

Estimating the Social Value of a Marine Plastics Upcycling Project

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INTRODUCTION

Marine plastic pollution is gaining more and more attention as a serious threat to the natural environment. Each year, at least 8 million tonnes plastic waste flow into the ocean (World Economic Forum, 2016). Solving the problems posed by marine plastic pollution requires not only changing our mass production and mass consumption lifestyle, but also developing more effective ways to utilize marine plastic waste.

Upcycling is a recycling process in which unnecessary items or materials are used to design and manufacture new products by adding value through the creative process. The number and types of upcycled products have been increasing worldwide, but the price of upcycled products is generally higher than that of regular products because the upcycling process requires relatively high amounts of manual labor. Although upcycled products create jobs and many other social and environmental benefits, these benefits have not been well measured or evaluated.

This study evaluated the outcomes and social impacts of an upcycling project for marine plastics accessories called “Kaeru Design with Creators” (KDC). Project activities started in fall 2019, and the first products were sold in December 2019. The project is a collaboration between Kaeru Design, a team of three creative professionals, and Creators Co., Ltd., a rehabilitation facility (a Type-A support center for continuous employment) in Kanazawa City, Ishikawa Prefecture, Japan. KDC provides vocational training and production activity support for people with disabilities who have difficulty working in general offices or factories. At the same time, they upcycle marine plastics into accessories, such as earrings, necklaces by using “creative power” with the aim of contributing to mitigating the marine plastic problem by utilizing the power of people with disabilities. We first conducted a qualitative and quantitative survey and then estimated and monetized the social values and impacts of this project by using a social return on investment (SROI) analysis.

MATERIALS AND METHODS

We followed the six stages of the SROI calculating process (SROI Network, 2012). The first stage is establishing the scope and identifying important stakeholders. We interviewed two representatives of KDC. The interviews were conducted online in July and October 2020 because of the influence of COVID-19. In the second stage, we identified the outcomes and created an impact map. In the third stage, we collected additional data through questionnaires that were created and distributed to disabled persons, KDC staff, people and organizations who support the project’s activities, and consumers in February 2021. We established the project’s impacts in the fourth stage and are in the process of calculating the SROI as part of the fifth stage. The sixth stage is reporting and embedding the results.

RESULTS AND DISCUSSION

Logic model of the project

Twenty-four intellectually and/or physically disabled persons use Creators. The activities of KDC were not limited to Kanazawa because individuals or groups from all over Japan who sympathize with the purpose of the activity send marine plastic wastes to the project. The upcycling project therefore actually motivated beach cleanup activities in a larger area. A simplified diagram of the logic model of the project is presented in Figure 1. The evaluation period was one year, from December 2019 to December 2020.

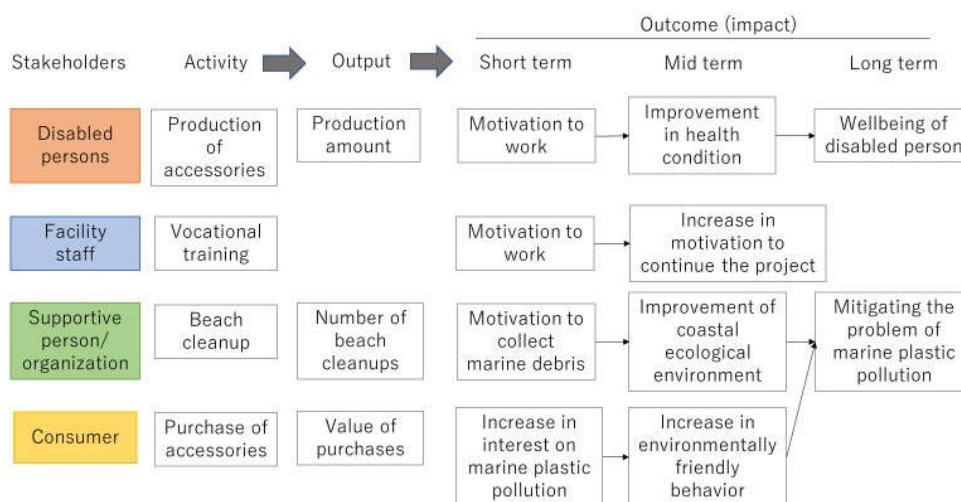


Figure 1. Logic model of the marine plastic accessory project

Description of the inputs and outcomes

The inputs for the project are small because no purchase of machinery was required. Existing tools such as scissors and irons are used in the production process. Most of the inputs are time and labor for the disabled persons, instructors, and beach cleanup volunteers. Various outcomes were achieved, including product creation, increased motivation to work for the disabled participants, an improvement in the marine ecological environment, and an increase in environmentally friendly behavior by consumers.

CONCLUSION

This study evaluated the outcome of a marine plastics upcycling project by using an SROI analysis. At the time of writing this abstract, we had not yet finished monetizing the total outcome, but our preliminary estimates show that the SROI value (total outcome/total input) will be at least 1, confirming the effectiveness of the project. We plan to continue to study the project by using more accurate information obtained through questionnaire surveys.

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