

Exploring Multilateral and Trilateral Cooperation on Carbon Neutrality

Forum on Carbon Neutrality Goals
of China, Japan and the Republic of Korea

29 November 2021

Yukari TAKAMURA

(The University of Tokyo)

e-mail: yukari.takamura@ifi.u-tokyo.ac.jp

Questions

- a) Key policies and approaches for carbon neutrality goals and implication for multilateral and trilateral cooperation
- b) Potential areas and modalities for cooperation between China, Japan and the ROK and with international, (sub)regional players

Key policies and approaches (1)

- Decarbonization of energy sector is essential.
 - CO2 emission from energy use accounts for 85% of Japan's GHG emissions (2019).
 - Almost 90% of energy are from imported fossil fuels.
- How to decarbonize energy sector.
 - Maximizing energy efficiency (not only supply side but also demand side)
 - Decarbonization of power sector, by
 - Maximizing deployment of renewables
 - Nuclear
 - Thermal power generation with CO2 abatement (such as CCS)
 - Flexibility: integration of variable renewable energy into grid and its cost
 - Decarbonization of energy sectors other than power sector (heat, transport)
 - About half of Japan's emissions from energy use comes from sectors other than power sector
 - Electrification + existing low carbon technologies + new technologies

Key policies and approaches (2)

- What COP26 outcome suggests/ instructs us based on the most recent science.
 - "resolve to pursue efforts to limit the temperature increase to 1.5°C"
 - "urgently scale up mitigation ambition and implementation in this critical decade"
- 2 key policy directions with different time horizons
 - Accelerating existing technologies to reduce emissions as much as possible
 - For climate
 - For enhancing competitiveness of companies in "New normal"
 - For green recovery from COVID-19
 - Elaborating and implementing transition strategies towards achieving a long-term goal/vision, including R & D for developing new technologies
 - Bearing in mind uncertainty of cost and feasibility of new technologies
 - Lifespan of infrastructure is long. What we decide and invest in now should be consistent with net zero goal.

"New normal" towards net zero

- "New normal": Dynamic and drastic changes in businesses towards green economy, especially "net zero by 2050"
 - Most of large companies and of listed companies based in Japan commit themselves to "net zero by 2050", decarbonization goal.
 - Companies, including banks and financial institutions, do also commit themselves to **reducing scope 3 emissions (emissions from their supply chain and value chain)**, which means that companies **request/encourage its suppliers to reduce their emissions.**
 - Ex: Microsoft: (Potential) suppliers are requested to submit its scope 1 and 2 emissions plus scope 3 emissions for being selected as its supplier
 - Ex: Apple: requests its suppliers to produce Apple product by renewables by 2030
 - Ex: Hitachi: its carbon neutrality by 2030 and **100% reduction of its scope 3 emission by 2050**
 - Ex: Banking corporations: **net zero by 2050 of its portfolio of investment and loan** with interim target of 2030 (around 50%)
- **Energy transition to net zero will now enhance competitiveness of companies** in the region.

Microsoft: “Climate Moonshot” (16 January 2020)

- Carbon negative by 2030
- Remove our historical carbon emission by 2050
- \$1 billion climate innovation fund
- Scope 1 and 2 emissions to near zero by the middle of this decade
 - By 2025, shift to 100 percent supply of renewable energy.
- Reduce scope 3 emissions by more than half by 2030 through new steps
 - MS implements new procurement processes and tools to enable and incentivize our suppliers to reduce their scope 1, 2, and 3 emissions.



<https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/>

Apple: carbon neutral 2030 (16 July 2020)

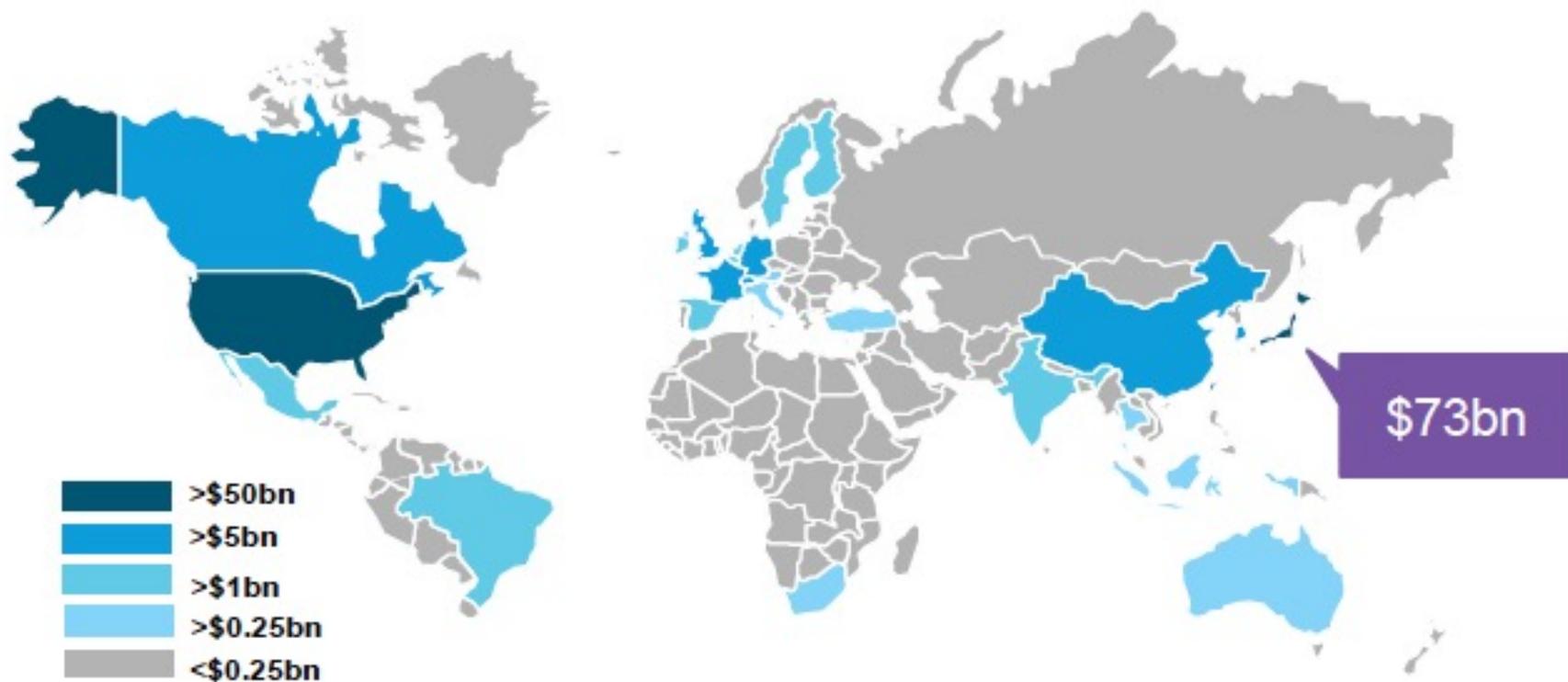
- Apple commits to be 100% carbon neutral for its supply chain and products
 - Low carbon product design
 - Energy efficiency
 - Renewable energy
 - Process and material innovations
 - Carbon removal
- Already 100% renewable energy for its operations
- Focusing on creating new projects and moving its entire supply chain to clean power.
- More than 170 manufacturing partners (including 20 Japanese partners) have committed to 100 percent renewable energy for Apple production (as of October 2021) .



<https://www.apple.com/jp/newsroom/2021/10/apple-charges-forward-to-2030-carbon-neutral-goal-adding-9-gigawatts-of-clean-power-and-doubling-supplier-commitments/>

Business risk due to difficulty in procuring renewable energy

Japanese companies have faced business risk leading to **73 billion dollars**.

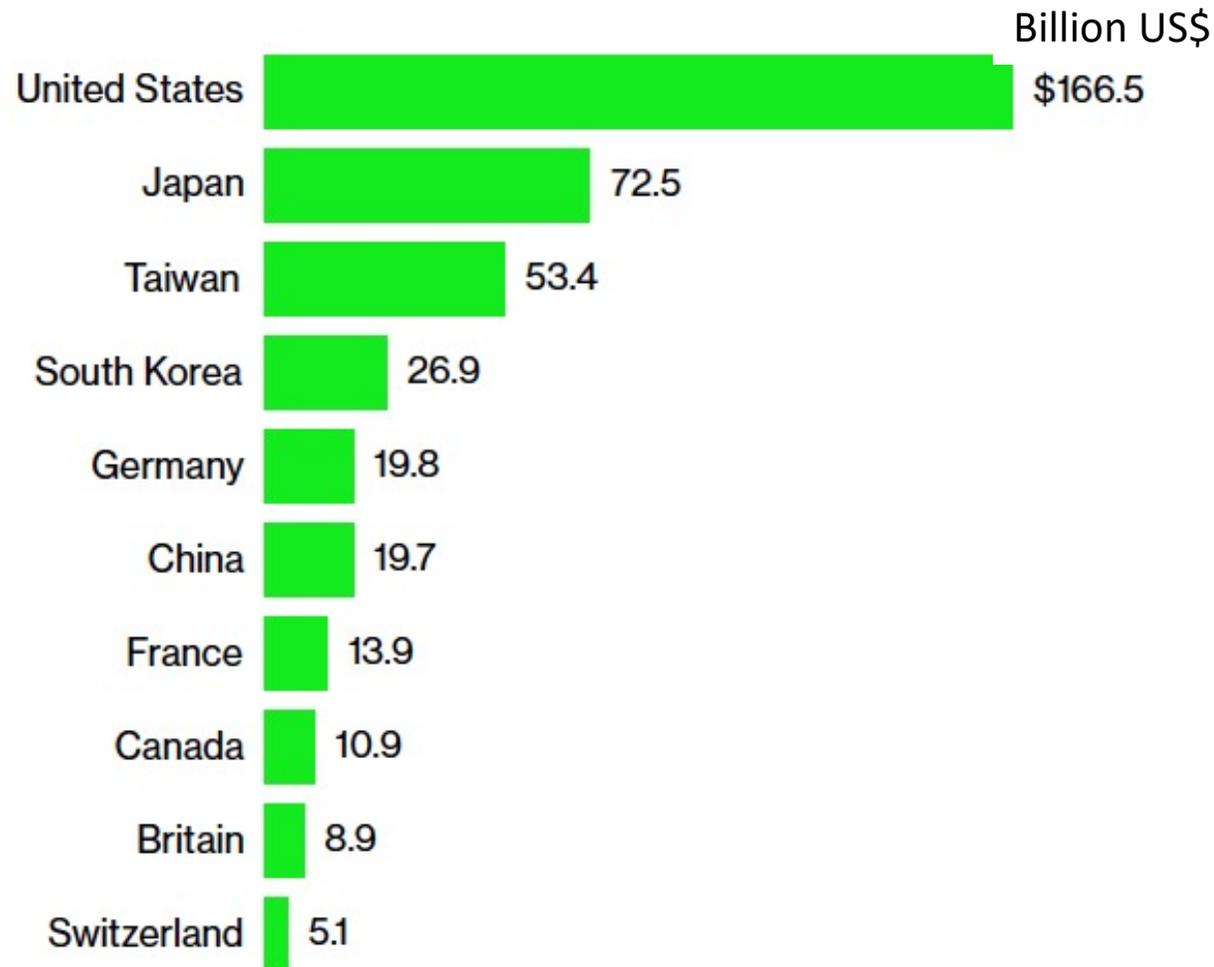


Source: BloombergNEF, Bloomberg Terminal

Note: Chart is based on data available on Bloomberg's SPLC function, and does not necessarily represent the entire supply chain for this group of selected companies.

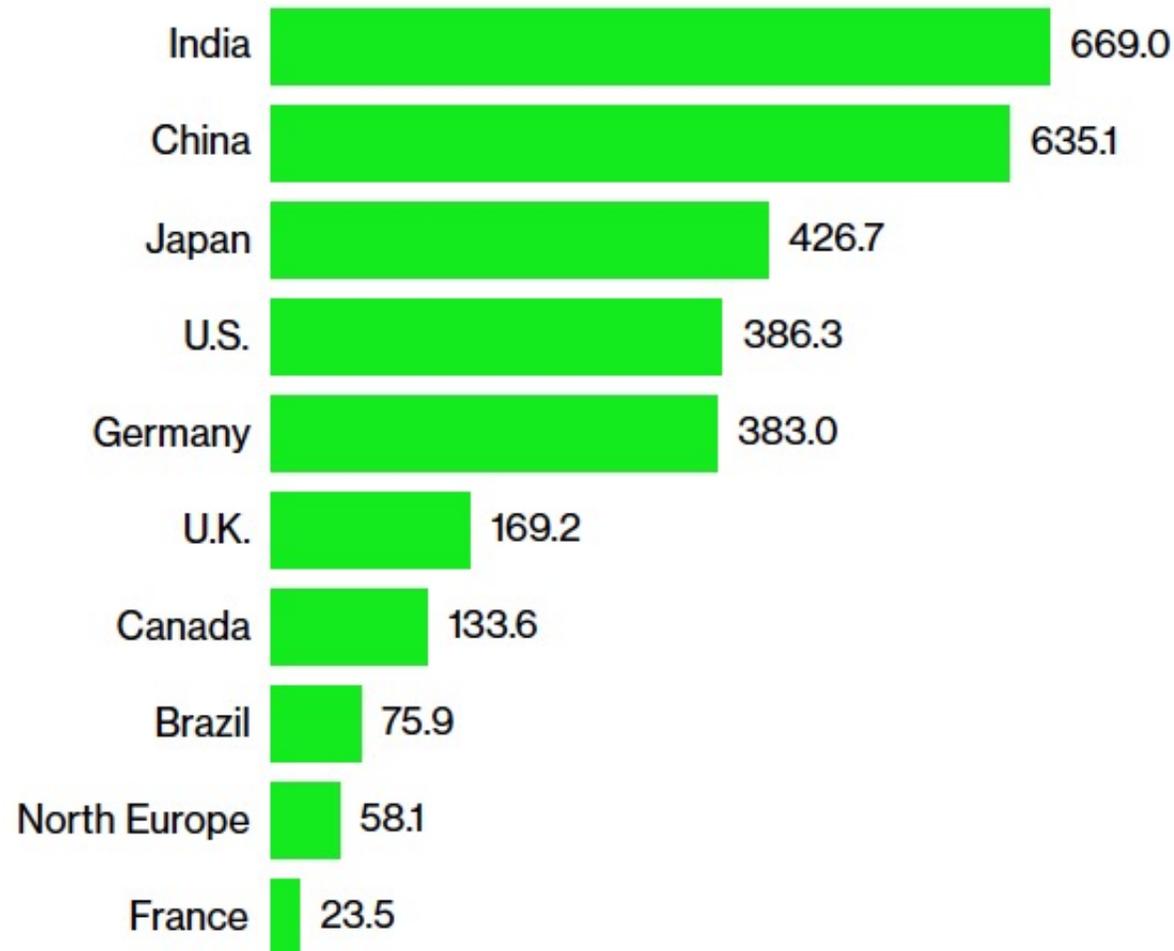
Business risk due to difficulty in procuring renewable energy

Japan is the country with the second highest business risk after the US.



Source: BloombergNEF, 2020

Emission intensity of electricity (2020) (grams CO₂/kWh)



Source : BloombergNEF, 2020

Implication and potential areas for cooperation

- **Appropriate public policy is essential for "smooth systems transitions" = potential areas for cooperation**
 - Prepare transitions and elaborate transitions strategies.
 - Integrate and mainstream climate consideration with long-term horizon (ex. 2050) in decision makings of all level (government, local authorities and companies, financial institutions, etc.).
 - Proceed to/ accelerate transitions while maximizing its benefits and managing its side effects.
 - Cooperation with private partners and multilateral financial institutions not only for these 3 countries but also for other countries, especially in Asia.
 - Ex. **ADB led Energy Transition Mechanism** to promote coal fired plants early retirement.
 - **Protect the most vulnerable** to transition. Labor policy, social policy interventions may be necessary.
 - Promoting and collaborate in decarbonizing supply chain/ value chain to enhance competitiveness of companies. Assisting companies to cope with "new normal".
 - Supply chain and value chain of companies expand over 3 countries. **Efforts and collaboration for decarbonization will mutually enhance competitiveness of companies.**
 - **Small- and medium-sized companies**, often lacking information/ capability necessary to cope with such request **might be marginalized in global supply chain.**
- Energy transition towards net zero should be **a big opportunity for 3 countries being strong in clean energy technologies.** Strengthen collaboration in such direction.
 - Innovation ecosystem: policy, infrastructure, finance...
 - **Price on carbon** that make value of new technologies more visible.

Patent applications for renewables (2010-2019)

Japan, Republic of Korea and China are strong in renewable and fuel cell technologies.

	Top Origins	Total Renewables	Solar	Fuel Cell	Wind Energy	Geothermal
1	Japan	9,394	5,360	3,292	702	40
2	U.S.	6,300	3,876	1,391	927	106
3	Germany	3,684	1,534	813	1,309	28
4	Republic of Korea	2,695	1,803	506	360	26
5	China	2,659	1,892	189	555	23
6	Denmark	1,495	52	81	1,358	4
7	France	1,226	660	348	184	34
8	U.K.	709	208	271	218	12
9	Spain	678	341	29	300	8
10	Italy	509	316	57	123	13

12

Source: Economics and Statistics Division, WIPO, 2021

Challenges for carbon neutrality by 2050

- Challenges for policies to develop new technologies: **How to address uncertainty surrounding cost and feasibility?**
 - Policy should clearly indicate necessity for new emission reduction technologies and potential for marketization.
 - Stipulation of clear and consistent policy direction for decarbonization such as carbon neutrality by 2050, Green Growth Strategy...
 - Necessary for policies and measures **throughout lifecycle of a technology (innovation process)** not only R & D



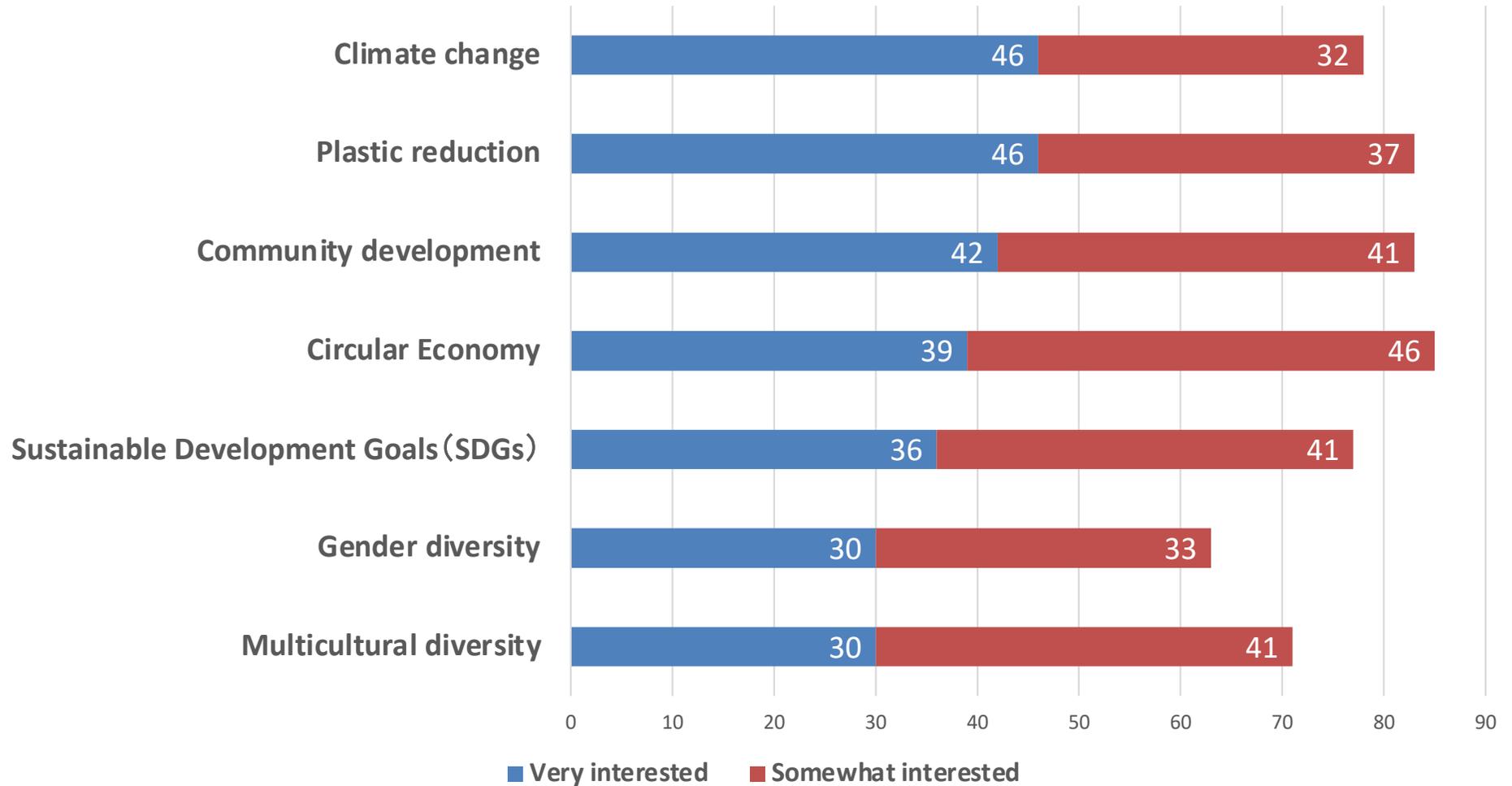
- Policies and measures to raise demand for and to create market of lower carbon products and services
 - Policies and measures to make carbon (reduction) value visible to users and consumers
 - Carbon pricing is one of the options.
- Building infrastructure for new technologies
 - Including institutional infrastructure enhancing innovation, such as new standards and QC scheme, regulatory measures
- Promoting financial flow and investment for new technologies
 - Including policies and measures to make corporate value visible to investors

Political, policy and regulatory risks faced by investments in clean energy infrastructure (OECD 2013)

		Traditional risks linked to infrastructure projects	Additional risks linked to clean energy infrastructure projects
Political, policy and regulatory risks	<u>Policy and regulatory risk</u>	<ul style="list-style-type: none"> ▪ Lack of long-term political commitment or policy certainty on infrastructure planning ▪ High bidding costs involved in the procurement process (administrative cost) ▪ Fragmentation of the market among different levels of government 	<ul style="list-style-type: none"> ▪ Lack of long-term low-carbon development strategies ▪ Trade barriers to- clean energy technologies ▪ Lack of political commitment or policy certainty over the stability of specific forms of support to clean energy investment, such as feed-in tariffs ▪ Existence of fossil fuels subsidies that make other investments more attractive to investors ▪ Unstable carbon price
	Legal and ownership rights	<ul style="list-style-type: none"> ▪ Unknown future litigation ▪ Planning consents not granted 	<ul style="list-style-type: none"> ▪ Uncertainty about the legal status and property rights of carbon emissions permits
	Political and social risk	<ul style="list-style-type: none"> ▪ Opposition from pressure groups ▪ Corruption 	<ul style="list-style-type: none"> ▪ Opposition to specific clean energy technologies or infrastructure, such as wind farms, geothermal plants or hydro-electric dams, or grid extension
	Currency risk	<ul style="list-style-type: none"> ▪ Lengthy investment horizon for infrastructure 	<ul style="list-style-type: none"> ▪ Lengthy investment horizon for mitigation and adaptation projects that address the threat of climate change

*There're 2 more categories: commercial and technical risks as well as business risks.

Individual investors shows the most interest in targeting Climate change and Plastic reduction



Thank you for your attention!

Yukari TAKAMURA

E-mail: yukari.takamura@ifi.u-tokyo.ac.jp