



Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan

switchasia



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Guidance

KAZAKHSTAN: Towards a Circular Economy for Plastics

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List of Abbreviations

EU	European Union
EPR	extended producer responsibility
GE	green economy
MEGNR	Ministry of Ecology, Geology and Natural Resources
MSW	Municipal Solid Waste
NGO	non-governmental organisation
RoK	Republic of Kazakhstan
SCP	Sustainable Consumption & Production
t	tons

Introduction

This guidance has been developed to complement and further develop the draft SCP Action Plan of the Republic of Kazakhstan, which was developed under the EU SWITCH-Asia Program on Sustainable Consumption and Production.

This guidance document presents international experience and recommendations for how to address the environmental problems related to the use of plastics in society. This includes the development of an extended producer (including importer) responsibility (EPR) mechanism and a plastic waste management system in general.

In order to assess the current situation and the relevance of the issues under consideration in Kazakhstan, a series of consultations were held with stakeholders including the Department of State Policy in Waste Management of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, the self-regulatory organisation Kazakhstan Waste Management Association 'KazWaste', JV Coca-Cola Almaty Bottlers LLP, the Corporate Fund NGO Republican Center for Environmental Technologies, Zhasyl Damu JSC (the EPR Operator), the Association of Legal Entities Association of Packers of Kazakhstan, and the PlastNet plastic collection and recycling network.

As can be seen from the list, the opinions of plastic container manufacturers, waste management companies, as well as NGOs were represented.

Also invited were experts from the Switch-Asia SCP Facility program who specialise in global plastic issues from the point of view of international management.

As a result of the discussions, a technical workshop was then held with all participants in the consultations to discuss the results.

International experts were informally consulted, and they helped the authors to compare the various kinds of measures and approaches taken in a number of countries with the experiences and needs in Kazakhstan. Earlier experiences from research and practice were then complemented with a limited literature review focusing on experiences in non-OECD countries.

Waste Plastic in Kazakhstan

Volume

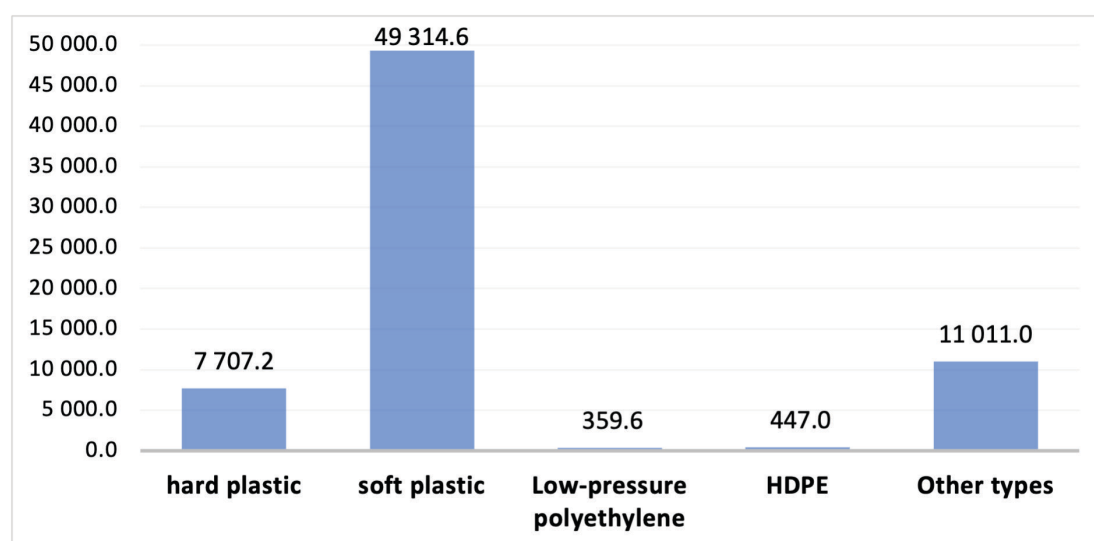
The volume of plastic waste generation, according to the Information Review based on the results of maintaining the State Inventory of Production and Consumption Waste for 2019¹, is presented in Table 1.

Table 1. Volume of generated non-hazardous waste for 2017–2019 in Kazakhstan (thousand t)

Waste types	2017	2018	2019
Packaging materials	55.4	37.1	82.6
Waste paper	130.4	211.3	227.7
Waste plastic	5.3	13.3	68.84
Waste electronic and electrical equipment	10.3	4	1.32
Bulky waste	0.8	3.8	73.7
Construction waste	531.3	690	486.1
Other waste	277,415.30	294,495.30	334,511
Vehicles out of service (pcs.)	3790	194	135

In the volume of plastic, soft plastic prevails in available statistics (Diagram 1).

Diagram 1. Volume of plastic waste for 2019 in the Republic of Kazakhstan



According to the Information Review in Kazakhstan, only 28.7 percent of the generated volume of plastic is recycled and reused in everyday life and human activities.

¹ <https://ecogofond.kz/wp-content/uploads/2020/09/Informacionnyj-obzor-za-2019-god.pdf>

According to the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan (MEGNR RoK), about **4.5–5 million t** of municipal solid waste (MSW), which includes plastic waste, are generated annually in Kazakhstan.

According to Zhasyl Damu JSC, **11.2%** of the total volume of solid waste is polymer (plastic). The calculated total volume of plastic waste is presented in Table 2.

Table 2. Volume of municipal solid waste (MSW) and waste polymers (plastics)

Year	MSW million t	Waste polymers (plastics) million t
2020	4.6	0.51
2021	4.2	0.47

The average MSW recycling rate in Kazakhstan is 18%, and this mainly applies to plastics, waste paper, glass and cans.

A comparison of the estimated plastic waste generation data for 2020, 2021 (**0.47–0.5 million t**) and actual plastic waste collection data for 2019 (**0.068 million t**) shows a significant gap.

Collection of plastic waste

A network of plastic collection points is being developed in Kazakhstan. In 2018–2020, 147 collection points for secondary raw materials were opened in Kazakhstan with the assistance of the EPR Operator.²

According to Zhasyl Damu JSC, the list of types of plastic waste accepted at recycling points is shown in Table 3.

Table 3. Acceptable types of plastic waste

Recycling code	Name, description
01. PET	Polyethylene terephthalate (PET), polyester, beverage bottles
02. HDPE	High density polyethylene, plastic bottles, bags, trash cans
04. LDPE	Low density polyethylene, bags, buckets, pipes, lids, food containers
05. PP	Polypropylene (PP), reusable tableware, cups, dishes, bumpers
06. PS	Polystyrene (PS), disposable tableware, yogurt cups, food containers, egg packaging

The list of the main plastic waste recycling facilities was also compiled by Zhasyl Damu JSC³ and is presented in Table 4.

² <https://recycle.kz/ru/punkty>

³ <https://recycle.kz/ru/svedeniya/utilizaci>

Table 4. Plastic packaging waste disposal facilities

Nº	Waste Recycler	Capacity, t/year	Contacts
1	Astana Recycling Plant LLP	3300	Astana (former Nur-Sultan)
2	Green Technology Industries LLP	7000 t in 2021; 10,000 t in 2022	Turkestan region, Ordabasy district, Badam village
3	Raduga LLP	3200	North-Kazakhstan region, Petrovavlovsk
4	LLP GorKomTrans	3000 tons in 2021; 3578 tons in 2022	Karaganda region, Karaganda
5	EcoComfort Cleaning Company LLP	300	Karaganda region, Karaganda
6	LLP Status-Everest	910 t in 2021; 2,000 t in 2022	Turkestan region, Kentau
7	Qazaq Recycling LLP	1200	Almaty city
8	LLP Production company Dorplast-invest	900	Almaty region, Qonaev (former Kapshagay)
9	Individual Entrepreneur Popov I.A.	800	Pavlodar region, Pavlodar
10	Green Park Kokshetau LLP	1680	North-Kazakhstan region, Petrovavlovsk

Based on the data on the location of plastic waste processing facilities, the following map was compiled (Figure 1.)



Figure 1. Map of plastic packaging waste disposal facilities

The map shows that the main plastic processing facilities are concentrated along an imaginary axis from north to south within Kazakhstan. Almost the entire west of Kazakhstan and the eastern part remain uncovered. Given the long distances, there are logistics difficulties with the collected plastic.

Restrictions

According to Article 351 of the Environmental Code of the Republic of Kazakhstan, it is prohibited to allow plastic and polyethylene waste, or polyethylene terephthalate packaging, to be disposed of in landfills.

Also, from June 14 to November 14, 2022, a ban was introduced on the exportation of PET waste from the territory of Kazakhstan (*Acting order Minister of Industry and Infrastructure Development dated May 27, 2022 No. 289 'On some issues of regulating the export of polyethylene terephthalate waste'*, which covers the exportation of bottles, vials and similar products from the territory of Kazakhstan, along with waste, trimmings and scraps from plastics/propylene polymers).

Economic support measures

In order to develop and stimulate the use of green technologies in RoK, a 'green taxonomy' (Classification of 'green' projects) has been developed and approved (*Decree of the Government of the Republic of Kazakhstan dated December 31, 2021 No. 996 'On approval of the classification (taxonomy) of green projects to be financed through green bonds and green loans'*).

The classification (taxonomy) of 'green' projects to be financed through 'green' bonds and 'green' loans include the category of **sustainable use of water and waste** (sustainable use of water and water saving, waste and wastewater, conservation and restoration of resources). Threshold indicator - recycling of collected secondary raw materials **at least 80%**.

Since January 2022, Zhasyl Damu JSC has been dealing with issues of supporting the development of secondary raw materials (plastic, glass, waste paper, etc.) within the competence of the EPR Operator. Today, due to the change in the legal status of the EPR Operator, subsidising the plastic waste management process in Kazakhstan has been suspended. The loss of this financial support has had a negative impact on the industry, and some small companies specialised in the collection and processing/sale of plastic waste have suspended or completely terminated their activities.

International Experiences

When, in the mid-twentieth century, plastics initially entered the world market, they were seen as an invention with high potential. This was a material that could be produced at very low costs, and that could be designed with many of the properties that the economies needed. Many different types of plastics were introduced to the markets in the following decades, and the various types of plastics were given more precise properties as various different additives were added. In the last few decades plastics have truly acquired international distribution, and products and structures made of plastics can now be found throughout the entire world. The relatively low price of the various plastic materials has contributed to this global use. It should be noted that the share of plastic in household waste is rather lower than higher in the richer countries.

In some cases, there have been less favourable opinions about plastic materials. The predominating use of fossil materials for producing plastics is one of the issues that has received considerable attention. It has also been clear that the existing approaches to recycling plastics have not produced much valuable secondary material. For most of the plastics, the quality of the recycled material has been low, and the possibility of using such materials for the same purposes as the virgin materials is very limited. In many cases, plastics have today replaced materials with much better properties for recycling and in some cases plastic products have replaced reusable products, though also a number of products made of plastics are reused, or could at least be reused.

Plastics contribution to global warming, as a result of using fossil materials as the starting point, has contributed to the quests for changes, but compared to the fossil fuels the impact is much smaller. However, plastic products have had a very considerable impact on littering and related problems. The attention has often focussed plastics ending up in water courses, lakes, seas and the oceans. Plastic is also a very visual part of littering in nature and in populated areas. In most instances, the plastic products remain long in nature or landfills without degrading. Plastic products are instead being split into ever smaller pieces (ultimately what is called microplastics) that are causing unclear impacts on various ecosystems, as well as on humans and animals.

As a result, much attention is being paid to finding solutions to these problems. Almost every country has taken such efforts and most countries have introduced some policy instruments and other regulations to make changes. It is, however, not clear whether these measures have led equally to the expected and desired results.

The concept of *circular economy* (CE), in the wide interpretation it often gets, has a given place in the attempts to deal with the problems related to plastics in many countries. Perhaps most of all in the EU, where the problem of plastic has been a focus of the work to develop a circular economy for Europe. However, it is in our view very reasonable to say that the measures that have been decided are only to some degree likely to provide the changes being sought. We will in this section pinpoint a number of the most important discussions and measures that we have been observing, with a focus on the Member States of the EU.

It is fair to say that a major focus of the debates around circular economy has been on the products that are made from plastic and their life cycle. We can then distinguish three types of measures that have been discussed and, to some degree, implemented.

1. A change of the design of products can be brought about by laws prohibiting the use of plastics for certain purposes, or alternatively by levying taxes or fees to induce manufacturers to choose other materials. Design changes can also be initiated by manufacturers or other actors related to the product chain and be based on market or other image-related considerations.
2. An extended re-use of plastic products can become a policy, including an extended use of various durable products, through better product quality and reparability.

3. Recycling of plastics must come about as the result of better collection practices, added to improved sorting and recycling.

It is also important to pay attention to plastics used within and between companies in the product chain. Measures that could be used are largely similar to the three items outlined above, but to induce such changes may often rely on a more general approach to improve the environmentally related work of companies. That is, there must be measures to help companies better grasp alternative solutions and evaluate the benefits related to the solutions. Such benefits can be directly cost-related or be connected to image issues or various advantages connected to a better reputation among stakeholders, customers and employees.

Measures that can improve the work in the companies include environmental management systems such as ISO 14001, which will help companies to systematically gather information, and this would provide better opportunities to find solutions for improvements. In a similar way, action to improve the design processes by spreading understanding and knowledge of eco-design will contribute to such benefits. In both of these approaches, systematic benchmarking will assure that companies are not lagging behind their direct competitors, as well as other companies who are already using such tools in their internal work.

If we take another look at the three types of measures introduced above, we should pay attention to the implementation, plans and discussion that are already taking place in the EU in particular. Starting with design change, this is a very complex area that is difficult to influence directly. We have not seen many direct bans of the use of plastics in products. and the current plans are rather limited. Some single-use products can be banned, such as plastic straws and single-use eating utensils, but the market share for the total amount plastic used in these items is limited, and the only effect of such measures may be to increase littering in places where people go for picnics. Many market changes are based on voluntary measures rather than legislation. These approaches are most likely to be connected to actions having to do with the corporate image of a business, and can thus at least be partly brought about through information dissemination and educational measures.

An area where we see more action from governments is plastic bags. Legislation on this product is global, and can be found in countries with affluent as well as very poor populations. There are a number of examples of bans of plastic bags in general, but also many examples of partial bans where certain sizes and thicknesses are the criterion for whether you are allowed to distribute them. We also see a large number of countries that have imposed fees on plastic bags, or mandated retailers not to give away bags for free, and often setting a minimum cost that consumers must pay for a plastic bag. The idea is to promote the use of reusable bags of various materials. The level of success has been shown to depend on the availability of reasonable alternatives and how well enforcement works. The amount of information and education is a factor influencing the success of the measures. The impact of the bags depends on the waste management system in place, i.e. how much is collected and how is it treated. In many countries, plastics bags and other plastic products constitute a very visible and disturbing proportion of littering. Many tourist sites suffer from this pollution. There are also many well-documented examples of plastic bags playing a major role in clogging up sewage systems, being eaten by marine animals, birds, etc. as well as cows and other domestic animals, and causing great harm (and even death) for these creatures.

Though these examples are significant, they address only a limited part of the problem, and the importance they are given is probably related to their visual impact, for instance on tourism. What we don't see is the gradual building up of plastics in the environment, with microplastics above all, inside humans beings and other animals. The full impact of this build-up on all ecosystems in the long term is as yet unknown.

Promoting the extended re-use of more durable products through legislation is a very complex task, and we seldom see such actions. A heightened interest for more durable products is coming about in product legislation in the European Union, but it is still not well documented. Today it is more likely that reusing products in the consumer market will be linked to promoting repair activities and second-hand markets, and through industry initiatives linked to perceived market advantages.

The third item in the list is recycling. Since the 1990s plastics have been included as items for recycling to be collected from household waste. The EPR legislation on packaging is explicit here, and the directives for cars and electrical and electronic equipment demand recycling levels that lead to plastics being an

important target for recycling. For every member state of the EU, collecting plastic has been a challenge in terms of achieving the desired results. Finding solutions for recycling so that recycled materials are attractive for the market has been even more difficult. When foreign markets were open, much of the plastic collected in Europe ended up in China and non-OECD countries, but these avenues are now being blocked. The plastic recycled from such waste has up to now been of low quality, and not always good enough quality to be sold.

Proposals

We are not able to propose a full solution for how to include plastics in a well-functioning circular economy. What we propose are a number of measures that the decision-makers in Kazakhstan could reasonably consider as serious. These measures will be a good place to start active work towards a circular economy of plastics in the country, but this work must be followed up by additional measures based on new studies and evaluations. We are also not providing the details of any measures, but describing the measures on a more general level, meaning that further work may be needed before these measures could be implemented.

We do not see many feasible measures related to banning or restricting products available. Kazakhstan may follow measures in other countries, such as in the EU, but as yet there are not that many measures, and almost no information about the experience of implementing them yet. Many of the proposed and implemented measures in Europe are also more about educating the population to live without certain products, replacing them with more sustainable alternatives.

The measures for plastic bags have so far not advanced in Kazakhstan and it would be very important to combine them with more educational measures that show and promote alternatives. Today it is too easy to claim that alternative bags are too expensive, when there exists no convincing evidence that this would be the big problem. Many citizens in Kazakhstan do remember a time when plastic bags were not much used, and yet still people managed to carry home their purchases.

It is also not easy to find products where a focus on re-use could be mandated legally. Kazakhstan, like many countries, has a history of refillable glass bottles and jars, but these systems were part of a different economy and cannot just be copied into today's economies. While this does not mean that all strategies for re-usable products will not work, it still makes it difficult to impose such rules for the Government. We will return to these issues below when we address education and other forms of awareness-raising. A deposit-refund system for drink containers has been discussed for Kazakhstan, but these systems rely heavily on the possibilities fighting fraud and cheating from various actors, including being able to distinguish products for which a deposit has been and which are entitled to a refund, from similar products that could be introduced on the market from abroad or through various other methods. Without controls and generally good governance, a deposit-refund system is impossible to manage properly.

It is, however, very relevant to address the question of recycling. Here we see that initiatives were started several years ago, but as also in many other countries, Kazakhstan faces a number of challenges. We do not have an infrastructure with separate collection of recyclables (and certainly not plastics separately) in most places in Kazakhstan. This means that it is still not an easy choice for most citizens to separate waste, because in most cases there are not separate containers available. There are, however, quite a few initiatives and these have previously been supported by the EPR system. However, as the former organisation has been replaced, it is still not clear how such supports will work in the future. It seems to us clear that there is a need for supporting transports of collected materials to treatment facilities, and as money is collected from these products as part of the EPR system, it seems necessary to find a workable way of supporting the necessary transports economically.

The fact that in Kazakhstan there are long distances between population centres means that the distance between collection activities and treatment facilities can be very substantial, and hence transportation is expensive. Today there is a prohibition on exporting plastic waste, and we have not been able to find good reasons for such a limitation. We are, therefore, questioning the ban. The final goal of the whole activity should be to find good markets and an approach with reasonable economy.

We have noticed a misunderstanding of the EPR systems in general, and in Europe in particular. While the EPR systems have proven quite successful for securing a good level of waste collection, they have not lived up to the desired level of influencing the design of new products. The systems tend to lead to the same fees for competing companies as the focus has been on common collection systems. Today there

are efforts to improve this situation by having so-called modulated fees⁴ paid to the producer-responsibility organisations (PRO). However, the main emphasis is limited to collection, and the fees are often low compared to the price of products, so it is still an open question whether the modulated fees will lead to any design improvements. That some design improvements of products are the result of market demands is probably true, but other measures are needed today to obtain more substantial effects.

We believe that it would be beneficial for the recycling of beverage containers and related plastic packaging to cooperate with the leading companies selling and packaging the beverages. Coca Cola and a number of other major business players are active in supporting collectors and recyclers to improve the recycling of their empty containers and packages. Joint action with this type of industrial actor promises to enhance recycling results in terms of both quantity and quality.

We have also seen that there is a need to generally improve the environmental work of Kazakh business companies. This can be achieved through awareness raising campaigns and education. For companies to be able to identify the relevant measures, more education and training – in particular environmental management systems and eco-design – will be necessary.

We have also realised that there is a substantial need to educate people on both environmental issues and about acting as responsible citizens, and we clearly see a need for emphasizing the issues to which every citizen can contribute. If Kazakh children learn about and understand why environmental work is needed and what every citizen can do, they will make good 'change agents' and be able to teach their parents and older relatives why this is needed and how they can participate in this work as citizens and as professionals. Experience from other countries shows how important such measures can be for medium- and long-term environmental work. And focusing on education means there will be a need to educate and select teachers who are trained for this essential work.

⁴ Modulation of EPR fees means that the fees paid to the Producer Responsibility Organisation (PRO) is by law raised by a certain percentage if the product does not fulfill established criteria concerning content of difficult to take care of materials in recycling, or doesn't fulfill other criteria as a specified content of recycled materials etc.



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