

## SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

**Action number: CA17133**

**STSM title: Feasibility study on the addition of specific plastic products to the existing deposit system allowing for “closed loop” solutions**

**STSM start and end date: 01/09/2021 to 30/09/2021**

**Grantee name: Ines Traxler**

### PURPOSE OF THE STSM:

Previous research has shown that the recycling system in Iceland can be significantly improved as only 28 % of the plastic waste was recycled in the last few years [1]. At the moment, the collected plastic waste is either not sorted or only sorted manually. This leads to a very poor quality of the collected waste fractions, which can then either only be thermally recycled or processed into lower quality products. Furthermore, the monetary value of unsorted waste fractions is very low. The feasibility study should show to what extent it makes sense to add products to the existing deposit system or whether this can increase the value and recycle quality. This STSM aims to find out what conditions are necessary to add a packaging product to the deposit system and what other steps could be taken to improve the recycling system in order to secure and increase the waste quality. For this purpose, different stakeholders in the Icelandic recycling system were asked about their experiences with the current system and ways to contribute to an improvement.

### DESCRIPTION OF WORK CARRIED OUT DURING THE STSM

The STSM started with an extensive literature research on the plastics recycling system which was followed in Iceland. It was tried to figure out the general waste management of plastics regarding collection of the waste, treatment in the recycling facilities and furthermore how it is recycled. During the literature research, several responsible companies were found. Furthermore, the literature research was continued with looking for information on the deposit system in Iceland compared to other systems which are used in different European countries. A short project outline with exemplary questions was designed to give the potential interviewed person a first overview on our project so they can decide if they can contribute to that or not. Subsequently, all included stakeholders were identified and contacts were searched. The responsible persons were contacted via e-mail first and secondly by a phone call if no answer is given. After scheduling the interviews they were conducted either online (e.g., Zoom, MS Teams) or preferably in person directly in the company. The interview time was set to around one hour. Each semi-structured interview started with a short introduction of our research topics and an explanation on nature-based solutions (NBS) followed by an introduction of the interviewed person and the company they represent. During the interviews it was tried to get from general questions to the more detailed ones. All interviews were concluded with the question if the interviewed person can recommend further interview partners who have knowledge in our field of research and if they are able to provide us contact names and e-mail addresses. As interview partners, waste treatment and waste management companies, recycling companies, environmental NGOs and politicians were chosen to be contacted. In-between it was possible to talk to a representative of the city council who is a member of the left-green party in Iceland. After the interviews, the recording, which was mainly done by phone, was transcribed. In total, nine interviews were conducted during the stay of four weeks in Reykjavik.

### **DESCRIPTION OF THE MAIN RESULTS OBTAINED**

It turned out that the feasibility of expanding the Icelandic deposit system is good. Also, most interviewed stakeholders stated that they are sure that the Icelandic population would receive this change quite good and they are willing to change something in their collecting behaviour of waste if they can be sure it is treated well afterwards. The population is aware that a lot of their waste is sent abroad for incineration. The managing director from Endurvinnslan stated that they already tried to add milk bottles out of high-density polyethylene to the deposit system as this would be a clean waste stream and the amount is big enough. Nevertheless, they did not do it because the largest dairy company MS wouldn't accept this change. The overall requirement to add any packaging product to the deposit system is that the material must be recyclable, otherwise, it would only be a waste of time and money. However, this contradicts the statement on Endurvinnslan's website, where it is stated that at this stage, it is not yet possible to recycle the collected glass because the cost of exporting it would be too high. Instead, it is used for other purposes in the construction industry. The representative from Endurvinnslan said, the only option for recycling PET is to send it abroad. At the moment, the yearly collected amount of PET bottles with the deposit system is equivalent to not even one full day of running the recycling machine where the waste from Iceland is sent to. According to their information, the granulate obtained from the collected PET bottles from Endurvinnslan which is processed in the Netherlands is reused for PET bottles. Especially the yoghurt cup might not be usable for the deposit system as they are not made of the same material. Mostly polypropylene or polystyrene is used which would lead to further sorting effort. The Icelandic waste companies are not aware of the importance of waste sorting for further treatment. A lot of waste is still landfilled and the other part is being sent to incineration. Proper sorting would not only improve the quality of the waste, which would make it applicable for mechanical recycling but also increase the price for the sold waste bails. Therefore, an expansion of the deposit system would enhance the quality of the waste as no waste collection company has technical sorting machinery. If they sort the waste, they do it manually. Further stakeholders of waste management companies stated that they would prefer a change of how the plastic waste is collected. Now the Icelanders have to bring it to collection centers. The idea was to provide waste bins for plastic packaging (and also paper) to every household in Iceland where the separately collected waste is picked up. This would it make easier for the population and they expect a higher recycling rate.

### **FUTURE COLLABORATIONS (if applicable)**

[1] Saman gegn Sóun (n.d.). Retrieved 7 October 2021, from <https://samangegnsoun.is/plast/>.