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# **Transboundary movement of recyclable resources: Current management system and practices in Asia-Pacific**

**(Background Paper for Plenary Session 3 of the Programme)**

**Final Draft**

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This background paper has been prepared by Mr. Michikazu Kojima, for the Ninth Regional 3R Forum in Asia and the Pacific. The views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

Background Paper for Session on Sound Material Flow and  
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# **Transboundary Movement of Recyclable Resources: Current Management System and Practices in Asia- Pacific**

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## **Introduction**

World economy has been globalized. Reduction of transportation cost and communication cost have contributed globalization (Baldwin 2016). As the volume of trade of goods increases, international trade of recyclable waste also increased. But there are some problems from international trade of recyclable wastes. Non-recyclable wastes, which are disguised as recyclable wastes or mixed with recyclable waste, are exported to developing countries. Recycling industry in developing countries often causes water and air pollution. Disposed waste are also burned.

P.R. P.R.China, the factory of the world, imported lots of recyclable wastes. More than half of waste paper and waste plastics internationally traded was imported by P.R. P.R.China. P.R. P.R.China has utilized the recyclable waste, but also has faced problems such as import of unsorted and uncleaned waste and pollution from recycling process. P.R. P.R.China has tried to control such problems by introducing various regulations. But in 2017, Chia decided to introduce more strict measures including prohibition of importing waste plastics generated from households and stricter maximum allowable impurities in waste papers and other recyclable waste.

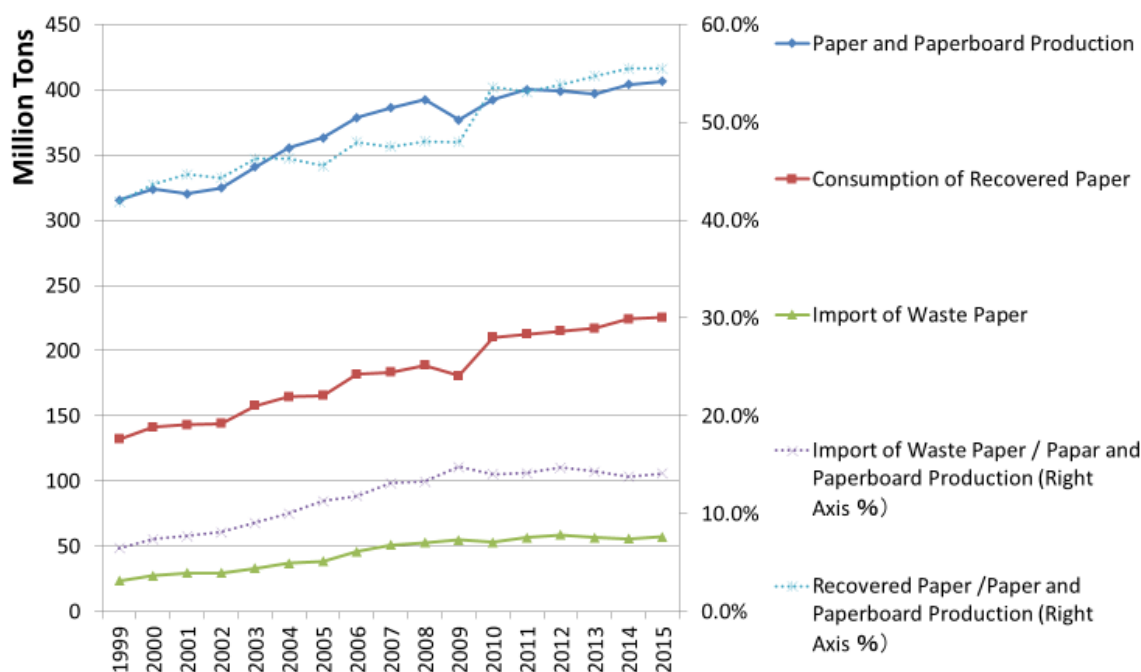
These trade restriction affects the international material flow of recyclable waste. This paper reviews the changes of international material flow of recyclable wastes. It also discussed the implication from the notion of sufficiency economy to

international trade of recyclable waste and recycling system.

### 1. Globalization of Recycling

Various recyclable wastes are internationally traded. The statistics of paper production and recycling of waste paper shows globalization of recycling.

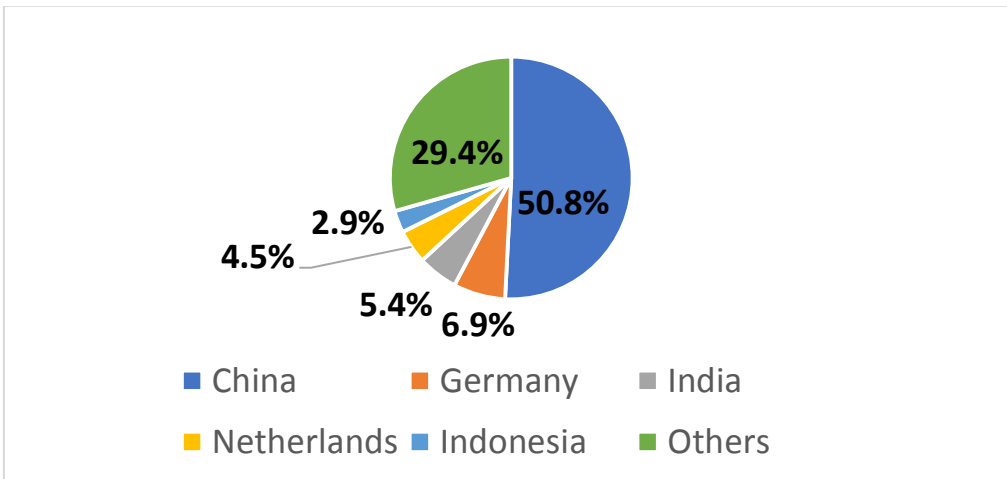
Figure 1. Paper and Paperboard Production and Recycling



Source: Compiled from FAO Yearbook Forest Products (various years).

The ratio of volume of Recovered Paper in Paper and Paper production increased from 41.9% in 1999 to 55.5% in 2015. The ratio of volume of Import of Waste Paper to Paper and Paper production is also increase from 6.5% to 14.7%. The major destination of internationally traded waste paper is to P.R.China.

Figure 2. Waste Paper Import in 2016



Source: Compiled from import data from UN Comtrade.

The background of this Chinese import is demand of carton boxes. P.R.China export many products, which are transported with carton box. Demand of waste paper is derived from demand of carton box. Because of deforestation in P.R.China, P.R.China strictly regulate cutting forest. P.R.China is not able to secure the waste paper domestically. To fulfill the demand, P.R.China need import of waste papers.

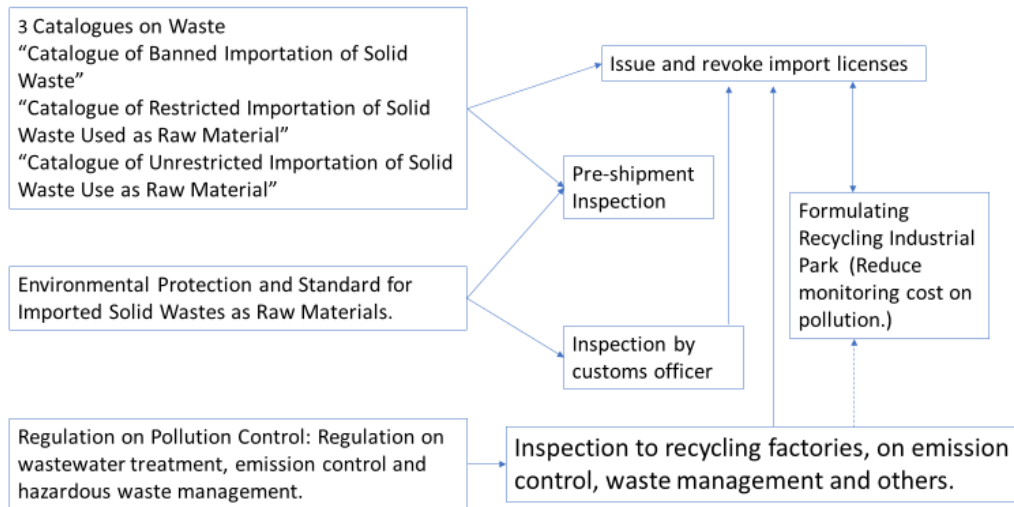
Waste plastics were also imported by P.R.China for producing some products. P.R.China was a major importer of plastic waste until 2017. In 2016, 14 million ton of plastic waste was traded in the world. More than 60 % of plastic waste internationally traded were sent to P.R.China, a part of them are transit at Hong Kong. Plastic wastes were used as raw materials for various products, such as toys, photo frames, dolls, carpet and other products, some of which are also exported to other countries.

## 2. Problems Generated form International Recycling and Regulations

But import of recyclable waste and recycling cause some environmental problems. Non-recyclable wastes are mixed with imported recyclable waste, which were dumped in importing country. Recycling process also cause pollution problem.

To prevent such issues, P.R.China introduced various regulations, such as categorizing various waste into 3 categories (banned, restricted, and no restriction), issue and revoke of import licenses, setting standards for imported recyclable waste and others.

Figure 3. Chinese Import Regulation on Recyclable Waste



Source: Compiled by the author.

In July 2017, P.R.China announced to revise the regulations from end of the year, such as prohibiting some types of import of recyclable waste including plastic waste generated from households and lowering the allowable level of impurities in recyclable waste. Chinese government also made stricter enforcement of environmental regulations to recycling companies importing recyclable waste.

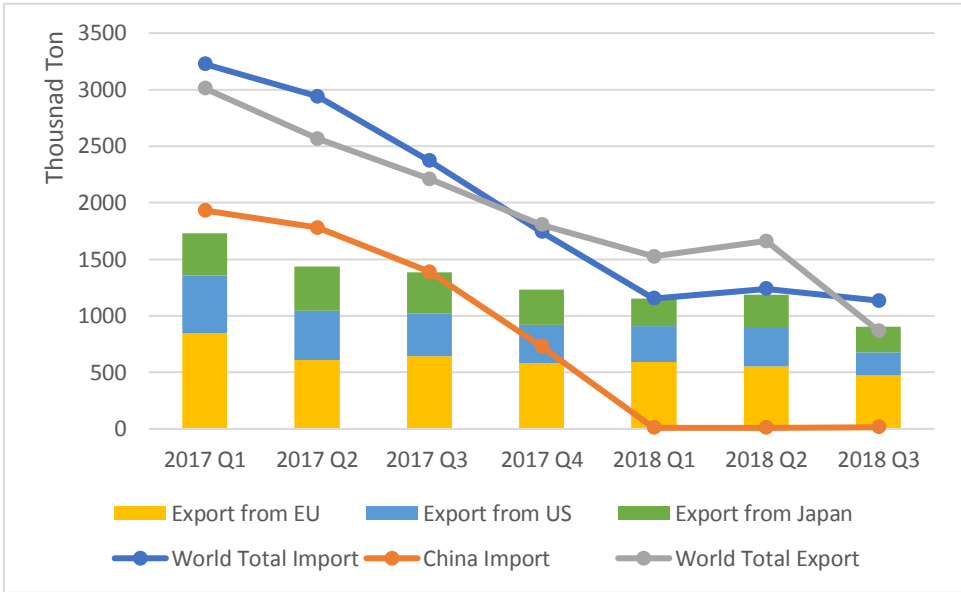
### 3. The Changes of Material Flows of Recyclable Waste

The impact of stricter import control and enforcement of pollution control regulation have a big impact to flow wastes.

The first impact is the reduction of volume of trade of international trade. Figure 4 shows import and export volume of plastic waste in quarterly basis. World total import of plastic waste in the third quarter of 2018 is about one third of the first quarter of 2017. The number of countries reporting quarterly data is smaller than number of countries reporting annually, but it covers major exporting and importing countries such as P.R.China, EU15<sup>1</sup>, US and Japan.

Figure 4. Quarterly Export and Import Volume of Plastic Waste

<sup>1</sup> The data base, Global Trade Atlas, covers EU28 also. But import and export volume of plastic waste by EU15 is bigger than by EU 28, because EU28 data does not include trade among EU28 countries, while EU 15 data include export from EU15 to EU28 countries other than EU15.



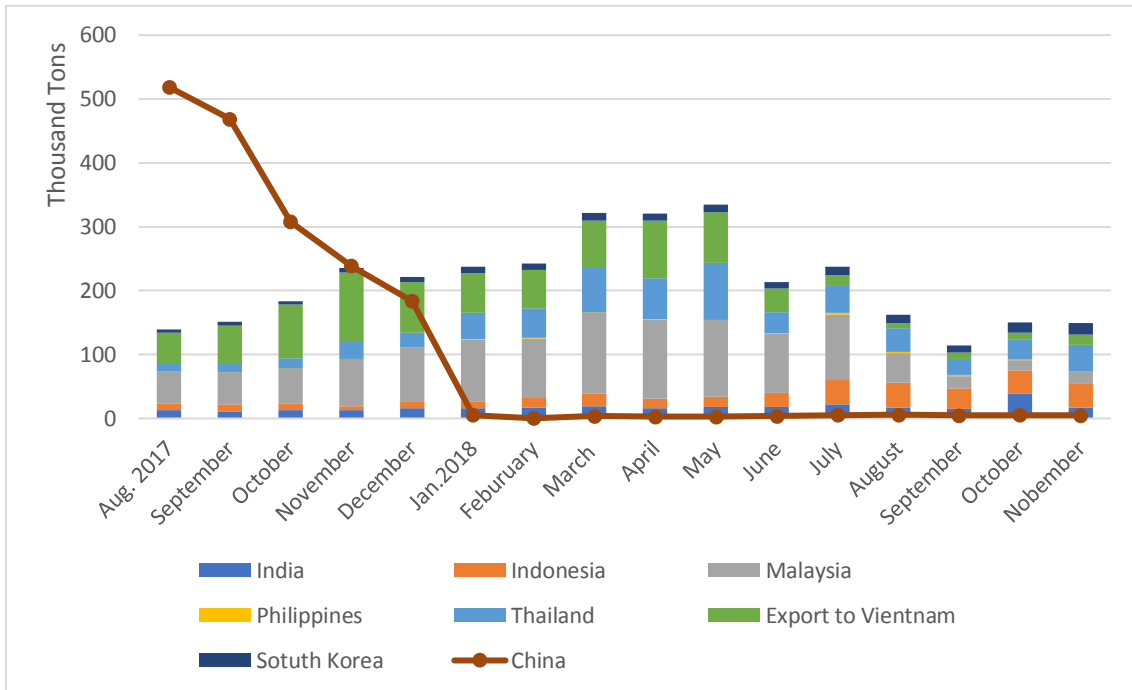
Note: Based on available date from limited number of countries.

Source: Compiled from data of Global Trade Atlas.

Figure 5 shows the import of plastic wastes by Asian countries. The amount of plastic waste import by P.R.China rapidly decreased after P.R.China enforced the existing regulation in July 2017. The amount of import of plastic waste in January 2018 became less than 1% of monthly average of 2016.

Some Asian countries increase import of plastic waste. But these countries face improper treatment of plastic wastes, such as open burning of residuals. As a result, some countries introduce stricter regulation.

Figure 5 Import of Plastic Waste by Asian Countries



Source: Compiled by Author, based on the data of Global Trade Atlas.

#### 4. Sufficiency Concept and Appropriate Regulation

Philosophy of Sufficiency Economy which was advocated by Rama IX, the former king of Thailand, which stressed “reasonableness” (or wisdom), “moderation” and “prudence” (or self-immunity). NESDB(2007) define “Sufficiency” as “moderation and reasonableness and need for self-immunity for sufficient protect from internal and external changes”. In addition, it stated that “Sufficiency Economy at national level starts with a national administrative and development plan that encourages and enables people to live their lives and to cooperate with others in development based on the Philosophy of Sufficiency Economy” (NESDB 2007).

Sufficiency economy dose not indicate specific type of economic systems, but emphasizes the way of thinking to choose appropriate behavior of people and policies of nations. Mongsawad (2010) also pointed out that philosophy of sufficiency economy can contribute to ensure environmental sustainability.

As mentioned in section 1, world economy is globalized, due to lower cost of transportation and communication, which have impact on international trade of recyclable wastes. Economies of scale in recycling process also influences globalization of recycling. But it is also important to avoid that developing countries became dumping ground of waste generated from developed countries. Based

on the current global supply chain, circular economy should be considered not only in a country level, but also in regional and world scale.

In Open Ended Working Group of the Basel Convention, Norway propose the inclusion of plastic waste in to Annex II of the Basel Convention. Conference of Parties of the Basel Convention in May 2019 will argue this proposal.

In recycling business, quality of plastic wastes is classified into several categories, from mixed plastic waste to washed and sorted plastic waste. Figure 6 shows examples of plastic wastes.

Figure 6 Different quality of Plastic Waste



Source: Photo by the author.

For importing country, there are several choices in the control of international trade of plastic waste. From the view point of a country, extreme choices are to allow or to ban of all forms of plastic waste. Between these two choices, there are several options. A country can allow import of clean plastic waste with the condition that no mixture of other type of plastics. Allowable limit of contamination can be also defined.

Two types of control measures can also be applied. First one is to issue import licenses to factories which have good enough technologies. Second one is to use prior notice and consent scheme for exporting and importing plastic waste.



Philippine force importer of unwashed and unsorted plastic waste, such as baled waste PET bottles, to go through prior notice and consent scheme, while washed PET flake can be imported without prior notice and consent.

Exporting country should have preventive measures not to export plastic without any sorting nor washing. EPR regulation should be also carefully designed, especially on how far producer should be responsible in the process of recycling chain. There is the possibility that payment from producers to recycler are used for exporting mixed plastic waste which are dumped or open dumped in other countries. Both producer and recycler should be responsible to appropriate management of recycling chain under EPR system.

For example, National Audit Office of UK pointed out that the Environment Agency does not have strong enough controls to prevent the system subsidizing exports of contaminated or poor-quality material. It is important for exporting country to carefully design their EPR system not to provide incentive to send collected waste to improper facilities without any treatment in developing countries.

If international trade of plastic is prohibited, or needs prior notice and consent, plastic waste generated in small island countries, which are not able to have recycling facilities economically, may confront a difficulty to send recyclable plastic waste to recycling industry abroad. Special arrangement such as agreement on exemption of prior notice and consent with importing country and among small island countries, should be considered.

## **5. Conclusion**

The P.R.China had struggled to have appropriate regulation for import of recyclable waste, by introducing various regulations since 1990s. But in 2017, P.R.China decided to reduce the import of recyclable waste. Southeast Asian countries such as Vietnam, Malaysia and Thailand have received plastic waste, as P.R.China reduce the import of plastic waste. Improper plastic waste management and smuggling are reported. As a result, international trade of plastic waste is getting lower.

But international community should consider how to make circular economy on plastics in the globalized product supply chain, with prevention of negative impact from recycling to the environment.

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