

Database creation and analysis of corporate initiatives regarding plastic resource circulation

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INTRODUCTION

Nowadays, more companies working on sustainable plastic management, yet research in this field is considered lagging behind. Studies on corporates' plastic-related initiatives can be found¹⁾, however, none of them included the analysis on Japanese corporates. Moreover, in order to develop a more comprehensive solution for plastic resource circulation it is essential to focus on measures throughout the lifecycle of plastic products, thus, collaborating between stakeholders from different industries became important.

Therefore, the purpose of this research is to create a database of existing corporate activity cases and analyze them from the perspective of 3R and renewable (3R +) and the value chain, with the aim of presenting issues and improvement measures for sustainable plastic resource circulation in Japan.

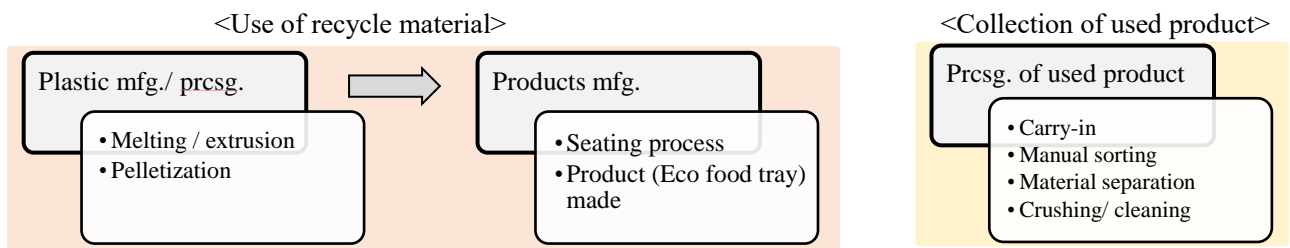
MATERIALS AND METHODS

The database of corporate activities compiled in this research is derived from the registered initiatives of the Ministry of Environment's "Plastic Smart" campaign²⁾ and Keidanren (the Federation of Economic Organizations)'s "Plastic related initiatives that contribute to the SDGs"³⁾.

A total of 147 businesses (362 cases) were randomly extracted from these casebooks. These cases were classified into detailed elements (Reduce, Reuse, Recycle (material / chemical), Recovery, Renewable) of the 3R+ policy. In addition, focusing on the value chain of the initiative, the cases were also classified as Raw material production, Plastic manufacturing / processing, Product manufacturing, Consumption / use, Processing of used products, Final disposal, Social contribution activities and Research and development. Further information such as business type, detail information of the initiatives was obtained from the websites of each corporate and investigation of plastic-related declaration was conducted.

RESULTS AND DISCUSSION

Cases related to "Reduce (31%)" and "Recycle (41%)" accounted for a particularly large number. The ratio of Reduce and Reuse, which should be prioritized according to the Ministry of the Environment, is lower than Recycle. It was found that the largest number of efforts initiative was "Product manufacturing (36%)" regardless of the type of industry. 95 out of 362 cases spanned two or more value chains at the same time. 67 were related to Recycle, and the value chain spanned from "Raw material manufacturing" or "Plastic manufacturing and processing" from "Products manufacturing". Of these 67 cases, 59 were related to material recycling and 8 were related to chemical recycling. Many of them included also the stage of "collection of used products" (Fig.1).



Since 1990, FPCO started collecting used Styrofoam trays at supermarkets and having it returned to raw materials at their recycling factories.

Fig.1 “Tray to tray” recycle process from FP Corporation

On the other hand, the 22 cases related to “Renewable” did not cover "Processing of used products". It can be said that the processing after use is not sufficiently managed. Furthermore, only 10 cases are found aim for circulate products through collaboration in/outside the industry. Collaboration beyond the industry could be considered important for the realization of plastic resource circulation (Fig.2).

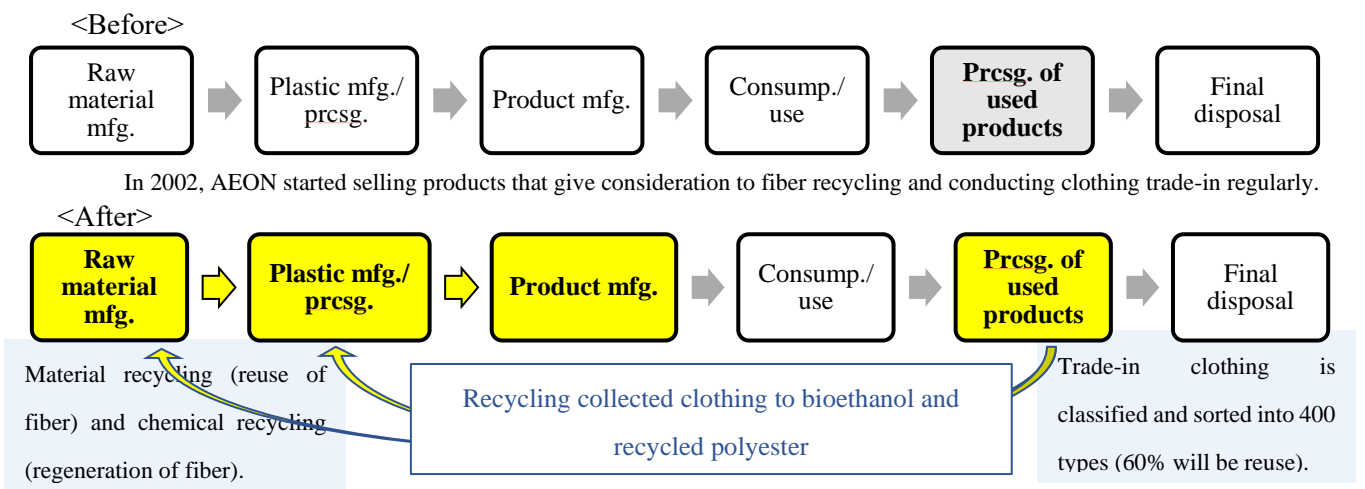


Fig.2 Collaboration between of AEON Co., Ltd. and partner company with recycling technology

Of the 147 companies, 57 have posted strategies for plastic resources, and only 21 have goals and plans are set using specific figures. However, there are not many that can be linked to contributions to achieving milestones, and it is considered that consideration should be given to promoting voluntary efforts. There is still room for improvement in linking with milestones and positiveness towards achievement. Also, it is desirable to set goals for the declaration and systematize progress management.

CONCLUSION

The findings suggest the future initiatives adhere to 3R+ priorities and reconsider the necessity and priority of Renewable initiatives according to the business type. In addition, while considering the improvement of plastics circulation, not only seek the ideal way according to the business type, also focus on the efficiency of collaboration with potential stake holders.

- 1) Ministry of Environment 令和元年 5 月 31 日 プラスチック資源循環戦略 <https://www.env.go.jp/press/106866.html> (Accessed 5 February 2021)
- 2) Ministry of Environment Plastics Smart <http://plastics-smart.env.go.jp/> (Accessed 11 January 2021)
- 3) Keidanren Japanese Business Federation SDGs に資するプラスチック関連取組事例集<第 3 版> <https://www.keidanren.or.jp/policy/2018/099.html> (Accessed 11 January 2021)