

## 【2-1801】

### Study on Risks due to Global Climate Change Impacts that could Affect Socio-economic Activities in Japan

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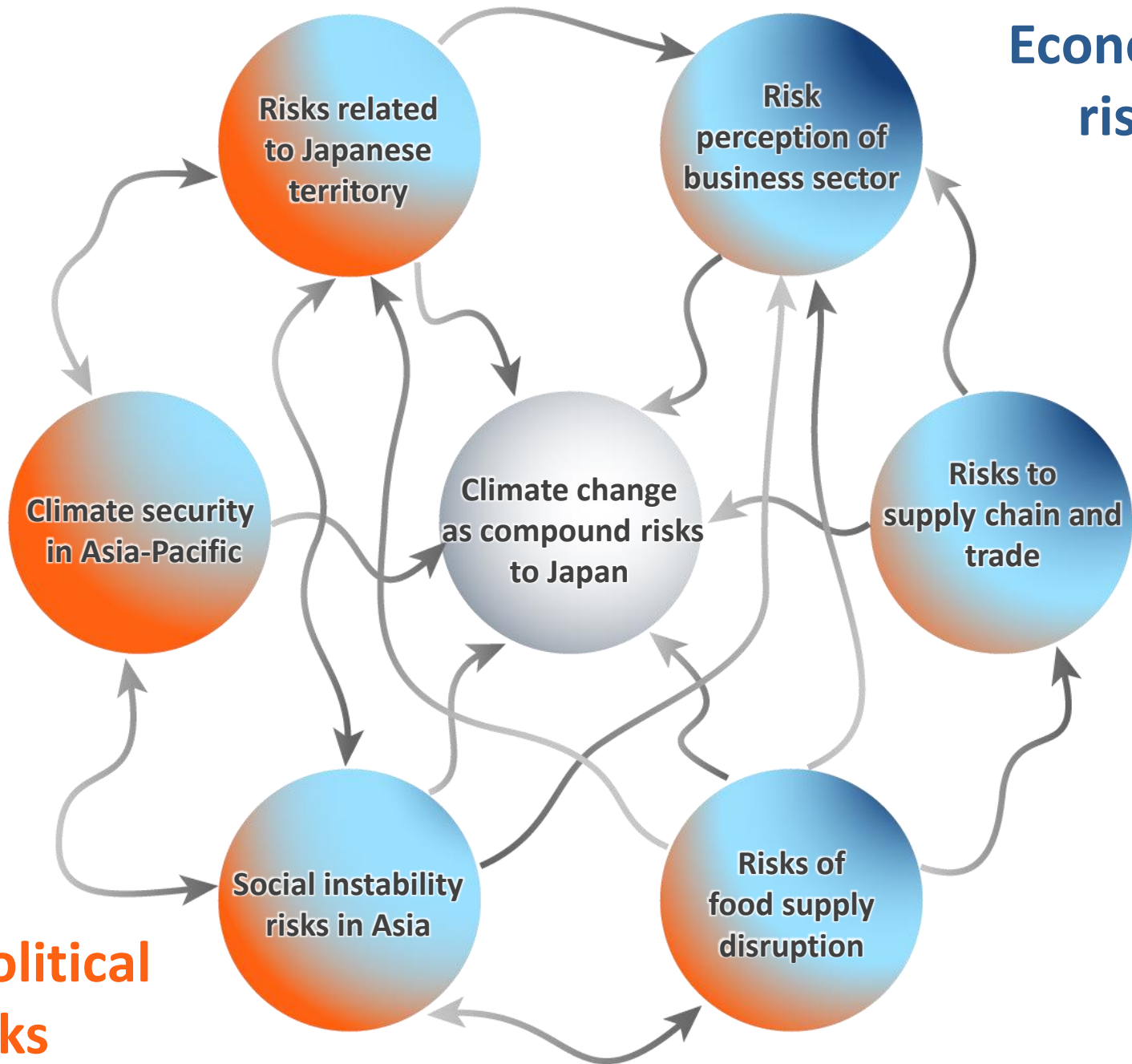
The increasing frequency of extreme weather events is said to be caused by the adverse effects of climate change. Among various climate change risks, physical damages by natural disasters in Japan are increasingly being acknowledged, but climate change impacts in various parts of the world can also increase economic and sociopolitical risks through various routes. Climate change impacts need to be recognized as a **compound risk** that includes diverse domestic and international impacts, and consequences of those impacts. The aim of this research project was to deepen our knowledge from the perspective of each of the following six types of climate risks.

- (1) As for corporate activities, it was found that companies have a greater awareness of the effects of short-term risks such as torrential rains and floods, but they may not necessarily be aware of risks resulting from high temperatures or slow-onset events that appear gradually over time.
- (2) We developed an international trade model that represented the import and export of 5041 products. We can now reproduce past performance values, and we plan to use the model to show the relationship between past disasters and changes in quantity of trade, as well as to predict future impacts.
- (3) This sub-theme examined impact of climate change onto food production by region around the world. Japan, which imports a large amount of food, needs to consider the regions from which food (especially grain) is procured as well as its food supply methods.
- (4) Targeting Asian countries that have strong ties with Japan, we independently developed a climate vulnerability indicator based on multiple other indicators. This indicator can be used to show the vulnerability of countries to climate change impacts and their reliance on emergency humanitarian assistance from abroad, including from Japan.
- (5) The concept of climate security is related to other types of security concepts. Although studies have clarified the strong links between food and energy security and climate security, climate mitigation actions are likely to have positive effects in other areas of security, such as maritime and human security.
- (6) Japan is affected by sea level rise, which could lead to Japan's territory, territorial waters, and Exclusive Economic Zone shrinking in the long run. This sub-theme examined plausible impact on Japan in terms of how sea-level rise and other climate change impacts could affect Japan's territory.

<Website>

[http://www.nies.go.jp/social/en/Compound\\_Risks\\_of\\_Climate\\_Change.html](http://www.nies.go.jp/social/en/Compound_Risks_of_Climate_Change.html)

**Sociopolitical risks**



**Economic risks**