Green Technology Marketplace with the effective utilization of IP

- In the case of WIPO GREEN Initiative

19th November 2020, International workshop on Intellectual Property Management and Technology Transfer

Organized by APCTT-ESCAP, Jointly with LIPI Indonesia

Yorimasa Suwa, PhD, MBA

Senior Researcher, WIPO GREEN/Asia Pacific Industrial Property Center (APIC)
Japan Institute for Promoting Invention and Innovation (JIPII)

Visiting Researcher, Meiji University Center for Polymer Science

Agenda

- Introduction of WIPO GREEN Initiative
  - History, basic structure and the contributions from Japan
  - Case studies of Green technology transfer in WIPO GREEN
- Issues and future expectations for Green technology transfer
  - Aspects from Intellectual Property Rights
  - Further aspects from Open innovation, Patent pool and Standardization
- Final word

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WIPO GREEN – The Marketplace for Sustainable Technology

Historical background

1992	UNFCCC adopted:	“Promotion of the transfer of EST”
1997	COP 3	Kyoto Protocol: Emission of GHG -5% from 1990
2007	COP13	Action Plan in Bali
2010	COP16	Discussion for “Technology mechanism started

JIPA — GTPP Project

WIPO — Global Challenges Division

2010- Collaboration for planning and establishment global Green technology matching system

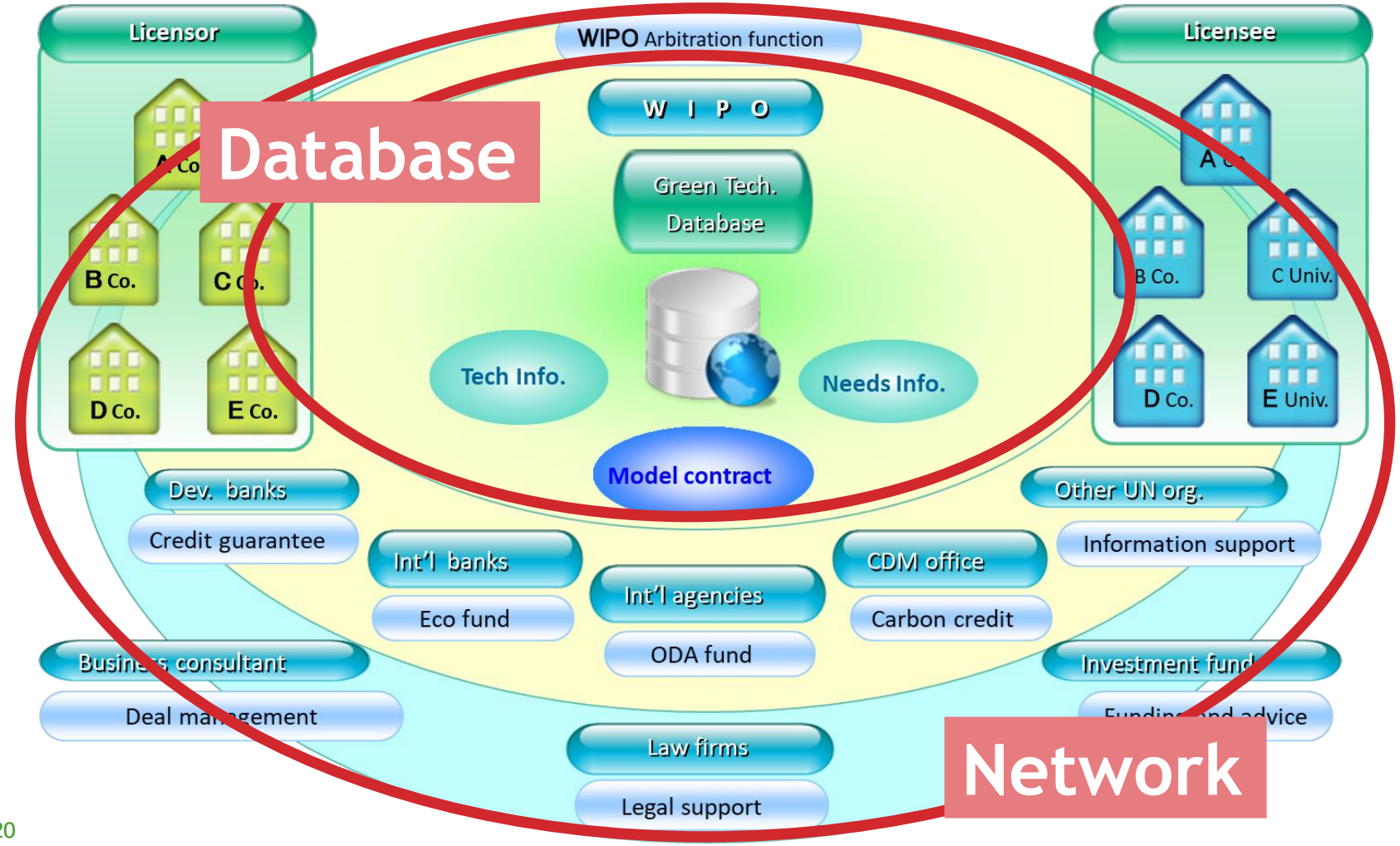
2013/11
Official announcement

WIPO GREEN

At WIPO Headquarter in Geneve, Switzerland
Mr. Shinha, Indian UN Ambassador, Mr, Gurry, General Director of WIPO and Mr. Ueno, Chairman of JIPA

WIPO GREEN – The Marketplace for Sustainable Technology

Basic Structure of WIPO GREEN



WIPO GREEN – The Marketplace for Sustainable Technology

https://www3.wipo.int/wipogreen/en/

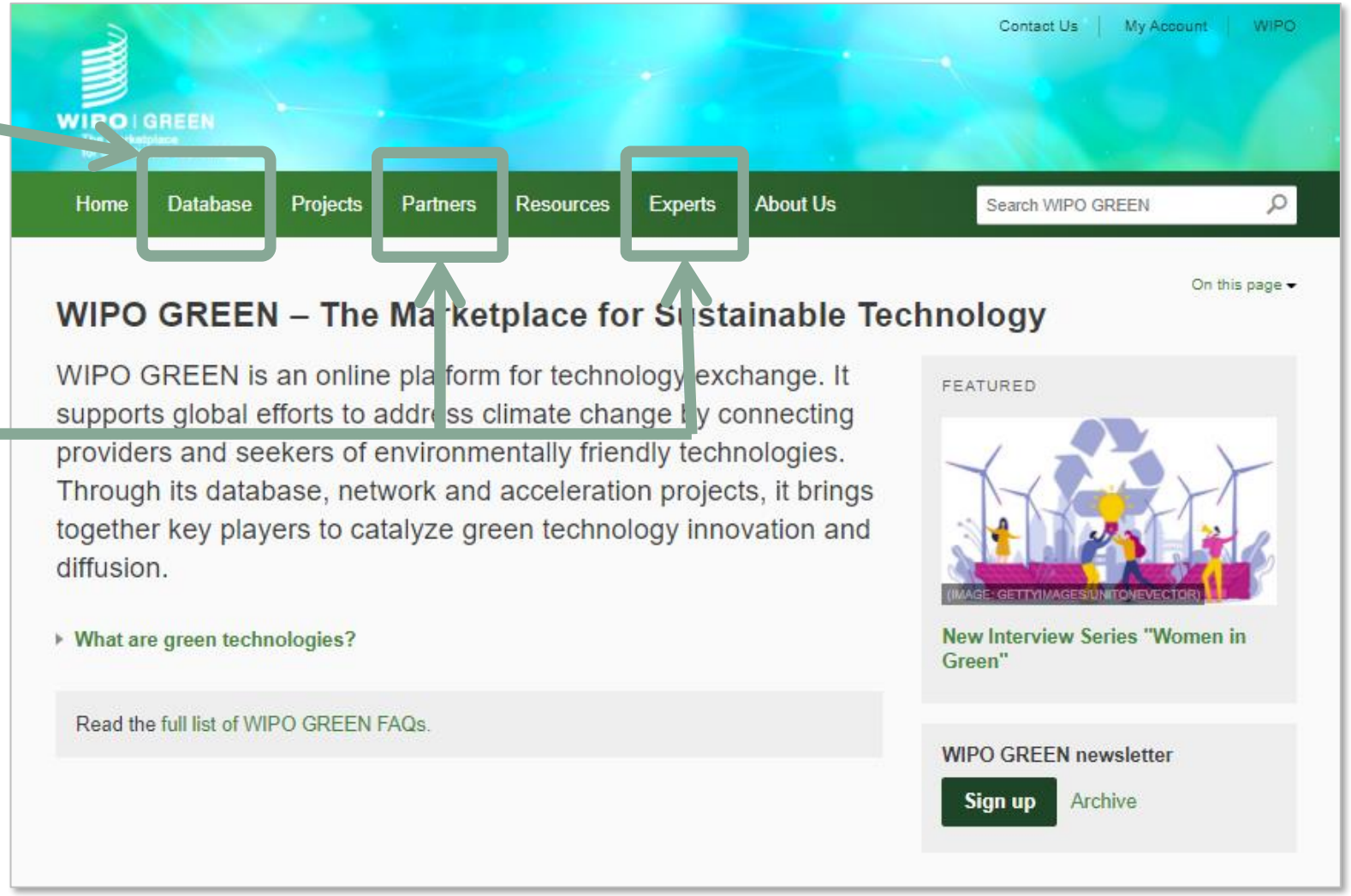
Database

- Technology seeds: 3,046
- Technology needs: 256

(as of November 2020)

Network

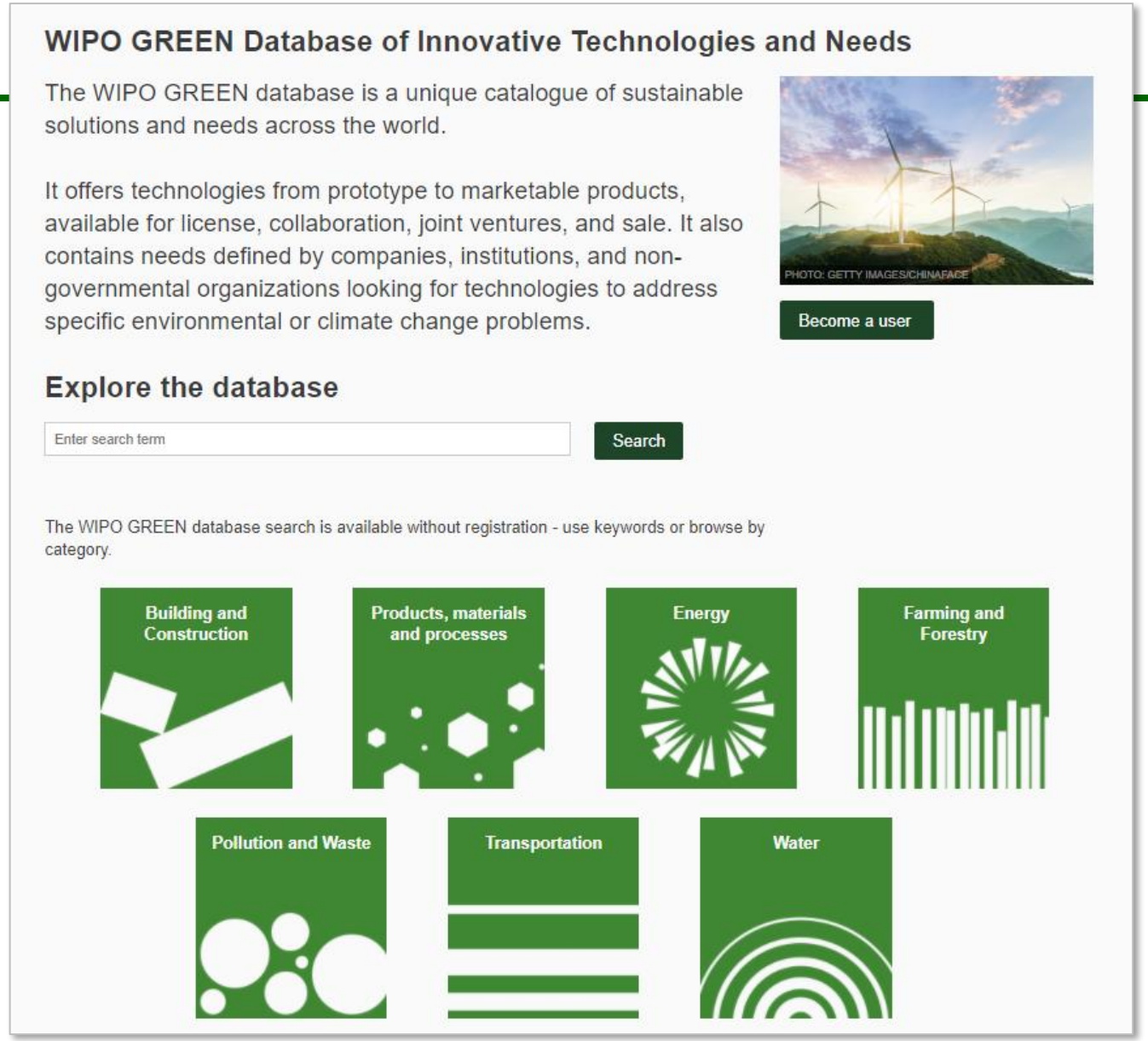
- Network is consisted of Partners and Users (Tech Providers, Tech Seekers, and Experts providing the professional support for technology transfer)
- Currently 115 organizations register as Partners (as of November 2020).



WIPO GREEN – The Marketplace for Sustainable Technology

WIPO GREEN Database

https://www3.wipo.int/wipogreen-database/



Number and category of registered technologies and needs in WIPO GREEN Database (as of November 2020)

- Technologies (3046)
  - Energy (1216)
  - Pollution & Waste (659)
  - Product, materials and processes (515)
  - Farming & Forestry (370)
  - Water (181)
  - Building & Construction (149)
  - Transportation (95)
- Needs (256)
  - Pollution & Waste (47)
  - Energy (37)
  - Farming & Forestry (38)
  - Water (33)
  - Product, materials and processes (10)
  - Building & Construction (10)

List of Partners of WIPO GREEN (115 partners, as of November 2020)

A

- Advance Water Technologies (UK)
- African Agricultural Technology Foundation (Kenya)
- Asian Development Bank (ADB) (Philippines)
- Asia-Pacific Industrial property Center - Japan Institute for Promoting Invention and Innovation (Japan)
- Asia IP Exchange / Hong Kong Trade Development Council (China)
- Association of University Technology Managers (AUTM) (USA)
- Australian CleanTech (Australia)

B

- Bluetech Clean Air Alliance (China)
- Brazilian Forum of Innovation and Technology Transfer Managers (FORTEC) (Brazil)

C

- CambridgeIP (UK)
- Canadian Intellectual Property Office (Canada)
- Canon Inc. (Japan)
- Center for Intellectual Property and Information Technology Law (CIPIT) (Kenya)
- China Technology Exchange (China)
- CleanTechAlps (Switzerland)
- CleanTek Market (Australia)
- Climate-KIC (UK)
- Climate Technology Centre and Network (CTCN) (Denmark)
- Crosstaff Solutions (Canada)

D

- Daicel Corporation (Japan)
- Danish Patent and Trademark Office (Denmark)
- Daikin Industries, Ltd (Japan)

E

- EcoMachines Ventures (UK)
- Engineers without Borders (UK)
- Environment Public Authority (EPA) (Kuwait)

F

Fujitsu Limited (Japan)

G

- G-STIC (Belgium)
- General Electric (USA)
- Ghana Bamboo Bikes Initiative (Ghana)
- GIVEWATTS (Sweden)
- Green Science Alliance Co., Ltd (Japan)
- Green Technology Bank (China)
- Green Technology Center (GTC) (Republic of Korea)

H

- Haier (China)
- Hitachi, Ltd. (Japan)
- Honda Motor Co. Ltd. (Japan)

I

- IBM (USA)
- infoDev (USA)
- Innovation Hub (South Africa)
- Innovation Insights (Switzerland)
- inovent (Turkey)
- Institut National de la Propriété Industrielle (France)
- Instituto Nacional de Propiedad Industrial de Chile (INAPI) (Chile)
- Intellectual Property for Sustainable Energy Ventures (USA)
- Intellectual Property Protection Office (IPPO) (Lebanon)
- International Chamber of Commerce (France)
- International Federation of Inventors' Associations (IFIA) (Switzerland)
- International Federation of Intellectual Property Attorneys (FICPI) (Switzerland)
- International Green Technologies and Investments Center (IGTIC) (Kazakhstan)
- International IP Commercialization Council (China)
- International Trademark Association (INTA) (USA)
- InvenTrust (USA)
- IP Nexus (China)
- IVL Swedish Environmental Research Institute (Sweden)

J

- Japan Intellectual Property Association (JIPA) (Japan)
- Japan Patent Attorneys Association (Japan)
- Japan Patent Office (JPO) (Japan)

K

- Kenya Climate Innovation Center (CIC) (Kenya)
- King Abdullah City for Atomic and Renewable Energy (Saudi Arabia)
- Konica Minolta (Japan)
- Kopernik (Indonesia)
- Korea Technology Finance Corporation (Republic of Korea)

L

- League of Arab States (Egypt)
- Leonhard Ventures (Germany)
- Licensing Executives Society International (LESI) (USA)

M

- Magnefico GmbH (Switzerland)
- The Malawi University of Science and Technology (MUST) (Malawi)
- Meiji University Center for Polymer Science (Japan)
- Moscow State Institute of International Relations (MGIMO) (Russian Federation)

N

- National Institute of Industrial Property (INPI Brazil) (Brazil)
- NEUW Ventures SA (Switzerland)

O

- Moroccan Office of Industrial and Commercial Property (OMPIC) (Morocco)

P

- Panasonic Corporation (Japan)
- Patent Agents Association, India (PAAi) (India)
- Patenterprise Technologies Holding SA (Switzerland)
- PatSnap (Singapore)
- Public Interest Intellectual Property Advisors (PIIPA) (USA)

Q

- Qualcomm (USA)
- Queensland University of Technology (Australia)

R

- R20 Regions of Climate Change Action (Switzerland)
- Reed Exhibitions FZ-LLC (United Arab Emirates)
- Robin Paul Advisory (Malaysia)

S

- Sabanci University (Turkey)
- Sagacious Research Private Limited (India)
- Sathguru Management Consultants (India)
- SEED Initiative (Germany)
- Shiseido Company, Limited (Japan)
- Shobayashi International Patent and Trademark Office (SIPTO) (Japan)
- Siemens (Germany)
- Singapore-ETH Centre for Global Environmental Sustainability (Singapore)
- Solar Impulse Foundation (Switzerland)
- SOLBEN (Mexico)
- Sumitomo Electric Industries, Ltd (Japan)
- Swiss Federal Institute of Intellectual Property (IPI) (Switzerland)

T

- Team E-Kansai (Japan)
- TechnologieAllianz (Germany)
- Technology Development Foundation of Turkey (TTGV) (Turkey)
- Teijin Limited (Japan)
- The Ground_Up Project (Switzerland)
- Tianjin TEDA Energy Group Co., Ltd. (China)
- Toilet Board Coalition (Switzerland)
- Toyo Aluminium Ekco Products Co., Ltd. (Japan)
- Toyota Industries Corporation (Japan)
- Toyota Motor Corporation (Japan)

U

- United Nations Environment Programme (UNEP) (Kenya)
- United Nations Global Compact (UNGC) (USA)
- United Nations Industrial Development Organization (UNIDO) (Austria)
- United Nations Office for South-South Cooperation (UNOSSC) (USA)

V

- Villgro (India)
- VisionEdge Technologies (Singapore)
- Vaultitude (former IPCHAIN) (UK)

W

- Waseda University Environmental Research Institute (Japan)
- Waterpreneurs (Switzerland)
- World Business Council for Sustainable Development (Switzerland)

Japanese organizations which have registered their Green technologies to WIPO GREEN Database (as of November 2020)

Large companies

- Honda Motor Co., Ltd.
- Hitachi, Ltd
- FUJITSU LIMITED
- TEIJIN LIMITED
- TEIJIN Frontier Co., Ltd
- JGC Corporation
- Swing Corporation
- Panasonic Corporation
- Sony Corporation
- SHARP Corporation
- IHI Enviro Corporation
- JAG Seabell Co., Ltd.
- Chugoku Electric Power Co., Inc.
- Mitsubishi Chemical Aqua Solutions Co., Ltd.
- Mazda Motor Corporation
- Konica Minolta
- DAICEL CORPORATION
- Nissan Motor Co., Ltd.
- Canon Inc.
- Toshiba Corporation
- Shiseido
- Toyo Aluminum Eco Products Co., Ltd.
- Toyota Industries Corporation
- Toyota Motor Corporation
- JX Nippon Mining & Metals Corporation

Universities

- Okinawa Institute of Science and Technology Graduate University
- Meiji University Center for Polymer Science

SMEs

- Waseda Environmental Institute Co., Ltd.
- Quantum Design Japan, Inc.
- Technoplan Inc.
- Jtop Co., Ltd.
- HINODE SANGYO Co., Ltd.
- OSMO Co., Ltd
- Totetsu MFG Co.
- Optex Co., Ltd.
- International Environmental tech-Research Co., Ltd
- Eternal Vision Inc.
- Green Science Alliance Co., Ltd.

Japanese organizations which have registered as Partners of WIPO GREEN (as of July 2020)

Public and experts organizations

- Japan Patent Office (JPO)
- Team e-Kansai
- Japan Intellectual Property Organization (JIPA)
- Japan Institute for Promoting Invention and Innovation (JIPII)
- Japan Patent Attorneys Association (JPAA)

Universities

- Meiji University Center for Polymer Science
- Waseda University Environmental Research Institute

Companies

- Teijin Limited
- Fujitsu Limited
- Canon Inc.
- Daikin Industries, Ltd
- Daicel Corporation
- Hitachi, Ltd.
- Honda Motor Co. Ltd.
- Konica Minolta
- Panasonic Corporation
- Toyota Industries Corporation
- Shiseido Company, Limited
- Toyo Aluminum Eco Products Co., Ltd.
- Toyota Motor Corporation
- Green Science Alliance Co., Ltd

Green technology needs searching and matchmaking project in WIPO GREEN from 2014

- Supported by IP offices of Japan, Australia, or French each year
- Two or three technology field, such as water treatment, agriculture, clean energy, each year
- Specified to two or three countries in Asia or Africa each year

In the case of 2018,

- Technology fields: Energy, water agriculture
- Geographical areas: Indonesia, Cambodia and the Philippines
- Around 40 new needs were identified
- Matchmaking event was held at ADB Headquater in Manilla and around 80 stakeholders joined
- 7 LOI were exchanged, including one between Japanese water treatment company with a NGO that works in Cambodia.

My activity in WIPO GREEN

- JIPII actively joins the dialogues at Advisory Board Meeting for improving WIPO GREEN and constitutes the network of Japanese stakeholders in Green-tech developers and Tech-transfer experts to disseminate WIPO GREEN in Japan.
- JIPII also promotes WIPO GREEN to Japanese SMEs and Universities and increase the number of excellent technology seeds in the database. It also introduces the Green-tech needs of developing countries to Japanese stakeholders, promotes the users' matchmaking, and supports their information exchange.

Participation in WIPO GREEN side event at the 22nd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 22, 2016, Marrakesh)

Paticipation in matchmaking events
Kenya Climate Innovation Center in Nairobi, 2016

Paticipation in matchmaking events
Asian Development Bank in Manila, 2018

https://www.jpo.go.jp/e/news/kokusai/green.html

Meiji University Center for Polymer Science, a Partner of WIPO GREEN, has registered 11 Green technologies to the database

Green Materials 1: Gas barrier for food packaging and carbonated drink bottles

The production of beverage bottles must shift from using petroleum-ba carbon-neutral plant-based plastics to reduce carbon dioxide (CO2) er acid (PLA), a plant-based plastic, has received wide interest for this pu huge amounts of polyethylene terephthalate (PET), a petroleum-base

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Green Materials 2: Plastic films and additives for food packaging

The problem of food loss/food waste has become an important global i resolved to reduce environmental impact and ensure sustainable food consumption. Sustainable management and efficient use of natural res implemented to reduce waste generation by recycling. The use of plast polysaccharides ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 1: Carbon Dioxide Separation

This study investigated the polymer membranes used in carbon dioxide Carbon dioxide capture and storage (CCS) is a process of separating a emitted from large-scale CO2 sources, such as industrial plants, and st or ocean. CCS is a CO2 reduction countermeasure. However, this proc

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 2: Hydrogen Separation

This study investigated the polymer membranes used in hydrogen (H2 that H2 does not generate carbon dioxide (CO2) during combustion, it source unlike conventional fossil fuel resources. Its utilization as an en generating wide interest. H2 has a wide variety of emission sources, su

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 3: Methane Separation

This study investigated the polymer membranes used in methane (CH4) separation. Natural gas recovered from natural gas fields mainly contains CH4 and low concentrations carbon dioxide (CO2) and water. Therefore, a technique that can selectively remov concentration gases from natural gas is warranted. The separation environment for ...

- **Last updated:** 7月 29, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 4: Oxygen-rich Air Production

Oxygen (O2) concentration during waste incineration must be improved to save on e consumption and mitigate global warming. O2 in the atmosphere is burned during w incineration. However, most of the atmosphere is made up of nitrogen (N2), which is gas. N2 is discharged outside the incineration facility to retain heat. Therefore, th ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 5 Nitrogen-rich Air Production

Gas packaging is generating wide interest because it enables long-term food storag without using chemical preservatives. In particular, nitrogen (N2)-enriched air is wide as a food-filled gas for maintaining the biological activity of fresh food and preventing oxidation of processed food. N2 gas is produced via several methods. Cryogeni ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 6: BTX Vapor Separation

Chemicals are extensively used in various industries. Chemicals are important to im our standard of living. However, disposal of hazardous chemical substances, such a volatile organic compounds, halogen substances, and heavy metals, is a serious environmental problem. Several countries have laws and regulations in place to address this issue. ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 7: Bio-Ethanol Separation

Our planet is facing severe environmental problems, such as air pollution and depletion of fossil fuel resources. In view of these circumstances, bioethanol, which comes from plants, has attracted wide interest as an environmentally friendly energy resource. Bioethanol is concentrated in the manufacturing process via distillation. However, distilla ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 8: Bio-Ethanol Vapor Separation

Interest on bioethanol as an alternative to fossil fuels has increased to reduce our dependence on fossil fuels and mitigate global warming. Japan has set the target of producing 500, 000 kL of bioethanol annually. This figure is about twice of that in 2011. Currently, the demand for bioethanol is increasing. In bioethanol production, bioethanol mu ...

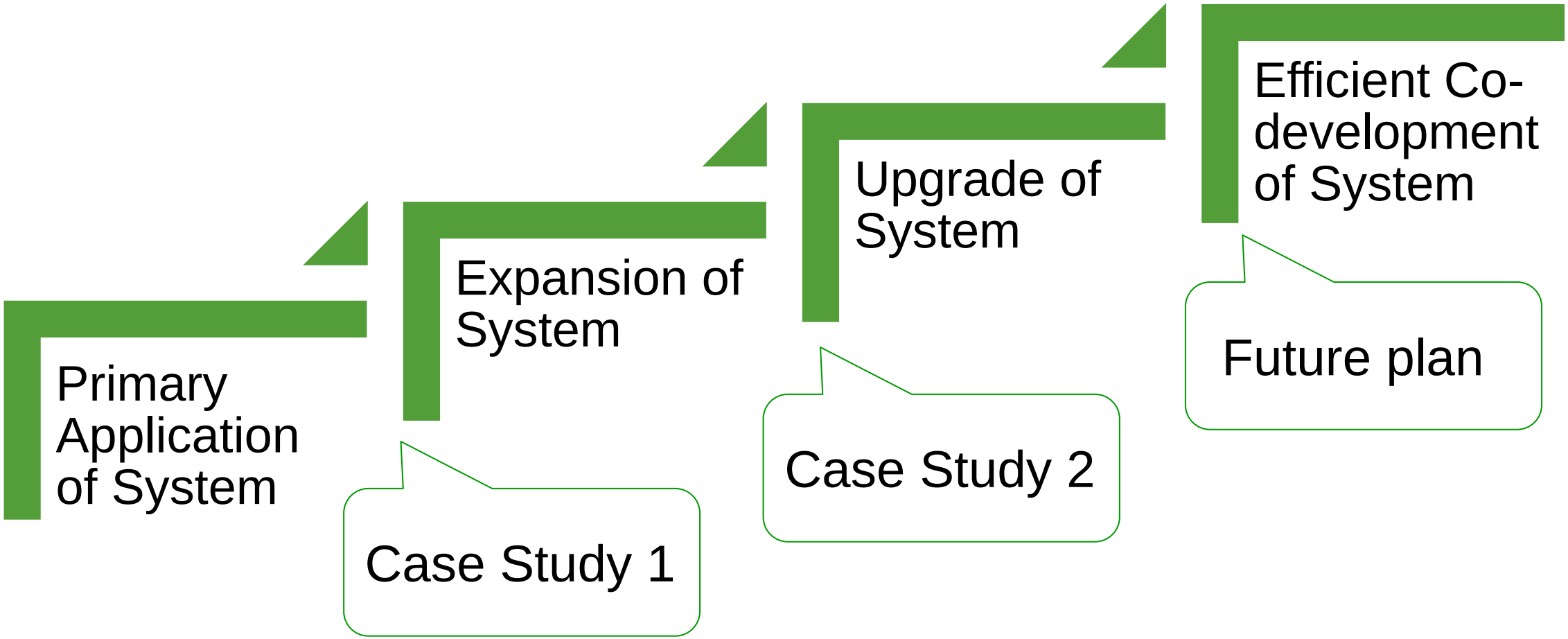
- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Membrane Separation Technology 9: Dissolved-Oxygen Separation from Water

Oxygen (O2) and carbon dioxide (CO2) concentrations in water affect freshwater and marine organisms, such as plankton, fishes, and shellfishes. In recent years, ocean acidification has been identified as another serious result of acid rain. This phenomenon is known to cause red tide and kills marine life. Ocean acidification also results from the a ...

- **Last updated:** 6月 23, 2020
- **Submitted by:** Meiji University Center for Polymer Science

Stages for Green technology transfer



Case study in WIPO GREEN -1: Improving rural electricity access in underserved areas

- Okra Solar, a smart micro-grid technology provider in Cambodia, connected with French NGO Entrepreneurs du Monde at the WIPO GREEN Southeast Asia Matchmaking Event and are now collaborating on a project to improve electricity access in rural Cambodia. Entrepreneurs du Monde has already distributed solar power systems equipped with a pay-as-you-go mechanism to at least 60 households in Cambodia. With support from partners like Entrepreneurs du Monde, Okra smart micro-grids have been successfully rolled out in over 100 Cambodian households, with average uptime of over 98%.
- Okra & Entrepreneurs du Monde also won the grand prize at the 2018 IEEE Empower a Billion Lives regional finals, a global competition that promotes innovative solutions for improved electricity access, organized by the Institute of Electrical and Electronics Engineers (IEEE).

https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1058_2018.pdf

Case study in WIPO GREEN -2: Possibility of the remote sensing system for Water Kiosk

- Teuk Saat 1001, partner of the French “1001 Fontaines” NGO, is a Cambodian registered NGO acting as a non-profit social enterprise that supports community access to safe drinking water with its water-filtration plants through local franchisees in rural Cambodian villages. Teuk Saat was seeking to connect their water filter devices on site with GPRS signal, thus would enable them to transmit water conditions remotely.
- Wellthy Co. had already registered its water treatment system in WIPO GREEN DB. Their decentralized water treatment & supply system has a capacity to produce approximately 50 - 2,000m³/day of water and is equipped with a remote monitoring system. Compared to massive water works, their system needs less initial cost for installation and less energy cost and has low risk of water contamination due to minimum pipeline length from the system.
- At the matchmaking event in Manila, I made the support for exchanging Letter of Intent (LOI) among Teuk Saat 1001, Kopernik, a consulting organization in Indonesia, and Wellthy Co..

New Director General of WIPO refers to their mission for facilitating innovation.

- “Our mission is to help support and facilitate innovation and creativity for the benefit of all people and the countries that we represent.”
- “One of my key priorities is to ensure that the global IP system is vibrant and forward-looking, helping to find solutions that address the global challenges of our times.”
- The Director General also emphasized the role of WIPO’s green technology matchmaking initiative WIPO GREEN, that seeks to facilitate the engagement of young people in the development and dissemination of green technology.

https://www3.wipo.int/wipogreen/en/news/2020/news_0042.html

WIPO Director General Opens Online Seminar on Youth Engagement in Green Innovation

November 12, 2020

Young people are particularly engaged in efforts to promote sustainable lifestyles and take action on developing and implementing environmentally friendly practices, WIPO Director General Daren Tang said in opening WIPO GREEN webinar on youth engagement.

The webinar *Walk the Talk: Best practices and empowerment strategies for youth engagement in green innovation*, held by WIPO GREEN on Thursday, November 12, 2020, gathered 250 registered participants and 10 expert speakers.

In welcoming the participants, Mr. Tang extended a special welcome to the young innovators attending the event and highlighted the innate drive to innovate as one of the defining features of humanity.

Agenda

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Various aspects on the contribution of IPR (Patents) to Green technology transfer

Access to existed patents

- Support for easy access to Green patents
- Efficient Licensing agreement

Co-development of new patents

- Improvement of IP system
- Development of IP awareness

Expansion of patented technology

- Patent pool for Green technology
- Standardization of Green technology

Support on licensing matters for the stakeholders in the developing countries in WIPO GREEN

WIPO GREEN Licensing Checklist

The WIPO GREEN Licensing Checklist PDF is designed for those involved in negotiating technology transfer licensing agreements. It provides a checklist of key issues which should be considered when negotiating and concluding such contracts.

The checklist is not an exhaustive resource; rather it helps provides an overview, as well as links to further information.

Part I

Part I addresses the most relevant items to be considered when concluding a licensing agreement:

- Section 1 is about the kind of agreement you are negotiating.
- Section 2 is about the subject matter of the agreement, e.g. the nature of the agreement, the technology involved, which type of IP is relevant to your project.
- Section 3 is about your rights as a licensee.
- Section 4 is about the financial terms.
- Section 5 is about concluding contract clauses, such as how the agreement can be terminated, how disputes will be addressed, how to interpret the agreement, etc.

Part II

Part II addresses issues which concern development collaborations specifically.

Resources and references

A list of resources and references presents a selection of links to further information.

Note: The WIPO GREEN Licensing Checklist is neither exhaustive, nor is it a substitute for professional legal advice. You are encouraged to adapt the checklist to your own needs or concrete projects. The Checklist is published as a draft for consultation. Please contact us with any feedback.

Human Resource Development training program for IP by Japan Patent Office

- Asia-Pacific Industrial Property Center (APIC) has been established from 1996 for developing human resources in the developing countries in Asia-Pacific, Africa and South America region under the supervision and support of Japan Patent Office (JPO).
- APIC offers sophisticated training programs derived from its long-time experience and requests of past participants of training courses. APIC also offers facilities that help training participants and long-term fellowship researchers to study and research.
- I have been working as the supervisor of the research of the long-term researchers from 2015.

Titles of the Final Report of the researchers of JPO Long-term Research Fellowship Program in FY 2019

Thailand

Name: Ms. Chayaknit Kanchanakaroon

Organization (at the time of fellowship): Department of Intellectual Property (DIP), Thailand

Thesis: Enhance the Trademark Examination Procedure and Evaluating the Possibility Similar Group Code in Thailand (PDF:549KB)

Thailand

Name: Mr. Thinet Saktrakun

Organization (at the time of fellowship): Department of Intellectual Property (DIP), Thailand

Thesis: Quality Management on trademark examination in Japan (PDF:916KB)

Argentina

Name: Mr. Alejandro Javier Cafiero

Organization (at the time of fellowship): Universidad Nacional de La Plata (UNLP)

Thesis: Considerations towards the adoption of the Patent Cooperation Treaty (PCT) in Argentina - Learning from the awareness and pro-motion of the PCT in Japan (PDF:1,418KB)

Vietnam

Name: Mr. Duong Thanh Long

Organization (at the time of fellowship): IP Attorney

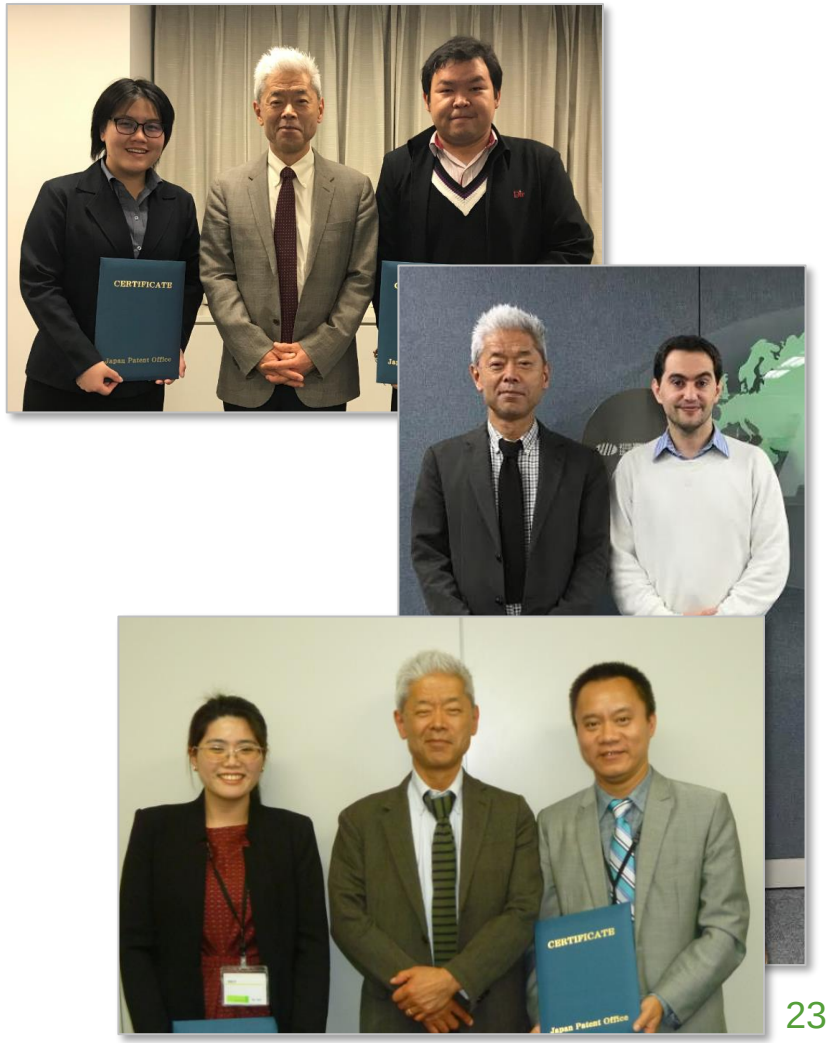
Thesis: Impacts of National Patent Strategies and Policies toward Corporate Attitude and Investment in Patent Activities of Pharmaceutical Industry — Experience from Japan (PDF:2,173KB)

The Philippines

Name: Ms. Anthea Kristine Y. Paculan

Organization (at the time of fellowship): Intellectual Property Office of the Philippines

Thesis: Construing Patentability of Chemical Technology Inventions, with Focus on their Patent Eligibility and Industrial Applicability: A Comparison on the Patent Examination Approach in the Philippines and in Japan (PDF:1,190KB)



https://www.jpo.go.jp/e/news/kokusai/developing/training/thesis/index.html

The final report of the long-term research fellow from DGIP Indonesia 2016

JPO STUDY-CUM-RESEARCH FELLOWSHIP PROGRAM FOR FY 2016

FINAL REPORT

Intellectual Property Rights for Medicinal Plants

Alizar
Directorate General of Intellectual Property (DGIP)
Ministry of Law and Human Rights
Republic of Indonesia

Supervised by
Dr. Yorimasa Suwa, Senior Researcher, APIC, JIPII

Advisers
Professor Koichi Sumikura
National Graduate Institute for Policy Studies (GRIPS)

Associate Professor Tetsuya Imamura
Meiji University

In Coordination with
Asia-Pacific Industrial Property Center (APIC)
Japan Institute for Promoting Invention and Innovation (JIPII)

August 28, 2016 – December 28, 2016

Cases of Japanese company which supports WIPO GREEN by decreasing IP barriers

Daikin Industries, Ltd ~Introduction of patent non-assertion pledge for equipmant using R-32 refrigerant ~

R-32 refrigerant, can reduce about 75% of total global warming impact comparing to conventional refrigerants, R-22 and R-410A, as R-32 has a lower GWP and could reduce refrigerant charge. It is also easy to recycle so that it could contribute to the realization of sustainable society.

Daikin has selected R-32 as the most appropriate refrigerant for residential and commercial air-conditioners. In 2012, Daikin launched the world's first R-32 residential air-conditioner. Then, Daikin provided free access to 93 of R-32 equipment patents in order that all manufactures can make and sell R-32 air-conditioner. For some emerging countries, Daikin has conducted technical training together with United Nation's organizations and governments. In July 2019, Daikin announced non-assertion pledge for about 180 of R-32 equipment patents. Daikin listed these patents on the WIPO GREEN database to make R-32 more widely available so that climate impact could be mitigated further.

https://www.jpo.go.jp/e/news/kokusai/green.html

Example of a project collaborated with emerging country governments and international organizations in Thailand

Project Launch Ceremony for technical training with Thai government

Technical training

Examples of the technology registration of Fujitsu Limited to WIPO GREEN database

- Over 600 registrations in 3 years
- Registration is linked to each patent.
- Registrations are categorized by expected products.

City Evaluation 13 - ESTIMATING APPARATUS, ESTIMATING METHOD, AND NON-TRANSITORY COMPUTER-READABLE RECORDING MEDIUM

An estimating apparatus calculates a correlat
respect to second time-series data on a basis
first indices and the second time-series data
estimates an index having a causality relation

- **Last updated:** 10月 25, 2018
- **Submitted by:** Fujitsu Limited

City Evaluation 12 - ESTIMATING APPARA TRANSITORY COMPUTER-READABLE RE

An estimating apparatus calculates a correlat
respect to second time-series data on a basis
first indices and the second time-series data
estimates an index having a causality relation

- **Last updated:** 10月 25, 2018
- **Submitted by:** Fujitsu Limited

City Evaluation 11 - ESTIMATING APPARA TRANSITORY COMPUTER-READABLE RE

An estimating apparatus calculates a correlat
respect to second time-series data on a basis
first indices and the second time-series data
estimates an index having a causality relation

- **Last updated:** 10月 25, 2018
- **Submitted by:** Fujitsu Limited

City Evaluation 10 - POPULATION PROJE PROJECTION APPARATUS

In a population projection apparatus, a memo
components in each year within a first period.
equations each representing a relationship be
relative to a population and an elapsed time p

- **Last updated:** 10月 25, 2018
- **Submitted by:** Fujitsu Limited

Wireless power supply 18 - MAGNETIC RE

A communication unit (16) receives informatio
the highest-priority power receiver, which has
a plurality of power receivers in a region in wh
when power is supplied to power receivers to

- **Last updated:** 2月 27, 2020
- **Submitted by:** Fujitsu Limited

Wireless power supply 20 - MAGNETIC RE

A communication unit (16) receives informatio
the highest-priority power receiver, which has
a plurality of power receivers in a region in wh
when power is supplied to power receivers to

- **Last updated:** 2月 27, 2020
- **Submitted by:** Fujitsu Limited

Wireless power supply 21 - POWER SOUR SYSTEM, AND POSITIONAL INFORMATIO RECEIVER

A power transmitter has: a power transmissio
power receiver by using magnetic field resona
transmission control unit for controlling the po
detection unit for detecting the power receiver

- **Last updated:** 2月 27, 2020
- **Submitted by:** Fujitsu Limited

Wireless power supply 23 - WIRELESS PO TRANSMITTER, AND POWER TRANSMISS

The present invention provides a wireless pov
power transmitting method, which are capable
power feeding system includes a power transi
a plurality of power receivers respectively having secondary-side resonant ...

- **Last updated:** 2月 27, 2020
- **Submitted by:** Fujitsu Limited

Fuel Cell 27 - FUEL CELL UNIT, AND MANUFACTURING METHOD THEREOF

"The fuel cell unit 10 is provided with a fuel space 12 and an oxidant space 13 which are arranged around a column-like hollow part 11 and form a double helix, and a first cell 14 of a helical shape forming one boundary of these spaces and a second cell 15 of a helical shape forming the other boundary. The first cell 14 has a first fuel electrode l ...

Last updated: 11月 14, 2018
Submitted by: Fujitsu Limited

Fuel Cell 26 - Fuel cell system and method of controlling same

"A fuel cell system includes a fuel cell configured to generate electric power with a fuel gas and an oxygen gas fed to the fuel cell and to discharge exhaust gas including CO_2 as a result of generating the electric power; a CO extraction part configured to reduce the CO_2 in the exhaust gas fed to the CO extraction part to CO, the CO extraction par ...

Last updated: 11月 13, 2018
Submitted by: Fujitsu Limited

Fuel Cell 25 - Fuel cell system and method of controlling same

"A fuel cell system includes a fuel cell configured to generate electric power with a fuel gas and an oxygen gas fed to the fuel cell and to discharge exhaust gas including CO_2 as a result of generating the electric power; a CO extraction part configured to reduce the CO_2 in the exhaust gas fed to the CO extraction part to CO, the CO extraction par ...

Last updated: 11月 13, 2018
Submitted by: Fujitsu Limited

Fuel Cell 24 - FUEL CELL

"The gas permeability of an air electrode gas diffusion layer of a region B is set lower than that of the air electrode gas diffusion layer of a region A, wherein an average distance from an air electrode surface to the center of a gas exchange opening is L, an air electrode region of which a distance from the gas exchange opening exceeds L is regi ...

Last updated: 11月 13, 2018
Submitted by: Fujitsu Limited

Fuel Cell 23 - FUEL CELL

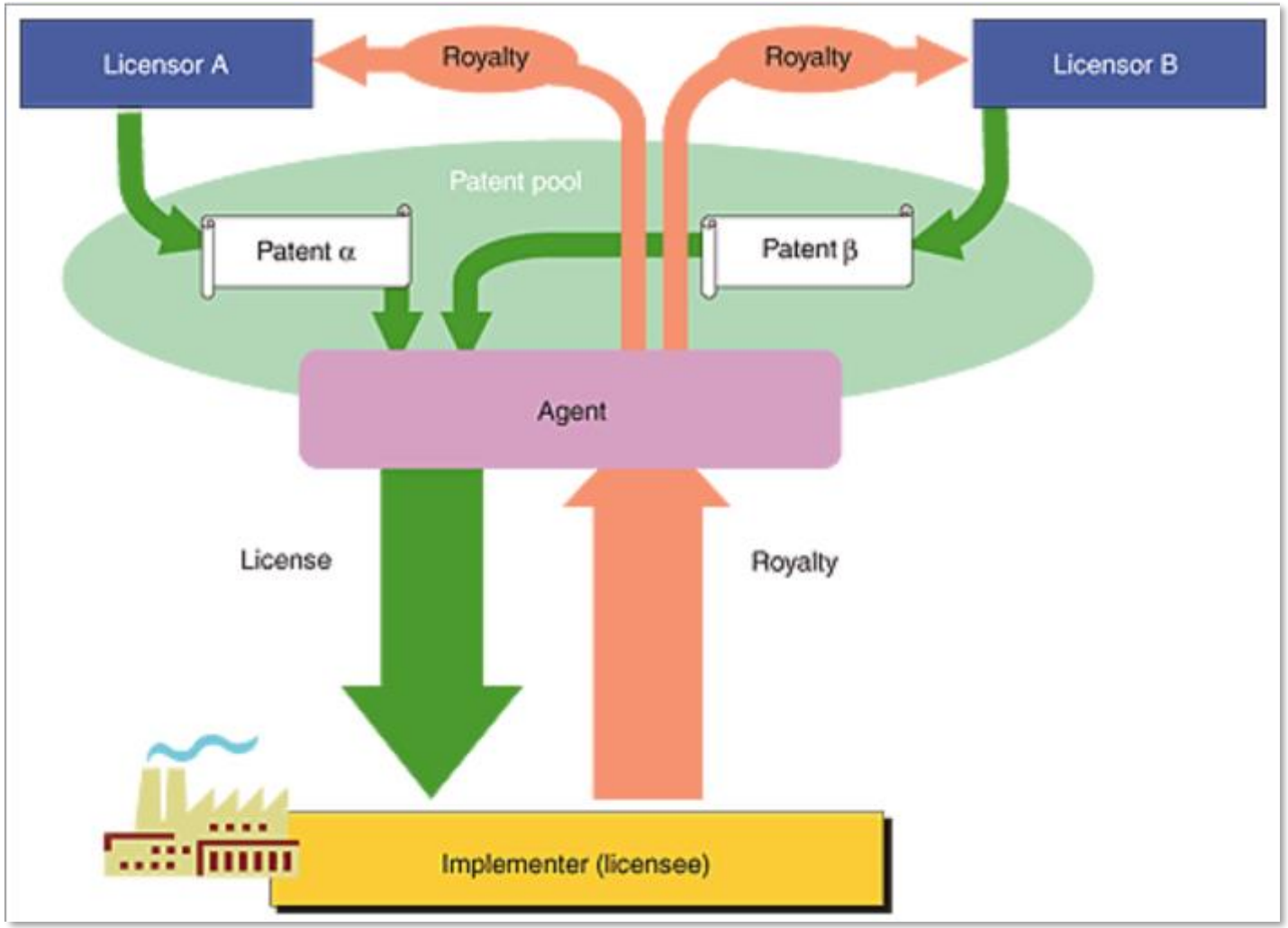
part 5 correspondingly to one or more of the unit cells and at least a pair of open mouths 8 which are provided on each of the divided air chambers 6 and

Last updated: 11月 13, 2018
Submitted by: Fujitsu Limited

Comments from IP division of Fujitsu on the effects of registering their technologies to WIPO GREEN

- Registering our patents to WIPO GREEN Database with the categorization of their finalized product, our researchers became possible to understand their contributions to the environment through what type of products. I suppose that it inspired the researchers and increase their motivation.
- After we registered our technologies with the categorization, a lot of inquiries through WIPO GREEN, several tens in a year, come to us.
- Even for low level technology needs, such as the quality management of coffee beans in Indonesia, we received the proposal from our researcher in that he pointed out the possibility of new quality management system by using the image data sent through the mobile phone.
- We and the members of JIPA is now considering on the possibility of “Patent pool” in the field of Environmental technologies.

Patent licensing through “Patent pool”



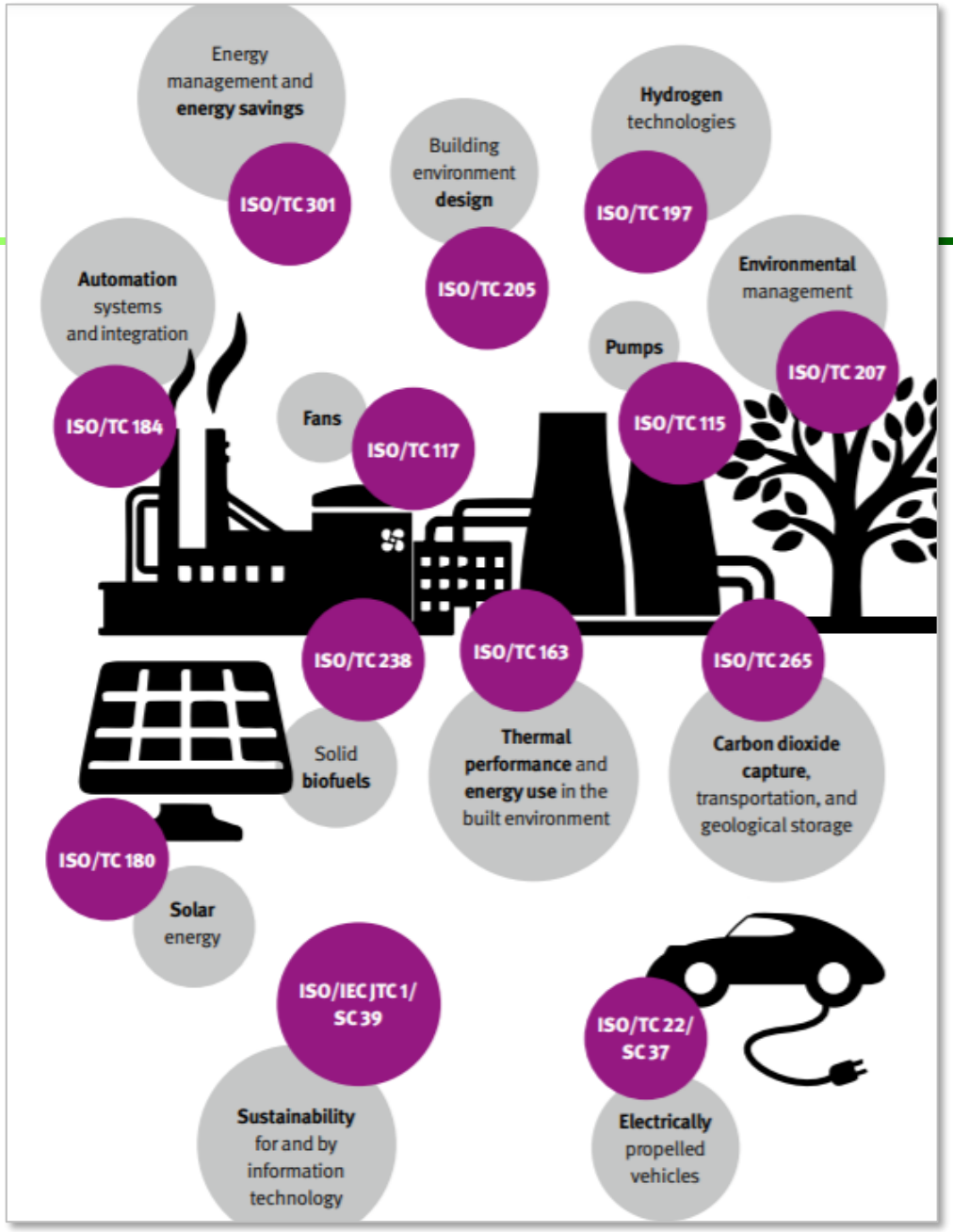
Ref. https://www.ntt-review.jp/archive/ntttechnical.php?contents=ntr200707gls.html

Standards and patents

- Standards are essential for the wide adoption of new technologies in the marketplace. The potential for conflict between patents and standards arises when the implementation of the standard necessitates the use of technology protected by one or more patents. If a patent owner can block the implementation of the standard by refusing a license or claiming unreasonably high royalties, this would obviously be against the objective of the technical standardization process.
- In order to minimize this risk of conflict and to assure a smooth and wide dissemination of standardized technology, most standard setting bodies (SSBs) have established their own patent policy. If any relevant patent (or patent application) exists, many SSBs require the patentee to agree on specific licensing conditions, such as that the license must be granted under reasonable and non-discriminatory terms (RAND license) or that the license must be royalty free (RF).
- One way to address the situation where different patentees own a number of patents relevant to the standard is to set up a patent pool. Typically, a pool enables participating patentees to use the pooled patents, provides a standard license in respect of the pooled patents for licensees who are not members of the pool, and allocates to each member of the pool a portion of the licensing fees in accordance with the agreement.

Standardization relating to Green technologies

- In addition to the ISO TCs in the figure, ISO/TC61 Plastics recently established a new SC14 Environmental aspects. It is composed of the following five WGs and makes a lot of liaisons with the other TCs.
- WG1 Terminology
- WG2 Biodegradability
- WG3 Biobased plastics
- WG4 Characterization of plastics leaked into the environment (including microplastics)
- WG5 Mechanical and chemical plastics



https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100320.pdf

Agenda

- Introduction of WIPO GREEN Initiative
  - History, basic structure and the contributions from Japan
  - Case studies of Green technology transfer in WIPO GREEN
- Issues and future expectations for Green technology transfer
  - Aspects from Intellectual Property Rights
  - Further aspects from Open Innovation, Patent pool and Standardization
- Final word

Final word:

- WIPO GREEN is a flexible global network for accessing Green technology including that for clean energy from both of the developing and developed countries. It has been getting some outcomes, but there are some more considerations needed.
- Various aspects from the Intellectual Property rights and systems are quite essential in how the technologies will contribute to the society. I strongly hope that the stakeholders in Asian countries will work together with us in this field.
- Currently, I and my colleagues in MEIJI University are preparing the International Symposium “Green Technology Marketplace 2021”, which focuses on WIPO GREEN and will be held virtually on Friday 15th January next year. It will be very much appreciated if you would be interested with WIPO GREEN and also this symposium.

Please join our International Symposium online, "Green Technology Marketplace 2021" on 15th January.

Programs

15:00-15:05: Opening remarks by Kazukiyo Nagai Moderator: Kenta Hagiwara

15:05-15:20: Keynote speech by Yuki Shimizu (Japan Patent Office)

First session
Development situation of environmental technology in Japan and Asia

15:20-15:40: Kazukiyo Nagai "Development situation of environmental technology in Japan, when focusing on the polymer science"

15:40-16:20: Er. Tan Seng Chuan (FEIAP, IES) "Spreading best practice in environmental technology in the Asian region"

Second session
Effective use of WIPO GREEN to promote overseas transfer for environmental technology of Japan

16:20-16:40: Yorimasa Suwa "Overview of WIPO GREEN and contribution by Japan"

16:40-17:00: Eiji Komatsu and Kenichiro Yanagi "Open innovation model using WIPO GREEN"

Break: 15 minutes

Third session
Panel discussion Moderator: Yorimasa Suwa

17:15-17:45: Ms. Marion (Amy) Dietterich (WIPO) "Outlook on the future WIPO GREEN and our expectations for Japan"

17:45-18:25: Panel discussion on the subject of "Promotion of overseas transfer for environmental technology of Japan" in which all speakers will participate.

Thank you for your attention.

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