

# WIPO GREEN driven Open innovation model using; global warming as a challenge for innovation

## WIPO GREENを活用したオープンイノベーションモデル

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# Presentation Outline



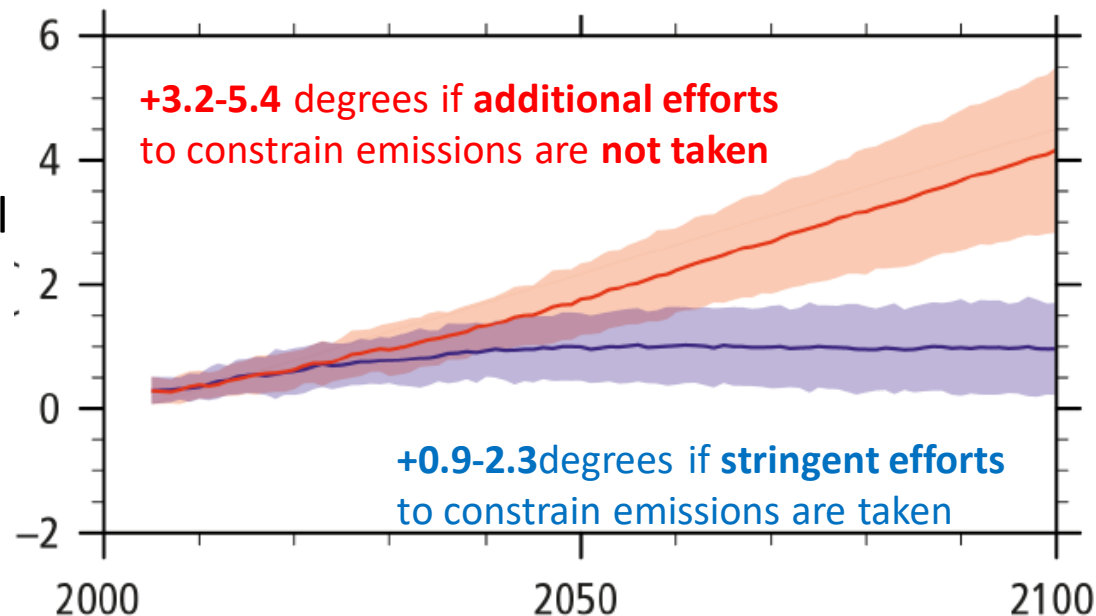
1. Background and objective
2. Current Innovation Policy for Climate change
3. Innovation model for global warming

# Climate Change Fact 気候変動のファクトチェック (IPCC, AR5(2014), SP(2018))

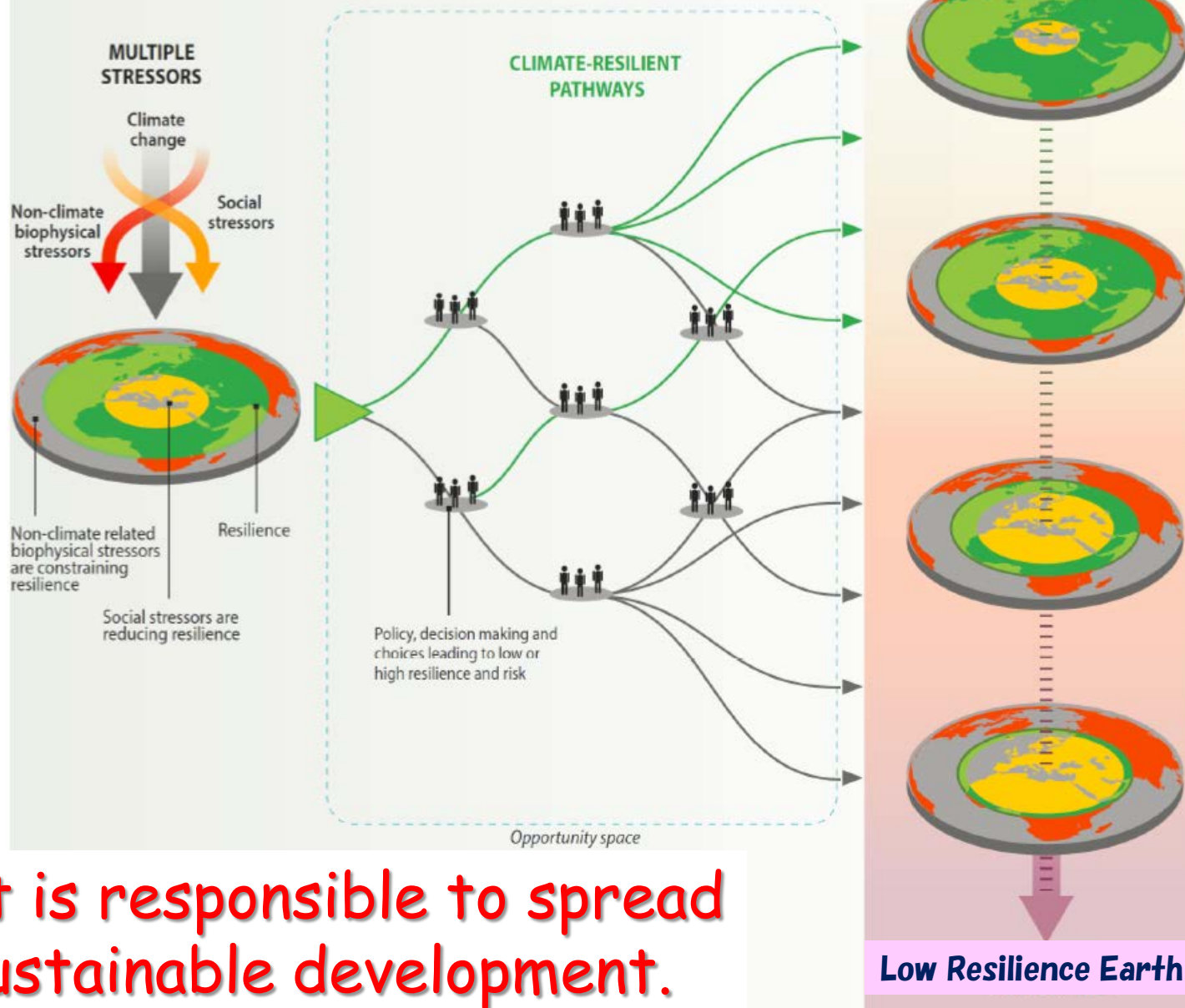
- Increase in temperature by the end of the 21st century, is likely to be: +3.2-5.4 degrees if additional efforts to constrain emissions are not taken +0.9-2.3 degrees if stringent efforts to constrain emissions are taken
- Substantial cuts in greenhouse gas emissions over the next few decades is crucial. It will lead to substantial reduction in climate risks in the latter decades of the 21st century and beyond.

- Mitigation pathways likely to maintain warming below 2 degree over the 21st century  
Multiple pathways exist but all of them require the following:

- ① 40% to 70% emissions reductions by 2050 compared to 2010
- ② Emissions levels near zero or below in 2100

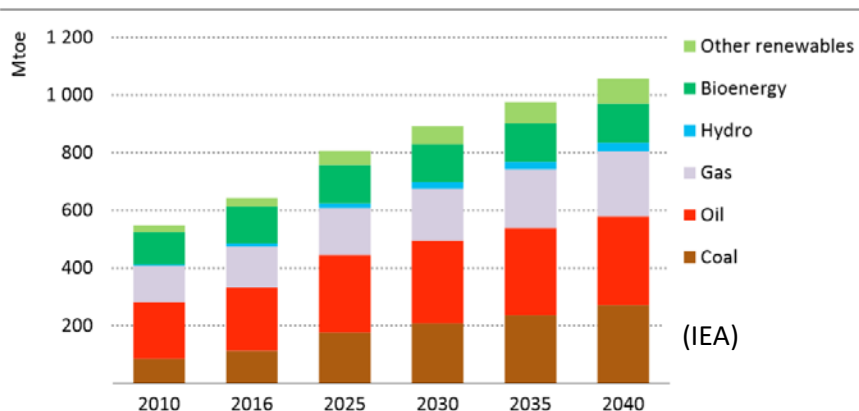
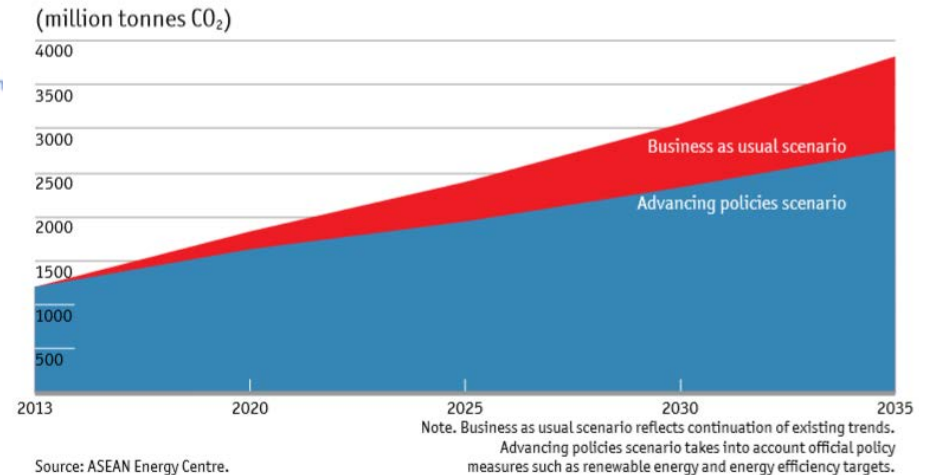
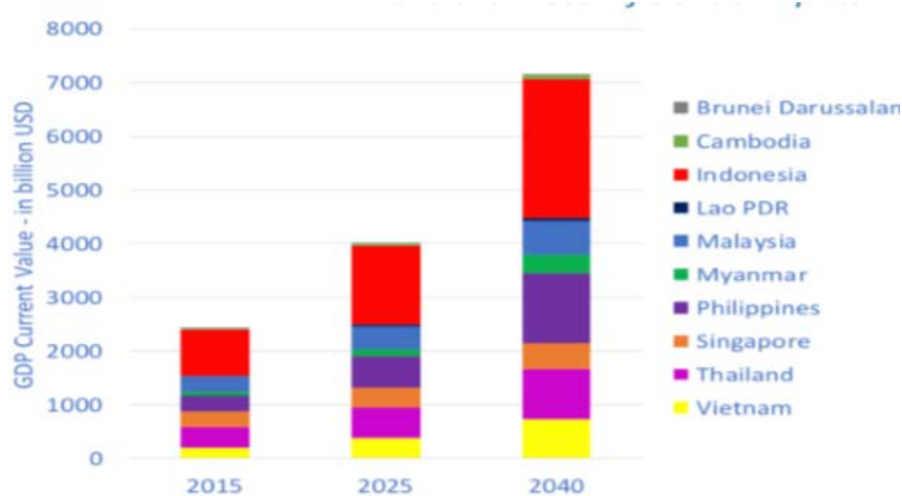


# The future will change in Emission/Development pathways



# Future economic growth and CO2 emission forecast in the ASEAN

## アセアン地域の今後の経済成長とCO2排出の予測



Future Demand of Energy in South Asia Region

	London Convention, 1972	1996 Protocol to the London Convention	Paris Agreement	Intended Nationally Determined Contributions	GHG Long-Term Target
Brunei	×	×	○	○	×
Cambodia	×	×	○	○	×
Indonesia	×	×	○	○	×
Laos	×	×	○	○	×
Malaysia	×	×	○	○	×
Myanmar	×	×	○	○	×
Philippines	○	×	○	○	×
Singapore	×	×	○	○	×
Thailand	×	×	○	○	△
Vietnam	×	×	○	○	△

# Discussions addressing climate change mitigation

## GHGの大規模削減に関する論点

- it is undisputed that a solution or a suitable answer regarding the challenge of global warming can only be found through utilizing the asset of human knowledge
- How can sustainable development, with regard to global warming, be practiced step-by-step with and within the innovation model?

# Special Report: Global Warming of 1.5 °C (IPCC, 2018)

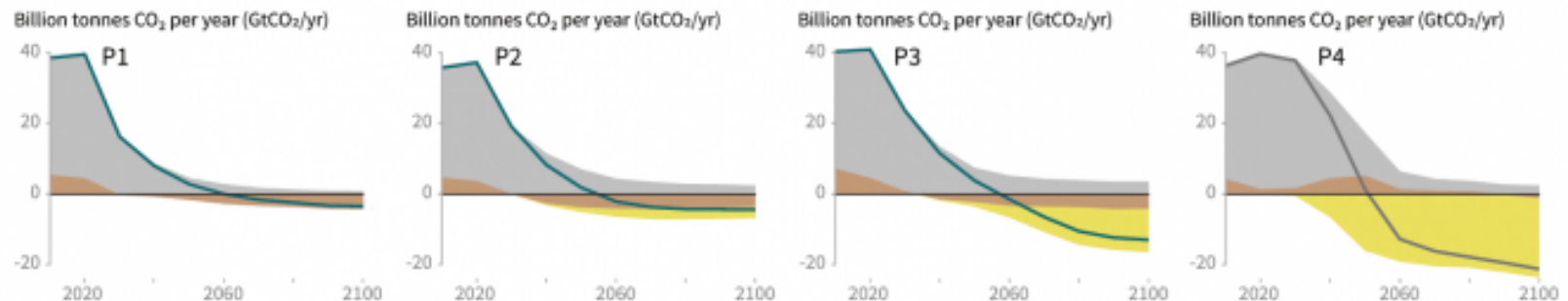
## 1.5°C特別報告書

### Characteristics of four illustrative model pathways

Different mitigation strategies can achieve the net emissions reductions that would be required to follow a pathway that limits global warming to 1.5°C with no or limited overshoot. All pathways use Carbon Dioxide Removal (CDR), but the amount varies across pathways, as do the relative contributions of Bioenergy with Carbon Capture and Storage (BECCS) and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector. This has implications for emissions and several other pathway characteristics.

### Breakdown of contributions to global net CO<sub>2</sub> emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS



**P1:** A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

**P4:** A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.



# The Clean Energy for All Sectors

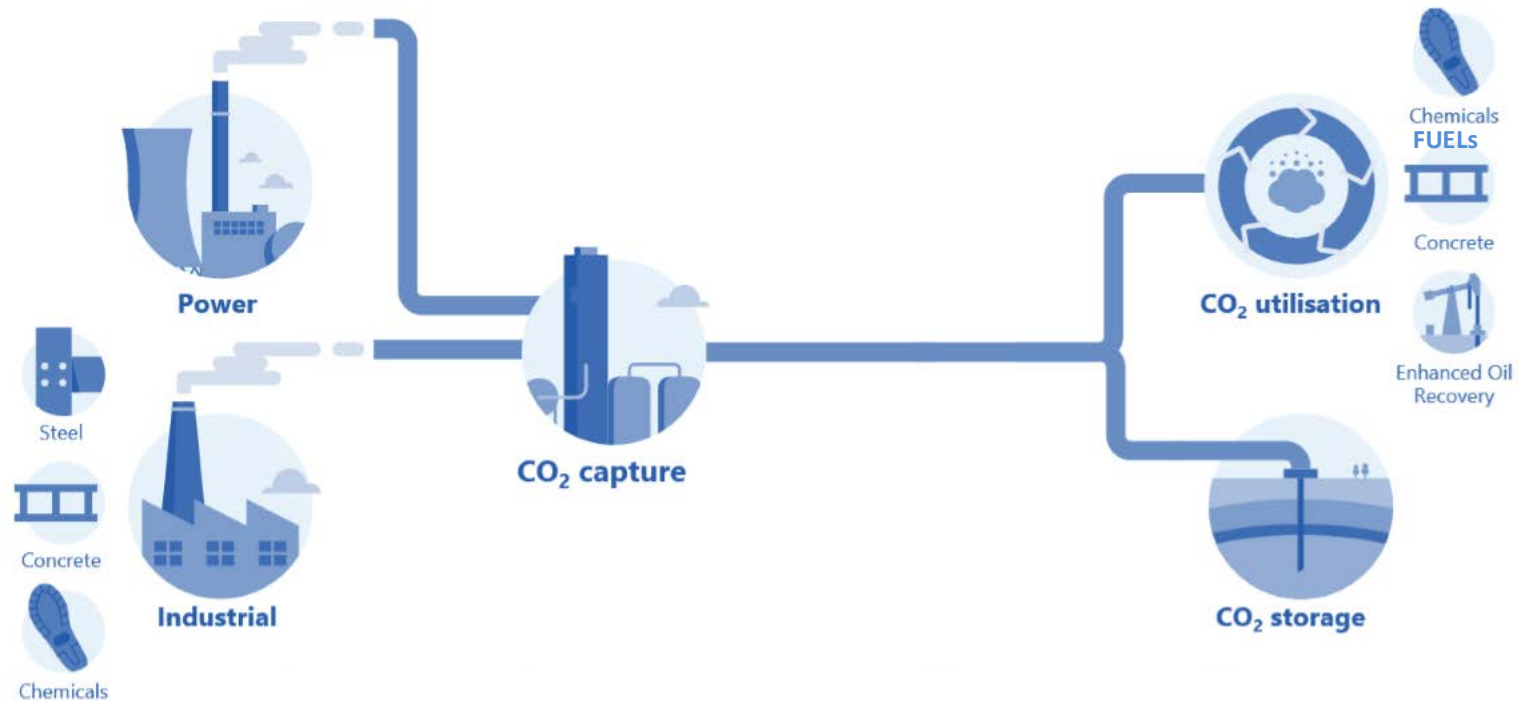
## 全セクター適用可能なクリーンエネルギー技術

1. CCT (Clean Coal Technology)
2. Thermal Power with CCS (Carbon Dioxide Capture and Storage)
3. GTL (Gas to Liquid)
4. Solar Power
5. Solar Thermal Power
6. Solar Thermal Use
7. Passive Solar
8. Biomass Power/Waste Power
9. Biomass/ Waste Thermal Use
10. Biomass Fuel/ Production of waste Fuel
11. Wind Power
12. Hydroelectric Power
13. Geothermal Power
14. Geothermal Use
15. Thermal Energy Conversion
16. Ocean Thermal
17. Aquamarine Power; wave energy.
18. Tidal Power
19. Fuel Cell
20. Co-generation



# New Innovation; Carbon Recycling Technologies for long-terms target, Carbon Neutral

長期目標達成のための技術革新：カーボンリサイクル技術



# Open innovation model for global warming

## GHG削減のオープンイノベーションモデル

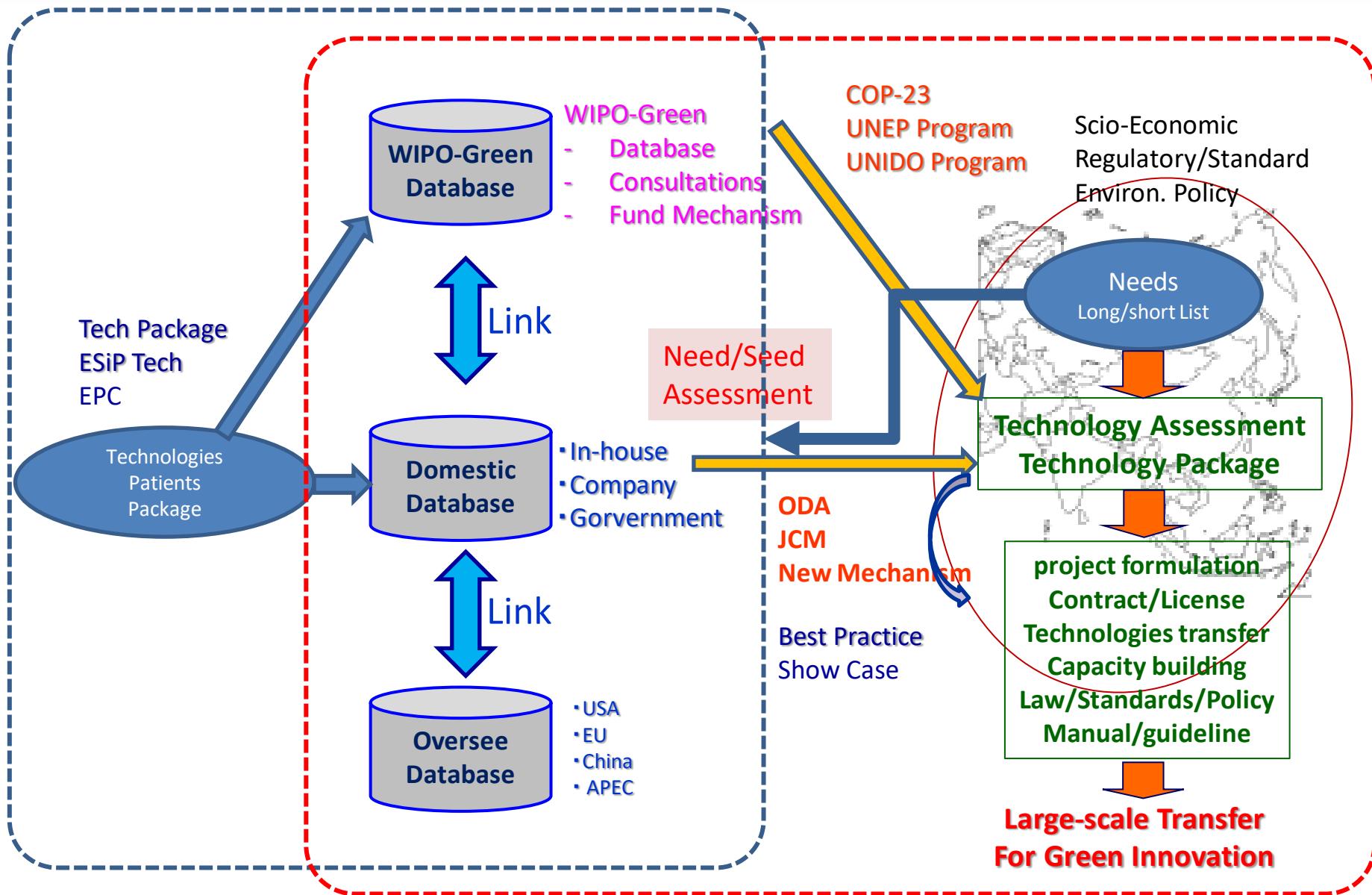
- ✓ It is clear that the challenge of global warming is accompanied with the challenge of sustainability (for the world) in the 21 century .
- ✓ Therefore, there are nine areas, of which Carayannis write about, that require 'sustained action', political and economical 'leadership' or 'empowerment', and 'intelligent use of technology'

### 'nine areas'

1. "Financial/economic system"
2. "Environmental challenges"
3. "Feed and heal the world challenges"
4. "Energy challenges"
5. "Educational challenges"
6. "Political democratic reform across the world"
7. "Transformative government across the world"
8. "Equity and Security across the world"
9. "Technology, innovation and entrepreneurship as drivers of knowledge societies"

# WIPO GREEN driven Technologies Transfer platform for Green Innovation in Asia Region

グリーンイノベーションを誘発するWIPO GREENを活用した技術移転プラットフォーム



# Conclusion; Open innovation model

## 結語

- it clear that the implementation of thought and action in sustainability will have a positive impact on the society as a whole.
- The new quality management for more sustainability lies therefore in the creation of new knowledge, know-how, and innovation in balance with nature One chief objective of this open innovation is to enhance value in society through the resource of knowledge.
- Knowledge is the key to and for more sustainability and to a new quality of life. Today, knowledge is the most fundamental resource.
- Nevertheless, whether a state (nation-state or beyond-nation-state) is leading in different fields in the future, will be primarily, if not even solely, be decided by its potential to develop new knowledge, know-how and innovation in balance with nature.
- However, the improved exchange of knowledge and the striving for knowledge, new know-how, and innovations through the model can be, or at least, offer a solution for the challenges of sustainable development under the aspect of global warming in the twenty-first century.

# Thank you for your attention

ご拝聴頂き、ありがとうございました

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