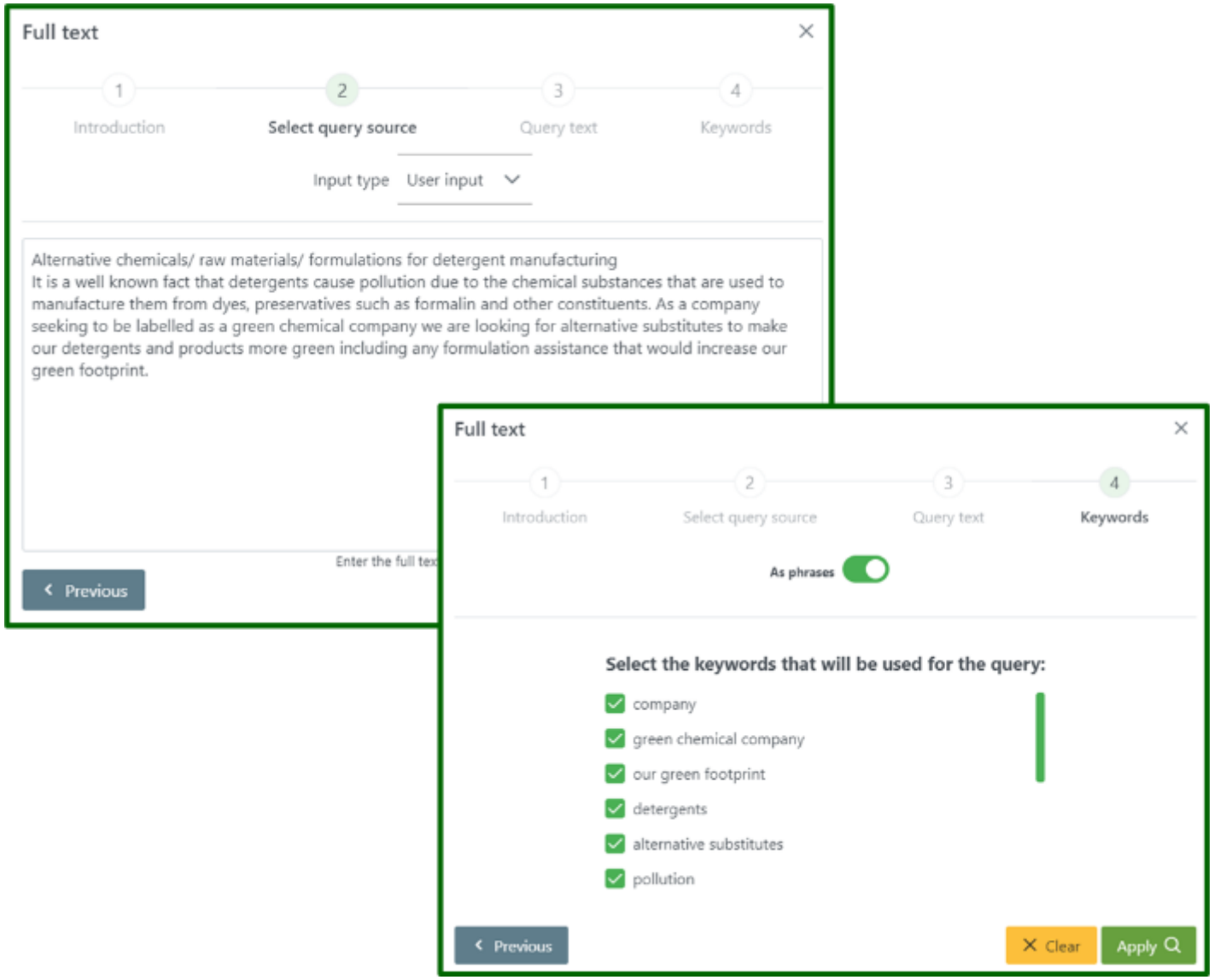
Company Name WIPO GREEN Admin

Cancel Contact the provider

Some of Our Clients

Federal Stoller Saint Mary's University AXIOS RESEARCH

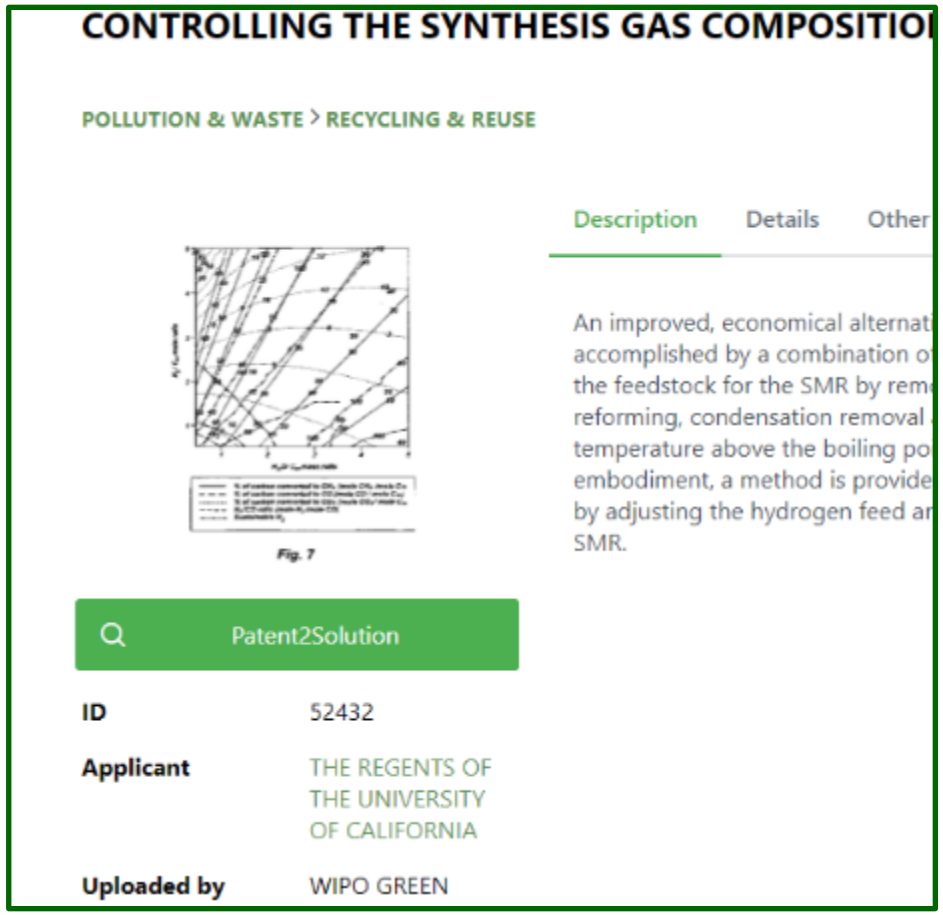
Full-text AI-Assisted Search

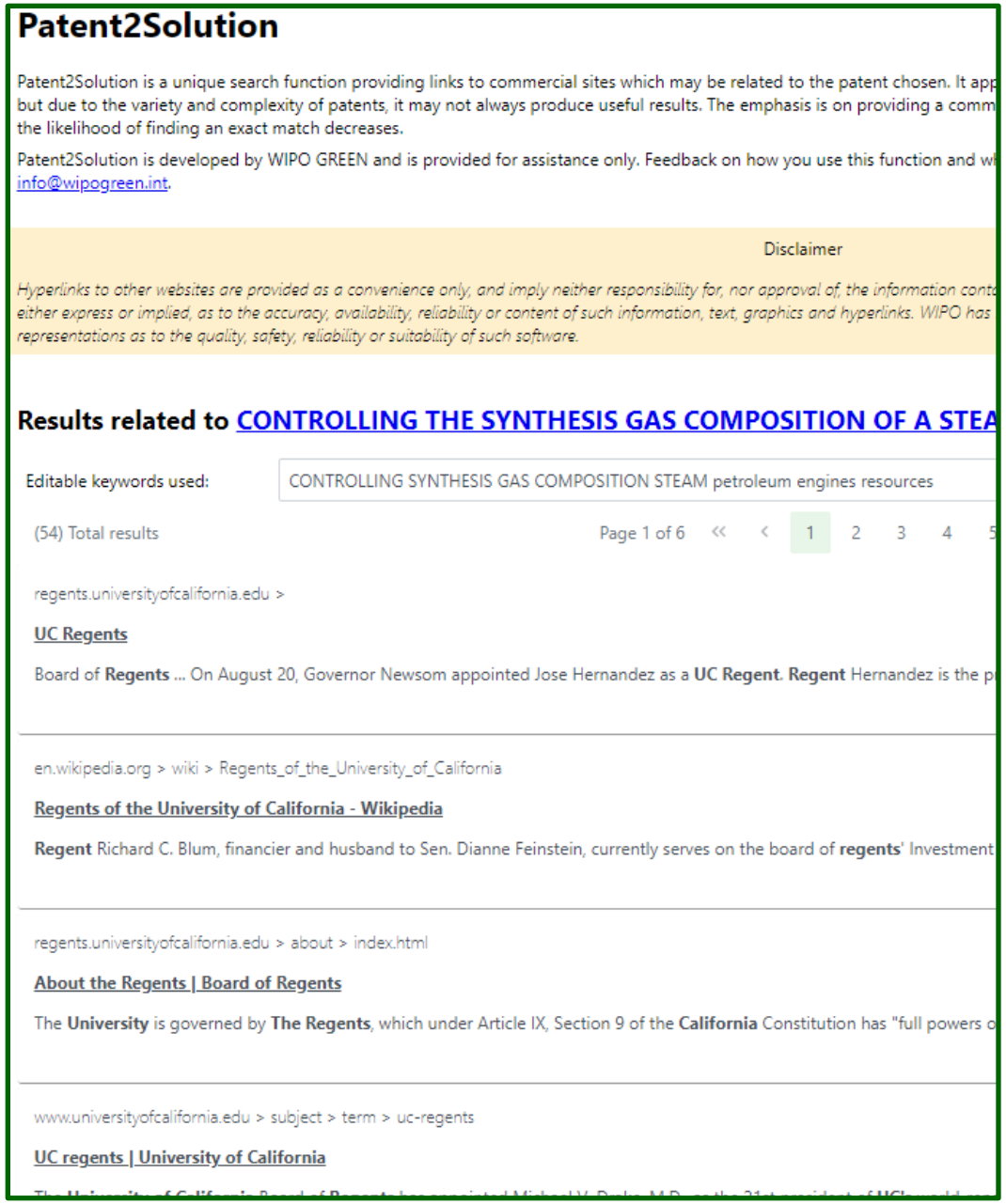


- Input long text, Document, Webpage
- AI extracts keywords
- Search database
- Adjust

Patent2Solution

AI-assisted search for commercial applications of a patent





WIPO GREEN Technology Showcase Webinar

Climate-Smart Agritech Innovations for Sustainable Solutions Worldwide

Held on March 3, 2026
recording is available here



Innovators from around the world showcased WIPO GREEN-registered technologies to a diverse audience of policymakers, companies, universities, research institutions, farmers, cooperatives, industry associations, investors and technology providers.

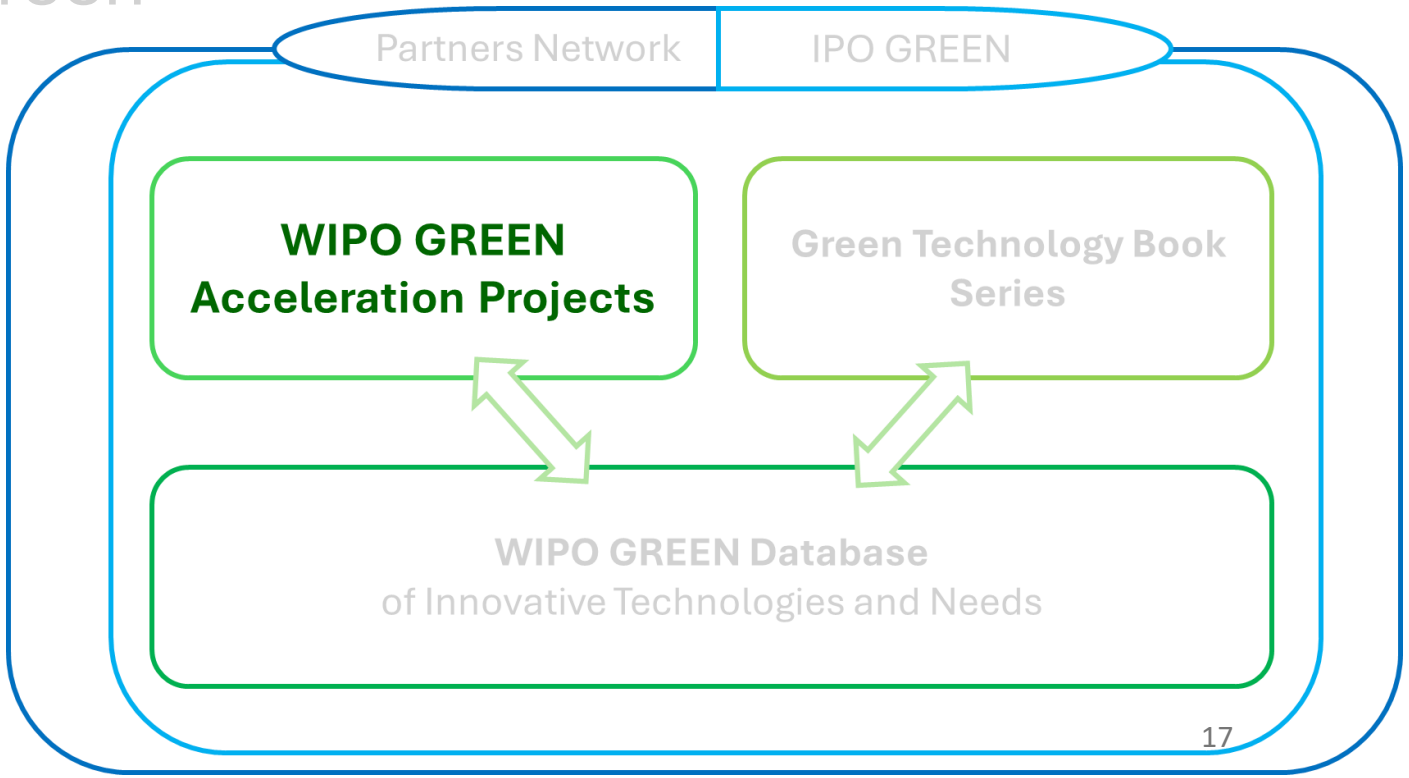
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Acceleration projects

- Matchmaking projects with specific geographical scope
- Focused on-the-ground matchmaking
- Identify needs and propose solutions
- Act as technology agent for need owners
- Implemented via local consultants and network of partners
- Matchmaking events as relevant
- Help identify finance solutions
- Database is a central tool

1) **Need Identification**
2) **Tech Solution Scouting**
3) **Matchmaking: Decision Support**
4) **Matchmaking: Implementation Support**
5) **Knowledge Sharing**





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Acceleration projects in 2025/2026

- **China**: Low carbon transition in cities , circular economy, water resilience etc.
  (ongoing: Beijing, Shanghai, preparation: Guangzhou, Chongqing)
- **India**: Carbon neutral agriculture
- **Indonesia**: Palm oil mill effluents (POME), compost deployment
- **Lao:** Coffee sector
- **Latin America Region**: Climate-Smart Agriculture
  - Argentina
  - Brazil
  - Chile
  - Peru
  - Ecuador
  - Columbia
- **Uruguay**: Livestock methane emission reduction
- **Philippines**: Fishery sector
- **Tajikistan** (2024)
- **Senegal** (start 2026)
- **Pacific SIDS** (start 2026)



WIPO GREEN – Call for technology solutions

COUNTRY/CITY	NEED ID	TITLE	SECTOR
ARGENTINA	169333	Efficient water pumping with lower energy consumption	**Grape**
BRAZIL	171194	Technologies for the use/composting of processing waste	**Coffee**
CHILE	168676	Alternatives for reducing water salinity levels	**Walnut & Orchards**
PERU	174230	Persistent of *Moniliophthora roreri* and *Carmenta spp.*	**Cacao**
LAOS	171295	Water recycle system	**Coffee**
INDIA	175146	Adoption of water saving irrigation technology	**Rice**
SHANGHAI	162167	Purification technology for landfill leachate concentrate	**Waste Management**
BEIJING	162415	New energy vehicle power battery technology	**Automotive**

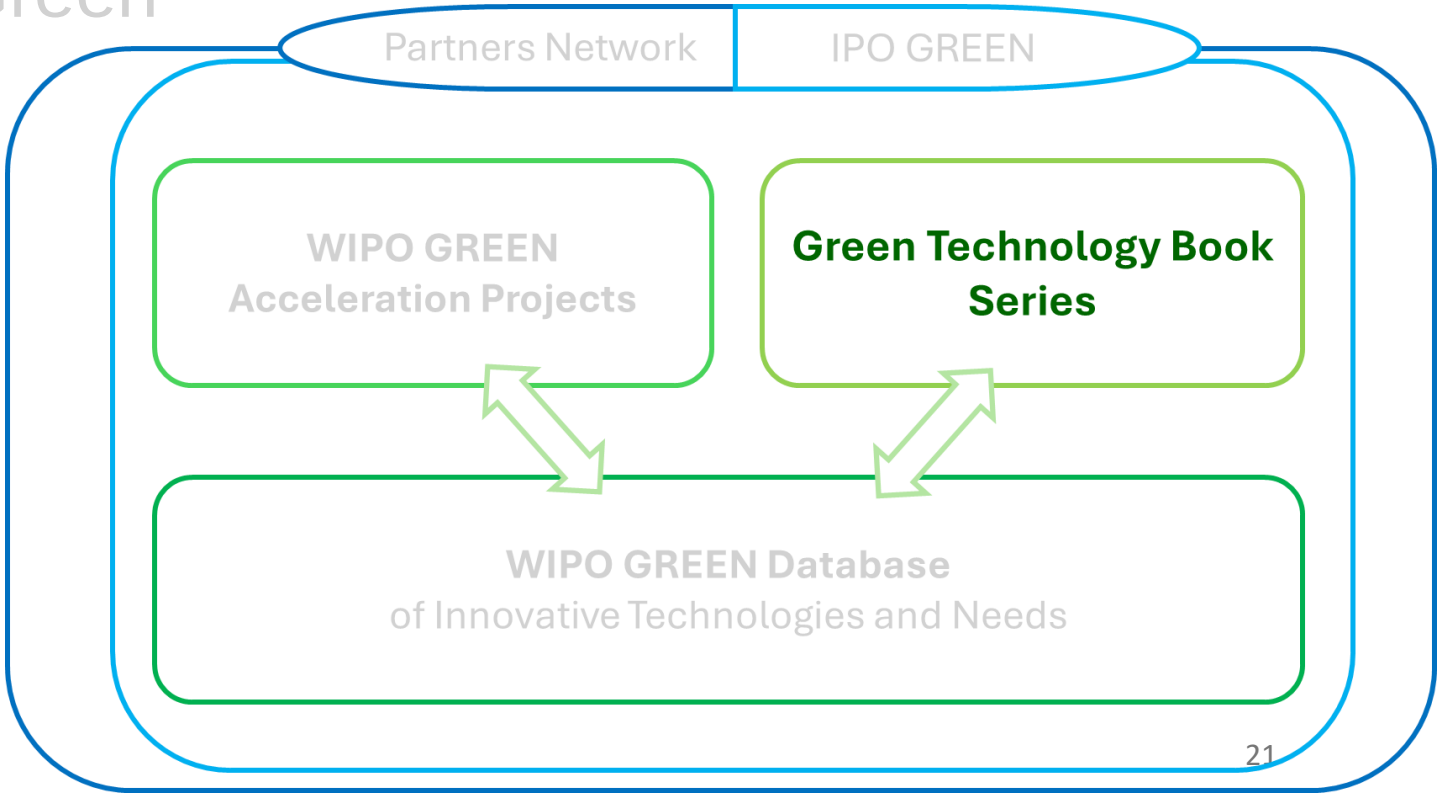
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WIPO Green Technology Books

Grounded, practical take on state of technology and solutions.
Mix of trends analyses and a catalog of solutions

- **1st edition**: Solutions for climate change adaptation
- **2nd edition**: Solutions for climate change mitigation
- **3rd edition**: Energy solutions for climate change
- **Special EXPO25 edition**: Energy solutions in Asia-Pacific
- **4th edition**: Solutions for confronting climate disasters

>1000 solutions – ranging from local and indigenous people's techniques to advanced and digital climate technologies

>1,9 million unique visitors
>160,000 full book downloads

- Free, digital-first publication
- Source of technological inspiration
- A matchmaking tool
- A living collection

In partnership with:

CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

أكاديمية البحث العلمي والتكنولوجيا
Academy of Scientific Research and Technology



The Green Technology Book 2025

Solutions for confronting extreme climate events. Launch November 2025 at COP30









Focus on climate-induced disaster response technologies

- *Water-related*: storms, flooding, coastal erosion, landslides
- *Dry-related*: wildfire + drought
- *Extreme temperatures*: heat and cold
- *Disaster response logistics*: communications, emergency infrastructure and deployment, financial and insurance technologies



The Green Technology Book 2025 - German Technologies

Storm-resilient infrastructure: hurricane windows and doors

Neuffer



Source: Getty Images/Leschenko

Precipitation monitoring: hail monitoring system

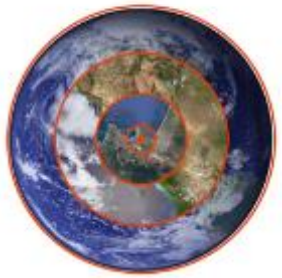
KISTERS



Source: KISTERS

AI-enhanced communications: AI-powered disaster intelligence and risk assessment tool

Mayday.ai



Source: Mayday.ai

Flood protection and modeling: digital twin

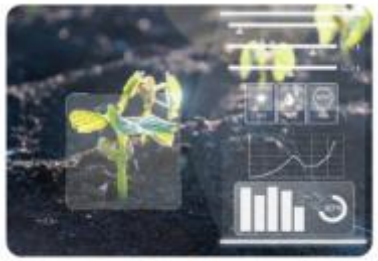
TU Dresden



Source: TU Dresden

Power-line fire mitigation: AI-driven platform for vegetation management

Overstory



Source: Getty Images/Leonid Sorokin

Coastal erosion protection: Secumat Green mats

Naue



Source: Naue

Coastal erosion mapping: topo-bathymetric laser scanning system with LiDAR

RIEGL



Source: RIEGL

Artificial reefs: carbon neutral artificial reef structures

Hakuna



Landslide monitoring: extensometers (clip-on, sensor arm, video and laser)

ZwickRoell



Source: Getty Images/tracielouise

Energy systems: induced draft-air-cooled condenser

ENEXIO



Source: Getty Images/Armen Soriyan

Landslide monitoring: AI routing system for weather-affected unpaved roads

HeiGIT



Source: Croix-Rouge Malagasy

Place-of-origin detection and response: autonomous drones for ultra-early wildfire response

Dryad



Source: Dryad

Communications: mesh network

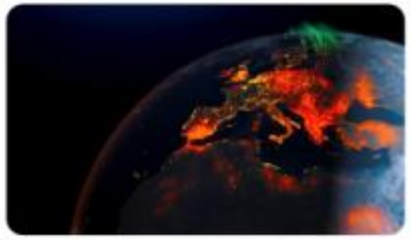
Meshmerize



Source: Getty Images/bluebay2014

Fire modeling: satellite-based mapping and monitoring of fire damage

OroraTech



Source: Getty Images/rakchai

Coastal erosion protection: smart seawall aquatic and wave diversion models

Smart Seawall Technologies



Source: Getty Images/gmc3101

Landslide research: meta-model and novel feature selection technique for understanding landslides

Leibniz Centre for Agricultural Landscape Research (ZALF)



Source: Getty Images/Josephine Julian

Detection: multispectral sensors for fire detection and early-stage fire suppression

IQ Technologies for Earth and Space



Source: IQ Firewatch

Robotics and drones: drone equipped with microphone arrays

Fraunhofer



Source: Getty Images/ Cristian Martin

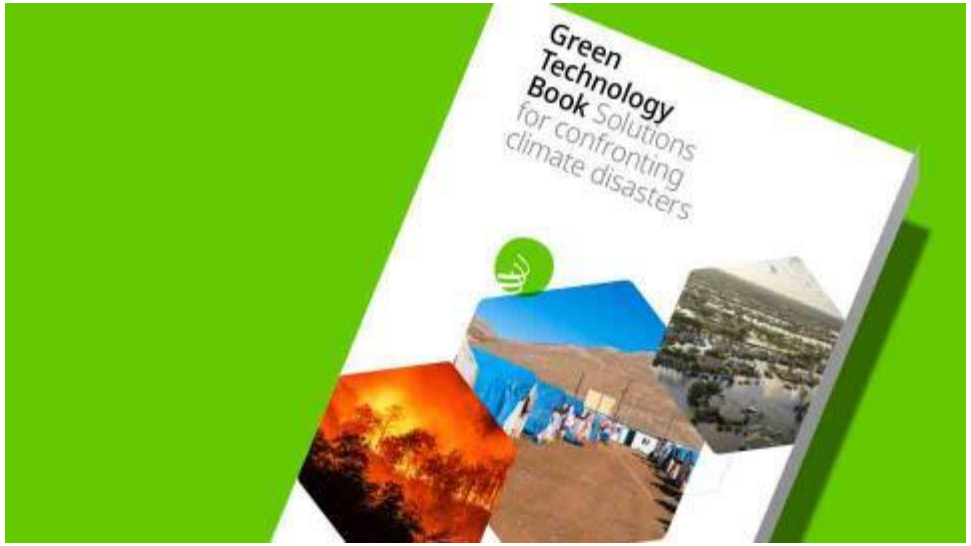
Residential heating: shape-stabilized Phase Change Materials (ss-PCMs)

Nanolope



Source: Nanolope

The Green Technology Book 2025 - Key messages



1. Technologies for disaster preparedness and response already exist and are rapidly advancing.
2. Investing in disaster preparedness and risk reduction is far more cost-effective than responding after crises occur.
3. Technologies like AI, IoT sensors, drones, and satellites give responders real-time visibility and predictive foresight.
4. Effective disaster response blends advanced technologies with local knowledge and nature-based solutions.
5. Disaster response is shifting from reactive to proactive.

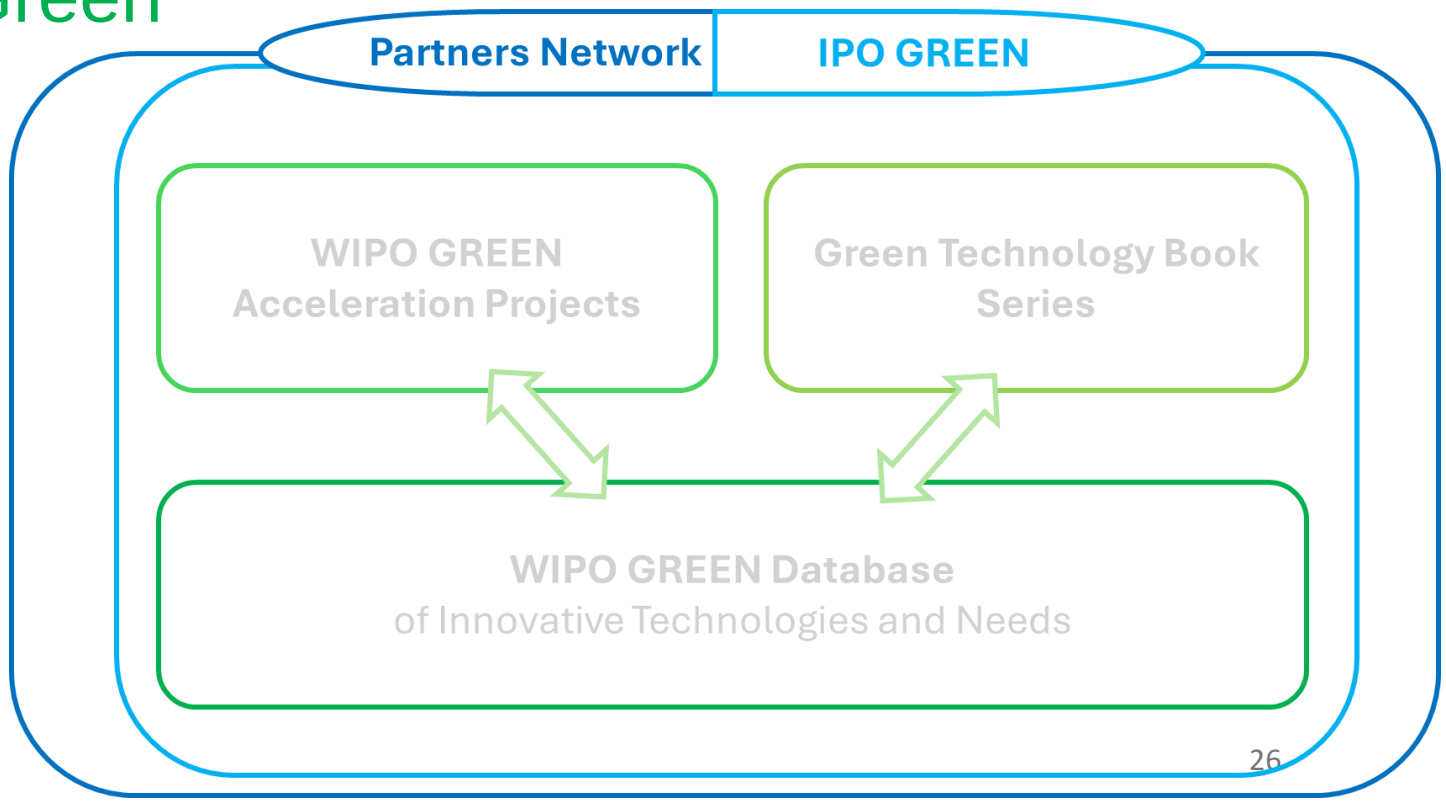
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WIPO GREEN Partners
– unique insight, expertise, and networks

- **Support:** WIPO GREEN partners are public and private sector organizations, research institutions and civil society actors that support our mission.
- **Guide:** To help us achieve our mission, partners are committed to advising WIPO GREEN, including through the WIPO GREEN Advisory Board and the Core Committee.
- **Connect:** Acting as regional or national green tech focal points, our partners connect WIPO GREEN with other strategic actors that can advance its work and maximize its impact in the sector.
- **Collaborate:** Partners collaborate with WIPO GREEN in areas where they can add greatest value, and on mutually beneficial initiatives.
- **Amplify:** To amplify WIPO GREEN's voice, partners promote our activities through their communications channels and networks to increase WIPO GREEN's visibility.

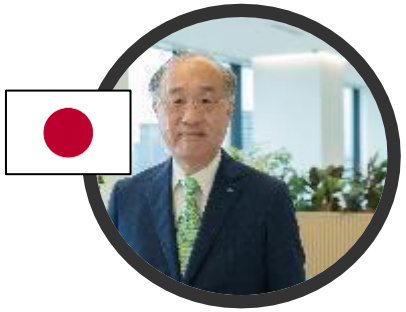
WIPO GREEN Partners in Germany

- **German Patent and Trade Mark Office (DPMA)**
- Leonhard Ventures
- SEED Initiative
- Siemens
- TechnologieAllianz



WIPO GREEN Ambassador Program

The WIPO GREEN Ambassador program was established to promote WIPO GREEN and its relevant initiatives by leveraging the networks of our ambassadors and advocate for sustainable innovation and green technology deployment within their countries and regions.



Mr. Masafumi Yamamoto
Senior Associate Officer
Daikin Industries



Mr. Zou Ling
Chairman
Tianjin TEDA Energy Group

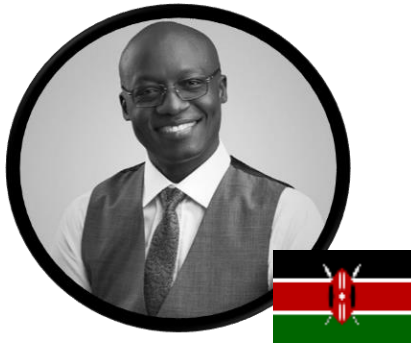


Ms. Angela Pinhati
Chief Sustainability Officer
Natura

Appointed in January 2026



Mr. David Brandes
Chief Executive Officer
Planetary



Amb. Philip Thigo
Special Envoy on Technology
Executive Office of the President of Kenya

IPO GREEN
– Roll out green initiatives to more IPOs

- Launched in 2022 to bring IP Offices together to share their experiences and insights
- 13 concept notes describing green innovation activities that IPOs can embark on
- Recordings of the previous 18 webinars are available here: **Watch the webinars**



Summary

WIPO GREEN connects technology providers and solution seekers and promotes the adoption of green technologies through:

- a global network
- an open access database
- targeted acceleration projects
- publications on green technology (Green Technology Book)
- and the strategic use of intellectual property (IP).

Collaboration and cooperation with partners are essential to realizing WIPO GREEN's vision of driving innovation and implementing climate-smart solutions.

How to engage with WIPO GREEN

Join WIPO GREEN as a **user** and add to the global database of technologies and needs!

- Register through the WIPO GREEN website
- Submit your technology and/or need

Join as a **partner** and engage in acceleration projects, joint publications, and Committees!

- Send us an e-mail and share your interest in applying to become a WIPO GREEN partner.
- We share regular updates with the WIPO GREEN community via e-mail and through our WIPO GREEN LinkedIn page (private group).

WIPO FOR OFFICIAL USE ONLY

WIPO GREEN and Quantum Technology

- **Quantum Computing for Sustainability**
  - Optimization for low energy / less waste
  - Energy systems and grids
  - Supply chains and logistics
  - Material discovery for batteries, etc.
  - Climate simulation and risk analysis
  - Agriculture, food, and water
  - And so on…

- **WIPO GREEN connects innovators and solution seekers and supports the deployment of green technology.**



We invite you to collaborate with us!

Thank you for listening!
Danke fürs Zuhören!



For any questions and inquiries, please contact:

Yoshinari Oyama
Green Technology Liaison Officer, WIPO
yoshinari.oyama@wipo.int