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Contribution to the development of a joint public-private roadmap to transition to reduce the use of single-use plastics (SUPs) in Jordan (N-E-JO-1)

Roadmap to address SUP items in Jordan

(Task 4, Deliverable 4)

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WATER AND ENVIRONMENT SUPPORT IN THE ENI SOUTHERN NEIGHBORHOOD REGION

The "Water and Environment Support (WES) in the ENI Neighborhood South Region" project is a regional technical support project funded by the European Neighbourhood Instrument (ENI South). WES aims to protect the natural resources in the Mediterranean context and to improve the management of scarce water resources in the region. WES mainly aims to solve the problems linked to pollution prevention and the rational use of water.

WES builds on previous similar regional projects funded by the European Union (Horizon 2020 CB/MEP, SWIM SM, SWIM-H2020 SM) and strives to create a supportive environment and increase the capacity of stakeholders in the partner countries (PCs).

The WES Project Countries are Algeria, Egypt, Jordan, Lebanon, Morocco, Libya, Palestine, Syria and Tunisia. However, in order to ensure the coherence and effectiveness of EU funding or to promote regional cooperation, the eligibility of specific actions can be extended to neighboring countries in the Southern Neighborhood region.

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ABBREVIATIONS

DOS	Department of Statistics
DRS	Deposit Return System
EPR	Extended Producer Responsibility
F&B	Food and beverage
HDPE	High Density Polyethylene
JCI	Jordan Chamber of Industry
JEDCO	Jordan Enterprise Development Corporation
LDPE	Low Density Polyethylene
EOL	End of Life
ML	Marine Litter
MoE	Ministry of Environment
MRFs	Material Recovery Facilities
MUs	Multi-Use Products
MSW	Municipal Solid Waste
NDCs	Nationally Determined Contributions (UNFCCC)
NGO	Non-Governmental Organization
PE	Polyethylene
PP	Polypropylene
PET	Polyethylene terephthalate
PR	Public Relation
PS	Polystyrene
PVC	Polyvinyl chloride
RSS	Royal Scientific Society
SUNP	Single Use Non-Plastic
SUP	Single Use Plastics
SWM	Solid Waste Management
VA	Voluntary agreement
WES	Water and Environment Support

1 INTRODUCTION

1.1 THE WES NATIONAL ACTIVITIES ON SUPs IN JORDAN AND THIS ROADMAP TO ADDRESS SUP ITEMS IN THE COUNTRY

As part of the WES project's work plan, the Ministry of Environment (MoENV) of Jordan has asked the WES project for support to implement its green and circular economy agenda and particularly the strategies and action plans for green and circular economy in the solid waste sector, with emphasis on Single-Use Plastics, and in advancing sustainable consumption and production.

For that purpose, the WES team proposed two technical assistance activities under two of its themes: "promotion of circular economy" and "PPP and access to sustainable Investment". This "twin" activity covers two topics, curbing Single-Use Plastics (SUPs) and Green Banking, has been formulated to support the implementation of the country's Green Economy roadmap and green investment opportunities in the waste sector in Jordan and in particular of SUPs. The two activities are intended to complement each other and to be implemented in an integrated way.

The present document "Roadmap to address SUP items in Jordan" has been developed as part of the first activity "Contribution to the development of a joint public-private roadmap to transition to reduce the use of single-use plastics in Jordan". It has considered the document authored under the second activity "Draft recommendations for stakeholders on green banking and green investment opportunities to curb plastic waste in Jordan".

Preceding steps were the analysis of the baseline situation on SUPs in Jordan, and based on it, the selection of four SUPs, which, with the agreement of the Ministry of Environment, were to be the focus of this Roadmap.

More specifically, the four categories of SUP items for on-the-go food and beverage packaging that were selected and are the focus of this roadmap, are:

Plastic bags
Drink bottles, caps and lids
Food containers including fast food packaging
Cutlery, plates and trays

The study on the baseline situation mentioned above was completed by an analysis of the alternatives to the four selected SUPs within the local (Jordanian) context. These findings are integrated in the present document.

Furthermore, since a similar activity is currently being conducted in Lebanon under the WES project, some pertinent information and conclusions resulting from the Lebanese activity have been used as inspiration when drafting the present roadmap.

1.2 OBJECTIVES OF THE ROADMAP

Overall, by drafting the present document, the WES experts intend to:

- provide information on the production and good practices on replacing and/or recycling SUPs;
- present policy measures and financial options for curbing SUPs;
- contribute to paving the way for a gradual phase-out of SUPs and provide recommendations for a relevant strategy;
- identify adversely affected parties who would suffer loss of income as a result of actions set out in this roadmap and propose appropriate integration programs/measures.

More specifically, the proposed public-private roadmap to transition toward reducing the use of SUPs in Jordan:

- defines short- and medium-term actions to implement the plan in steps, with emphasis on the next 3-5 years.
- integrates as much as possible the outcomes of previous tasks and results of bilateral consultations with key stakeholders.
- describes actions with specific targets, including assignment of roles and responsibilities among the stakeholders.
- describes the necessary organisation of production/import, distribution to users/consumers, as well as the provision of mechanisms and infrastructure for the collection, treatment, eventual recycling and/or safe disposal of used SUPs.

The approach followed for the formulation of the roadmap and its different milestones is compatible with and largely inspired by the *Guidelines to tackle single-use plastic products in the Mediterranean Region*[1] elaborated under the Barcelona Convention.

It is noted that when considering the potential measures, the waste hierarchy and circular economy principles are followed. Hence, the measures should promote reduction and prevention in the first place, as a best strategy to abate waste and littering, as well as avoiding potential negative trade-offs.

2 CONTEXT

The MoENV has been taking concrete actions to support Jordan's green growth transformation. The MoENV has issued, in 2016, the National Strategy and Action Plan for Mainstreaming Sustainable Consumption and Production into Agriculture/Food Production, Transport, and Waste Management Sectors for the period (2016-2025). This Action Plan has been prepared in line with the regional SCP Action Plan for the Mediterranean, in cooperation with the SWITCH-Med Programme and financed by the European Union to support SCP common objectives in the region. This action plan defines common objectives and identifies actions guiding the implementation of the SCP at the national level. It aims at

[1] SCP/RAC (2021). Guidelines to tackle single-use plastic products in the Mediterranean Region. http://www.cprac.org/en/news-archive/general/guidelines-to-tackle-single-use-plastic-products-in-the-mediterranean-region-a-

achieving, as a first step, a shift to sustainable patterns in a number of priority areas of consumption and production.

The MoENV also issued in 2020, in partnership with the Global Green Growth Institute (GGGI) and key national stakeholders, the Green Growth National Action Plan 2021–2025 (GG-NAP). This action plan mainstreams the concept of green growth into sector-level development agendas in the Agriculture, Energy, Waste, Water, Tourism and Transport sectors. Each sectoral GG-NAP provides detailed descriptions of priority policy and investment actions, formulates a set of priority projects with the implementation policies that will strengthen the enabling environment for greener investment and private sector development. These priorities are aligned with the Sustainable Development Goals (SDGs) and the NDC Action Plan as well as national sector-level plans, strategies and implementation priorities. Many of the 86 actions included in these sectoral action plans are already under consideration or implementation by donors and investors. Many are included in Jordan's NDC Action Plan and are climate finance opportunities.

The Waste Sector Green Growth National Action Plan (Waste GG-NAP 2021-2025) includes 16 Waste Sector priorities (7 investment preparation and demonstration actions and 9 enabling policy and institutional reform actions).

The Waste GG-NAP was developed with the aim to:

i) Increase diversion of waste away from landfills, through the reduce, recycle and reuse approach;

ii) Build a 'virtuous cycle', a sustainable business model which offsets the cost on waste management for urban areas;

iii) Encourage private sector investment and job creation in the circular economy through innovation, market development and public-private dialogue; and

iv) Mainstream critical waste streams into sector priorities, including construction and demolition waste, e-waste, hazardous waste.

Jordan's Green Growth Vision – economic growth which is environmentally sustainable and socially inclusive – puts a strong emphasis on all these programs. The MoENV is thus committed to the implementation of the above-mentioned action plans and developing concrete initiatives for a circular economy which also aim to improve the practices of sound waste management in Jordan.

3 LESSONS LEARNT FROM PREVIOUS ACTIVITIES

3.1 BASELINE REPORT

Plastic bags[2] and other plastic materials are a major source of environmental degradation and represent a substantial cost burden on MSW management authorities. Uncollected plastic waste is also responsible for reducing the effectiveness of municipal drainage infrastructure. Recovery of plastic waste in Jordan when it exists is highly contaminated. There is no PET recycling activity. Numerous individual waste pickers usually collect waste fractions of marketing value directly from the MSW collection containers dispatched over the urban areas, or the MSW delivered to the official landfill/dumpsites. Data and information on waste recovery and recovery of plastic waste in Jordan is therefore very scarce.

In 2017, MoENV issued the regulation of degradable plastic shopping bags (No. 45/2017) and its amendments, which states that plastic shopping bags have to be degradable or whether they are produced or imported, unless the thickness of the bags is more than 50 microns. Also, the production of black plastic shopping bags is officially banned in Jordan according to the above-mentioned regulation, with the goal of preserving the environment and the economy and eliminating the adverse effects of plastics on public health.

Jordan is also issued a special instructions about an Extended Producer Responsibility (EPR) system for packaging materials in 2022, including plastic packaging.

To get an overview of all plastic waste (and not only of plastic bags) and to decide which SUP items should be the focus of the present roadmap, a preliminary study was conducted by WES to provide the baseline situation. Based on the results of the preliminary study, a set of 4 SUPs were selected and constitute the scope of the roadmap. The selected SUPs are the following:

Group of SUPs	SUP	Reason for selection
Packaging	Plastic bags	Shopping bags have already been targeted previously, and the MoENV wants to build on their previous work as littering caused by plastic bags is still visibly high and they are found in large quantities in the waste stream.
Food and beverage packaging	Drink bottles, caps and lids	Littering caused by drink bottles, caps and lids is visibly high and they are found in large quantities in the waste stream.
On-the-go food and beverage packaging	Food containers including fast food packaging	Littering caused by food containers is visibly high and they are found in large quantities in the waste stream.
On-the-go food and beverage packaging	Cutlery, plates and trays	Littering caused by cutlery, plates and trays is visibly high and they are found in large quantities in the waste stream.

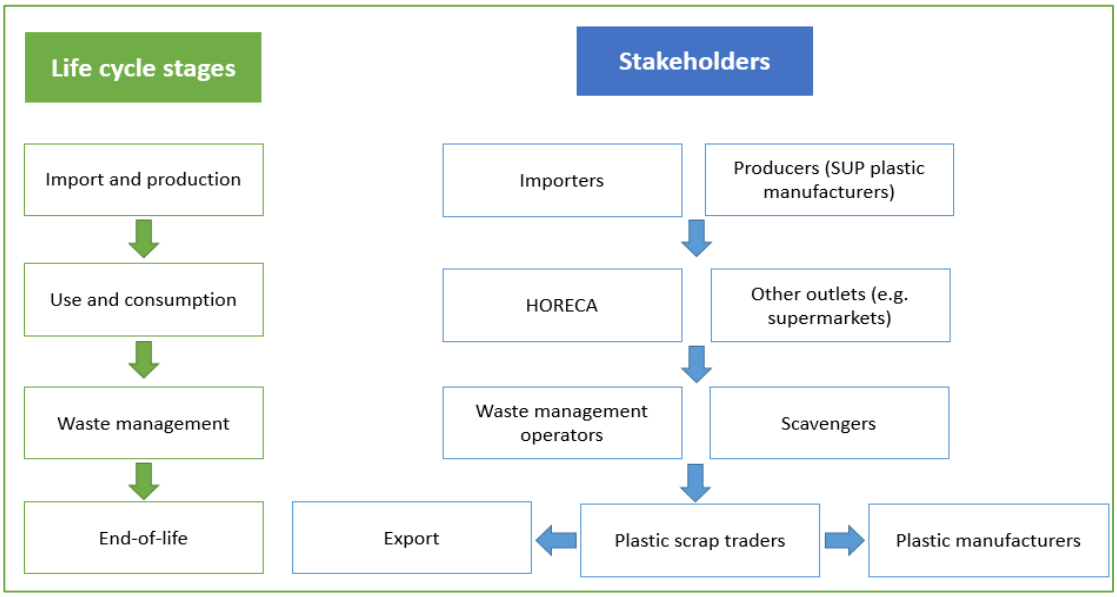
The main conclusions of the study are summarized as following:

[2] Studies suggest that Jordanians use 3 billion plastic bags annually, and only 20 percent of these find their way to the landfill. As of 2016, there were seven factories in Jordan producing biodegradable plastic bags, while there were 400 local factories producing plastic bags. At the same time, there are more than 1,300 factories producing plastic products in Jordan which generate 24,000 jobs (roughly 10% of industrial sector employment)[2].

- Data about the number of consumed SUPs are not available in Jordan, as the existing monitoring and quantification systems do not separate SUPs from multi use plastics. Therefore, in order to proceed with the SUPs minimisation roadmap, it is recommended to introduce quantification of SUPs into the existing reporting systems within JCI and DOS.
- The market of SUPs in Jordan is fairly large and many types of businesses profit from it including factories, importing companies, distributors and retail companies. The market for manufacturing SUPs alone is estimated to be around 118.3 M JD per year and that does not include the share of importing and retail companies. These economic activities must be considered through the process of reducing SUPs in Jordan as they will be negatively impacted.
- Plastic recycling in Jordan is well established for most plastics, with the main issue being the contamination of the plastic waste. To improve plastic waste recycling, programs should be developed to reach the consumers in order to clean plastics before disposal and to try to collect as much as possible plastic waste separately to avoid contamination.
- PET recycling is currently unavailable in Jordan although PET is highly recyclable. Possibly a PET recycling facility can be created with some financial support from the government or donors in order to improve the rate of PET recycling, which is a major SUPs material.
- The industrial sector and retailers in Jordan are motivated by the market demand of products. As long as there is market demand, the products will be made. It is wise therefore to try to change the demand in the markets from SUPs to other alternatives of paper products that are recyclable or reusable products before trying to change altogether the manufacturing process itself.
- From the interviews conducted, most of the stakeholders were not in favour of complete banning of products or adding non-refundable taxes that increases the price of items as a first step. Most opinions were in favour of product labelling to encourage recycling and proper disposal, raising awareness of the dangers of SUPs, restrictions for limited use in natural and cultural heritage sites, and utilizing the EPR system in association with the private sector. All this, in addition to promoting SUPs alternatives such as paper and cardboard products and reusable products.
- The COVID 19 pandemic created a favourable environment for the enhanced use of SUPs as people were worried about infection. It is therefore important to keep an eye on the pandemic as the SUPs minimization roadmap is developed, allowing for some flexibility till the end of the pandemic before any fees or restrictions on SUPs are applied.

Considering the selection above, the graph below indicates the different stakeholders to be involved in the process.

Figure 1. Product life stages and associated groups of stakeholders in the selected SUP value chain



Applied to the Jordanian context, apart from the MoENV, the following stakeholders are to be involved:

- Ministry of Local Administration (MoLA)
- Ministry of Industry and Trade (MoIT)
- Greater Amman Municipality (GAM)
- Jordan Chamber of Industry
- Jordan Chamber of Commerce
- Jordan Investment Commission
- Academic institutions
- Private sector (SUPs businesses, SWM operators, plastic transformation and recycling)
- Department of statistics (DOS)
- Jordan Enterprise Development Corporation (JEDCO)
- NGOs

In relation to the consumption and end-of-life of these SUPs, the following points summarise the situation in Jordan:

- Data about the amount and types of consumed SUPs are not available as the existing monitoring and quantification systems do not separate SUPs from multi use plastics.
- Reported consumption is of nearly 3 billion plastic bags per year[3], which is about 300 bags per person per year. The regulation has had some effect in reducing plastic bags, especially black bags, but the issue remains, partly because of the informal market and partly because of misconceptions on biodegradability.
- Most plastic drinking bottles are made of clear PET, which is partly collected by the informal sector and exported. No information on the consumption was found.

[3] Balash Kees - Leave the Bag | Environmental Awareness - UNESCO Multimedia Archives

- In relation to food containers, it seems that they are widely used in many food services, including the use of problematic polymers such as Styrofoam. This fact has been exacerbated due to the pandemic. However, some international restaurants have opted for alternatives, mostly paper or wood based.
- Plastic cutlery, plates and trays have gained more popularity in the Jordanian society as people tend to use them as a low-cost, convenient option for business or personal use. This has also been exacerbated due to the pandemic.
- Plastic manufacturing in the country is very relevant (import of approx. 200,000 tonnes of raw polymers/year), which indicates an important economic dimension linked to SUPs in the country.
- Through the efforts of the informal waste sector (pickers and processing facilities), Jordan has a fairly well-developed plastics value chain recycling for all forms of plastic, with the exception of PET. The plastic waste recycling market in Jordan is reported[4] to process around 4,000-6,000 tons per month of plastic waste, which are mostly reused within the Jordanian industrial sector with some exported.

3.2 ALTERNATIVES TO SUPs REPORT

Different types of alternatives are to be considered, ranging from alternative business models, multi-use products (MUs), single use non-plastic alternatives (SUNPs), or different consumer behavior. Considering the range of potential options, a selection is summarized in the following table.[5]

TABLE 1: Alternatives to selected SUPs

SUP	SUNP	MU	Practices avoiding the need
Plastic bags	• Biodegradable/compostable plastic bags • Kraft paper bags	• Reusable PE bags (often called "bag-for-life", and characterised by a minimum thickness e.g. 50 microns) • Woven and non-woven polypropylene bags (or others such as nylon and polystyrene bags). • Shopping trolleys • Cardboard boxes • Back pack • Baskets	
Plastic drink bottles, caps and lids	• Metal cans • Tetra-bricks	• Reusable plastic bottles (more robust, and usually made of polypropylene or copolyester	• Water fountains • Improvement/ supply of tap water quality

[4] USAID Recycling in Jordan Activity, Market System Analysis (2021)

[5] To note that educational materials exist on this issue of promoting alternatives, such as "The heroes of the Mediterranean disembark against single-use plastics" (SCP/RAC 2018), available in Arabic as well: http://www.cprac.org/sites/default/files/otherfiles/the_mediterranean_heroes_disembark_against_single_use_plastics_.pdf

SUP	SUNP	MU	Practices avoiding the need
	• Glass bottles	• Metal bottles • Glass bottles • Flasks	• Soda machines for use with refillable bottles • Cap attached to the bottle (reducing the littering potential)
Food containers including fast food plastic packaging	• Cardboard containers without plastic liners • Biodegradable bagasse clamshells • Aluminium food containers	• Crockery • Tiffins/lunch boxes • Food boxes and containers	• Allowance to bring-your-own container • Availability of eat-in space
Plastic Cutlery, plates and trays	• Wood cutlery • Biodegradable/compostable plastic items • Cardboard items	• Crockery • Metal cutlery • Reusable plastic items (more robust)	• Allowance to bring-your-own • Availability of eat-in space • Only add plastic cutlery to the meal when it is requested

Some important considerations are to be made in relation to alternatives:

- A direct switch from SUPs to SUNP items in the absence of any further incentive to change consumer behavior is likely to have little to no impact on the issues of litter and waste generation. However, depending on the specific material chosen for a particular application, SUNP items may be easier to recycle if collected in formal waste management systems (e.g. packing paper for protection in place of polystyrene foam). Similarly, some materials may be associated with fewer negative impacts if landfilled or littered.
- A shift from SUPs to MU alternatives will usually involve a change in business models, in particular, to reuse models to enable the uptake of these alternatives, as well as policy measures driving this change.
- As for biodegradable/compostable plastic items, **it is noted that "biodegradable" plastic, or "bioplastic" alternatives, including bio-based plastics and compostable plastics are not considered credible alternatives for SUPs at present**. This is due to widespread misconceptions regarding the options for their end-of-life treatment, which in reality, are limited and present no added benefit relative to SUPs, except in very few applications. Important considerations to be made are:
  - Irrespective of the material, these items are single-use which implies impacts in terms of production and littering.
  - Specific Infrastructure to manage bio-waste is needed, including collection and end-of-life treatment (e.g. industrial composting).
  - The legal framework should require these items to be in conformity with biodegradable standards (e.g. EN 13432) to avoid false claims on biodegradability.

- Citizens must be informed and aware to separate these items at source, and yet, differentiation by the appearance is difficult and labels can be ambiguous.

In general terms, the development of alternatives in Jordan is low, as well as the business models and policy measures that would drive that shift. The only exception might be the regulation on plastic bags, although the considerations mentioned above on biodegradable items should be noted.

In order to promote certain SUP alternatives in Jordan, it is critical to know about the waste management, and particularly end-of-life practices for those alternatives. In fact, if alternatives are not collected and treated, there will not be any added value in promoting them.

There is no information available on concrete practices for the selected SUPs. However, USAID[6] tackled the performance of different value chains in relation to materials, and this information is interesting for the alternatives.

As for "biodegradable" alternatives, currently there is no management and appropriate infrastructure in place i.e. separate collection of organic waste and industrial composting. To create and maintain a new dedicated management scheme for separation and treatment of biodegradable plastics will enhance costs and complexity. Hence, **these alternatives shall not be promoted in the national context.**

In order to find out about the alternatives used, practices and perception, some interviews were done with companies in different sectors (supermarkets, hotels, restaurants, hospitals).

Considering the information received[7], several key messages were derived to promote further the SUPs alternatives in the country:

- From the perspective of the status of value chains in the country, the best option might be to promote **reuse options based on plastic (except PET) and metals such as stainless steel**. This is relevant for all the selected product categories. This approach would have less economic impact in the country since the value chain already exists, so the adaptation is more feasible.
- Biodegradable plastic items shall not be promoted due to the lack of bio-waste management.
- **Raising** consumers' **awareness** is key before promoting the alternatives, particularly in terms of convenience and safety. In relation to the COVID-19 effect, numerous scientific papers deny higher risks posed by reusable options, particularly in the hospitality sector.[8] It is equally important to raise awareness when they are introduced into the market as well.
- **Incentives** should be offered **to consumers** to promote reusable options. This can be done by private businesses on their own (e.g. rewards associated to a loyalty scheme), or promoted by the government through voluntary agreements or more coercive measures.
- Incentives should also be provided **to the private sector and entrepreneurs** to promote/develop further the alternatives. Opportunities and guidance should be given to switch SUPs producers to durable plastic applications or other product materials. Once the priorities have been set to promote sound alternatives to SUPs, options for upgrading their

[6] USAID Recycling in Jordan Activity, Market System Analysis (2021)

[7] For more details about the interviews, see alternative to SUPs report drafted under this WES project activity

[8] Oceanic Global COVID-19 Fact Sheet. https://oceanic.global/wp-content/uploads/2020/08/OG-COVID-FACT-SHEET-UPDATED-3.pdf

production capacity include: tax rebates, allocation of research and development funds, technology incubation, public-private partnerships, and reduction/abolishment of taxes on the import of material used to make alternatives, among others.

- A wide range of **policy measures can be applied** to promote alternatives (but also reduce consumption in the first place), as described in the following chapter. In fact, in the absence of those policy measures, little switch shall take place if this in only based on offer-demand.

The aim of the roadmap is to reduce as much as possible consumption of SUP items in part by increasing the **use of non-SUP alternatives.** As pointed out in the regional guidelines and in the WES baseline study conducted in preparation for the drafting of the roadmap, the availability and adequacy of alternatives (or other actions reducing the need) is a key parameter to establish the feasibility of the different policy measures. The roadmap intends also to **increase the collection and recycling of those SUP items** by putting in place collection schemes and recycling infrastructures.

4 PROPOSED ACTIONS TO BE TAKEN

4.1 AWARENESS RAISING

As a preliminary remark, in order to get the support and engagement of all stakeholders of the value chain into the process, it is key to inform them (importers/producers; retailers; waste managers, civil society, consumers, etc.) about the roadmap, the different steps to be followed, its consequences and their respective role in the process (see below the methodology chapter).

The awareness raising activity as such is a long-lasting task to be addressed to all (end) users, that starts at the very beginning of the process and lasts until the end, when targets are met. All kinds of communication means should be mobilized (TV, newspapers, social media, NGOs, sport clubs, etc.).

A **communication action plan** should be drafted to be implemented with provisions for the promotion of the roadmap and appropriate budget allocation, defining what communication channels to use for each targeted audience. This communication plan should include several aspects as follows:

- **Advocacy**: Over the last years international organisations and fora, as well as civil movements have been active in asking governments and companies to phase out SUPs. This is the case of the Last Plastic Straw,[9] a project of the Plastic Pollution Coalition, where citizens were encouraged to reach out to eateries and ask them to change their protocol to only serve straws upon request, or to make a change to non-plastic straw options – like paper, glass, or stainless steel – if diners do request a straw. Following customers' pressure, some eateries such as Starbucks[10] do not provide plastic straws anymore. This is a useful first step in building business and consumer awareness of the issues relating to SUPs. This could be seen as a precursor for the rolling out of wider measures.
- **Information/awareness campaigns**: Information campaigns should be targeted both at consumers and companies. For the latter, campaigns could focus on the brand benefits of promoting reuse options or reducing superfluous items, including savings in the long term. As for consumers, in addition to the approach for companies, they could foster anti-litter behavior. It is to be noted that campaigns targeting consumers can be initiated by the companies, whereas governmental and non-governmental organizations may address both. At a more strategic level and bearing in mind co-benefits, information campaigns could transform wasteful fast-food habits.

As regards the content to disseminate and as already mentioned, when considering the potential measures, waste hierarchy and circular economy principles are to be followed. Hence, the measures should promote reduction and prevention in the first place, as a best strategy to abate waste and littering, as well as avoiding potential negative trade-offs.

Therefore, considering the main conclusions laid down in the WES study on alternatives for SUPs, **the reuse option** for all categories of selected SUPs should be promoted. This means that important efforts must be dedicated to reuse campaigns, ideally accompanied by incentives. Consequently, it is

[9] https://www.plasticpollutioncoalition.org/the-last-plastic-straw-movement
[10] https://www.bbc.com/news/newsbeat-43567958

suggested to conclude **voluntary agreements** with certain categories of stakeholders (retailers, hotel and restaurants, bakers, etc.) and to dedicate a certain budget to their implementation in order to be able to promote reuse by economic incentives (rewards associated to loyalty schemes, support to new business models for examples or to more sustainable plastic products). Except for plastic bags where a regulation was already adopted, coercive measures (like bans) shouldn't be the immediate first option.

In parallel to the promotion of reuse options, and especially for PET bottles for which the reuse option is less feasible, it is crucial to **raise public awareness on the need to increase (selective) collection and on the recycling potential of SUPs waste.** Ideally, the campaign should already propose **a way to sort and collect SUPs**, at least **on a voluntary basis** and with concrete possibilities of selective collection (**special containers** in shops / malls / etc.).

Public authorities have specific **competences and influence** that can be brought to bear in order to reduce the flow of SUPs into the environment. In addition, they have significant spending power through their **public procurement** of goods and services. These measures can provide a good basis for raising awareness amongst consumers, and can lay the foundations for more ambitious measures, including incentives. Some examples include specific rules/restrictions in environmentally sensitive sites (e.g. beaches, touristic areas, etc.- in the Jordanian context, specific rules could be applied to areas with important cultural and/or natural capital, which are also popular touristic areas like Petra, Aqaba or Wadi Rum), obligations on reusables in public authorities' canteens, or at major public events (although this may depend on jurisdiction at events and what public authorities are mandated to regulate).

Public authorities must inform consumers (and other stakeholders) on the environmental impacts of SUPs, the need to change consumption behavior and the way they want to address the issue alongside the implementation of the strategy. Consumers and business should be informed about the possibility of **consumption levies** that increase the cost of SUP items placed on the market and incentivize non-use or substitution by single-use non-plastic and multi-use items. It has to be showed that this measure can help to align business and consumer interests, in the context where an EPR scheme is well implemented.

Special attention should be given for the avoidance of Styrofoam. An eventual ban could be an option.

TO DO: Communication action plan towards consumers AND other stakeholders of the value chain aiming to raise public awareness on Reuse alternatives, eventually in order to avoid consumption levies and the need for selective collection.

4.2 VOLUNTARY AGREEMENTS AND COMMITMENTS

A range of measures which require no specific legal instrument could be taken directly by companies, for example: charging for the distribution of SUPs or the supply only upon request. Voluntary agreements (VAs) are generally those actions taken by companies to bring about changes without the need for changes in regulations, but often promoted by governmental organizations. For a VA to have effect, it requires some kind of pledge and public visibility for it to motivate action and create accountability, as well as monitoring from the relevant actors to prove successful. Setting targets and revisiting those create an incentive for those who agree to follow VAs. Voluntary agreements can sometimes apply to a whole industry, therefore creating a larger impact, i.e. from suppliers, distributors, sellers, all the way down to customers. The more stringent VAs are, the fewer businesses will sign up. So, there is a trade-off between numbers and stringency. To address this, a ranking system could be implemented (e.g. bronze, silver, gold) which commits businesses to increasingly stringent measures.

Voluntary commitments (VCs) and pledges, on the other hand, might be made by individual companies, and are usually made independently. This can take the form of **good in-house practices** in relation to SUPs in the private sector, which can include: availability/promotion of eat-in space, the provision of free water fountains, soda machines for use with refillable bottles, SUP distribution only upon customers' request, voluntary charges for SUPs, allowance/promotion of bring-your-own (BYO) containers, etc. The promotion of good practices can be fostered by the companies by providing incentives to customers, e.g. through loyalty-rewards systems.

TO DO: identify sectors or stakeholders willing to enter into a VA or VC, respectively, start discussion and elaborate VAs or VCs with them, proposing to them economic incentives if necessary.

4.3 WASTE QUANTITY AND MANAGEMENT IDENTIFICATION

4.3.1 DATA COLLECTION

As mentioned in the baseline study, data are still missing on the quantity of SUPs waste produced, collected and/or potentially collectable and its recyclability.

Those data are crucial to size missing collection/recycling infrastructures (CFR PET recycling infrastructures) as well as to fix targets at mid-long term.

Especially when speaking about EPR systems (which is the case in Jordan), it is above all a question of making the producer of the concerned product financially and/or operationally responsible for the end of life of this product, i.e. mainly for its collection and treatment. The resources generated by the sale of a secondary raw material (recycled waste) will in principle reduce the amount of this cost. And thus it is in the interest, in theory, of the producer to put on the market a durable product (which lasts in time, recyclable or reusable).This cost of collection and treatment may be borne directly by the producers who manage the operation of collection and treatment (operational EPR) or is reimbursed

(in full or in part) to the persons/entities in charge of collection and treatment who are not the producers themselves (see above).

In absence of data collection on waste produced, an estimate can be made using the quantities placed on the market. Considering SUPs, it can be roughly estimated that the quantities of products placed on the Jordanian market are the quantities of waste produced.

Other important data are the quantity currently collected and recycled/exported and also quantities of potentially collected and recycled materials.

Regarding data on collection, it should mainly be gathered by municipalities, having in mind that waste pickers are part of the system. Regarding data on recycling, municipalities, and private companies (recycling companies) must work hand in hand to determine what is currently recycled and what could be recycled in the near/long future. The next step is to estimate as far as possible the potential for improvement by setting-up separate collection and processing systems, to be able to determine the rate of progress of a collection and recycling target over time.

To determine the collection and processing capacity for the selected SUPs, various requirements need to be studied/analysed as a prerequisite to any further structuring system:

- The need for an inventory of the different waste management contracts throughout Jordan, including the duration of the contract (end date/renewal date), the conditions of these contracts, and the method of payment (volume-based or flat rate). This information is important to understand the flexibility of the territories to change the existing collection system.
- Need for an inventory of all existing pilot initiatives (if any) and an analysis of the results, not only in terms of quantity/quality collected but also the estimated costs of such initiatives.
- Need to characterise the national territory by distinguishing between densely populated areas and cities (including different parts of cities, e.g. residential areas vs commercial areas), highly touristic areas (Aqaba), and rural areas where the municipal collection service may still be deficient.
- Determine the possible collection systems. We propose the following scenarios:
  - Bi-flow collection (organic/dry)
  - Tri-stream collection (organic/beverage packaging/residual)
  - Specific collection for beverage containers (including the possibility of a deposit-refund system)

TO DO:

- Study aiming to collect data on waste quantities for the 4 SUP categories and to implement a system of reliable data collection for the monitoring and compliance of the future targets;
- Mapping of the Jordanian territory to inform the waste collection system choices; state of the art of Jordanian waste management, including a mapping of the existing waste collection contracts, waste treatment and plastic recycling infrastructures.

4.3.2 IMPLEMENTING PILOT PROJECTS

Improved waste management: Improving waste collection and separation is key to better managing the end-of-life treatment of those SUPs which are still produced and consumed. This broad measure relates to the creation of a well-functioning waste collection, transport, and treatment system, which leads to high collection rates for recycling. Such improvements in waste service delivery should be determined by municipalities, and accompanied by consumer awareness programmes, as well as incentives to ensure correct waste separation by households: penalties/fines for repeated offenses related to contamination of recyclables/lack of separation, pay as you throw schemes. This measure is closely related to implementing an EPR scheme for packaging. Whilst EPR might provide for better infrastructure (i.e., pays for separate collection and reprocessing), it does not guarantee high collection rates.

Based on the information gathered above, the existing collection models and initiatives will be compared (if necessary, pilot projects will be tested) in order to determine which ones are most likely to capture the maximum amount of waste. For each scenario, it may be necessary to test door-to-door and drop-off collection.

Several pilot scale waste recycling projects are ongoing in Jordan including a project sponsored by GIZ called “SOWAS” and a project sponsored by USAID called “Recycling Jordan”. Both projects are attempting to experiment with separation at source and with methods of collecting and utilizing recyclables. However, the results of both projects are still not clear and not published. Therefore, it is important that the MoENV supports an effort to extract the results of these projects (and any other similar projects) and lessons learnt from them in order to move forward more confidently with this roadmap before new pilot scale projects are designed and implemented.

Each pilot project should determine the number of inhabitants targeted; the quantities collected per stream (organic, packaging and residual in the case of a tri-stream); the most appropriate containers (these will depend on whether the collection is door-to-door or by voluntary drop-off); the quality collected (the criteria to be applied to determine this quality will have to be fixed in consultation with the recyclers and in correlation with the use that will be made of the collected waste (which application); the "feeling" of the households/users about the new collection method. In general, for each scenario, it will be necessary to also analyze how to integrate the informal sector.

In the case of a sorted flow collection, it is easy to imagine installing manual sorting lines at the level of controlled dumps where "local" waste pickers would work.

In the case of a bi-flow collection, we believe that a more substantial investment in high-tech sorting centers that would separate plastic from metal and bricks (tetraPak) would be necessary.

In the case of a specific collection of beverage containers only, the quantities collected will go directly to the recycling centers (provided of course that the quality is sufficient, which is generally the case).

Based on the data collected, EPR model scenarios can be discussed with all stakeholders, roles and responsibilities determined and the EPR contribution to be paid by producers can be estimated. In our opinion, it is not impossible to imagine that an initially chosen system could evolve over time, for example, starting with a two-stream collection system that would become three-stream a few years

later. This choice must, of course, consider the possibilities of infrastructure downstream of the collection. It is recommended that, as far as possible, a single sorting system be used for the entire territory. It is indeed easier for the population and the "communicators" that everyone sorts in the same way.

TO DO: launch of at least 3 pilot projects to test the feasibility and efficiency of waste collection schemes (bi-flow, tri-flow, selective collection of selected SUPs).

4.3.3 WASTE PICKERS' SURVEY/CENSUS STUDY

In parallel to the aforementioned studies elaborating different scenarios, a census study of all the waste pickers should be conducted as soon as possible (based on studies already carried out or in progress, if any), as well as an analysis of their needs to integrate them as much as possible into the collection scenarios. Not going through this step will certainly lead to the non-adherence of many people to the process and the creation of a parallel system causing a lower performance of the official system.

It is estimated that approximately 3,000 to 5,000 informal Street Waste Pickers (SWP) operate within the Greater Amman Municipality (GAM) (mostly males with 100 to 200 females) (USAID Recycling Jordan activity). These SWPs can be classified into two categories based on their work: those employed as municipal street sweepers and those who work independently as informal itinerant waste collectors. Informal waste picking networks play an important role in waste recycling in Jordan. However, the pickers do not get social and legal protection as they are not recognized as formal employees.

In addition to waste pickers, another informal group of waste sorters is also involved. These sorters operate under unsafe and uncontrolled conditions which is considered a high-risk, underpaid, and tedious work. In GAM, approximately 300 to 600 women work as sorters, with the majority being the wives or female relatives of GAM street sweepers. Despite challenging working conditions, working informally allows female sorters (and SWPs) to have flexible working hours and work from home while caring for their children and avoiding harassment and public scrutiny associated with street work (USAID Recycling Jordan activity).

While there are several possible strategies, which in turn depend on the collection model, there are important considerations, including government recognition, capacity building, and consideration in the system building process. In terms of integration models, there are four potential approaches:

(i) the informal sector is used in its current form, as a largely marginalized and unregulated community, recovering value at little or no cost to the value chain;

(ii) the informal sector is integrated into recycling programs, with some level of control (regulation) and monitoring, and with increased support from business and industry;

(iii) the willingness of government and business to formalize the informal sector through the creation of cooperatives and SMEs;

(iv) the formal waste and recycling sector is driving a labor-intensive process based on an informal sector absorption employment model.

TO DO: a census study of all waste pickers in Jordan, including the way they are operating and their revenues.

4.4 PACKAGING EPR SYSTEM

The work already initiated on an EPR scheme for packaging should be finalized. At least PET bottles' and food plastic containers' issues could be tackled under this measure. Special attention should be given to the eventual implementation of a Deposit Return System (DRS). Another point to keep in mind is what should be financed by the system in terms of public awareness raising.

Currently EPR schemes often only cover costs up to a certain level of collection and recycling. There are very few instances of EPR schemes where producers pay for the full costs of litter clean-up. Under a well-designed EPR system, the full costs of managing a product at end of life ought to be covered, and this might be assumed to include the cost of cleaning up any items that are littered on land and on beaches. This measure places the burden upon producers (via an annual producer fee) such that those currently operating street, highway and beach cleansing services are compensated. Likewise, EPR's fees can be modulated to account for the differentiated impact of options, including the likelihood of an item to be littered. EPR could also be set up to cover the costs of other measures such as information/awareness campaigns.

DRS on one-way beverage containers provides a clear economic incentive for consumers to return their empty containers, including plastic bottles, to return points. DRS can be applied to on-the-go food containers and cups as well, whether as regulation or business practice. Moreover, any items that are initially littered have a relatively high economic value, they are therefore picked up by others and returned, and so, ultimately, avoid ending up in the marine environment.

It is also recommended that the EPR system in Jordan establishes a data / information center to collect data from industrial, commercial and services sectors related to the production and consumption of SUPs as this seems to be missing in Jordan. It is an important step toward implementing this roadmap in order to be able to measure and monitor success of the implementation of the road map and its initiatives.

TO DO: Finalize the work initiated on implementing an EPR system for packaging

4.5 MANDATORY LABELLING AND SPECIFIC REQUIREMENT ON PRODUCT DESIGN

Mandatory labelling: This measure refers to an international or national labelling system whereby the authorities decide to introduce or change the labelling on products, for example the serial code or recycling symbol, to make it easier for consumers, sorters, and converters to deal with the product at end-of-life. The aim would be to have clearer labelling which would mean that products are more easily directed towards recycling/reprocessing. Another type of mandatory labelling may encourage "no-littering" by, for example, illustrating negative impacts. The effectiveness of such a measure depends on how clearly the message is conveyed, and how much of an impact the message has on consumers and sorters. This may not be applicable to small items such as straws or cutlery as they are often offered unpacked to customers/are too small to include their own labels or symbols.

Specific requirements on product design: Product design measures could be taken to improve the environmental performance of SUPs. This could take the form of mandating a minimum recycled content or specific recyclability design considerations for targeted items. This would incentivize producers and manufacturers to improve the recycled contents of their products and reduce the propensity for certain items to be littered. For example, to integrate straws into drinks containers, rather than selling such items separately. Evidence suggests that smaller items are less frequently collected in litter clean-up processes than larger items. The aim of any design measure, therefore, is to integrate smaller items with larger items so that littering is reduced. An EPR scheme can include these kinds of measures.

TO DO: Implement clearer labelling procedures and specific product design requirements to improve the environmental performance of SUPs.

4.6 FEASIBILITY OF THE DIFFERENT MEASURES

Considering the availability of alternatives and policy measures in place, the feasibility of the different measures can be depicted as follows (color code: green – high feasibility/experience; yellow – medium feasibility/low experience; red – unfeasible/non-experience).

	Awareness campaigns	Advocacy	Voluntary agreements - good in-house practices	Mandatory labelling	EPR - including litter clean-up costs coverage	Specific requirements on product design	DRS	Sales restrictions / measures for adoption by public authorities	Consumption levies	Bans
Cutlery, plates, and trays										
Plastic bags										
Plastic drink bottles, caps and lids										
Food containers including fast food packaging										

4.7 GOVERNANCE OF THE PROCESS

Whatever measure is chosen, it has to be an integrated management process involving a variety of stakeholders who must all be involved from the outset to achieve a system that is accepted and applied by all parties.

WES suggests establishing a steering committee, composed of a representative of each stakeholder of the value chain. This steering committee should be facilitated and chaired by the MoEnv and should meet on a regular basis to update collectively the progress of the various studies underway and the roadmap implementation process.

In general, this committee will have to be consulted for any decision to be taken within the framework of the implementation of the roadmap. Its opinion will be binding or non-binding, depending on the type of decision to be made. A majority rule could be established within the committee for any decision where consensus is not possible, and the committee's opinion is binding. “Ad hoc" subcommittees can be created to deal with specific issues.

It is also important to establish a communication line with the MoEnv dedicated to any issues or concerned related to loss of business or income due the roadmap and to offer support to concerned parties including provision of information about the roadmap implementing phases and ways to transition away from SUPs in a timely manner to avoid or minimize economic losses. Besides this collegial approach, bilateral discussion /negotiations could be facilitated between MoEnv and a category of stakeholders or single "volunteer"/frontrunner to conclude voluntary agreements and/or launch waste collection pilot projects.

TO DO: identify all actors of the value chain for each category of SUPs linked to the roadmap, set-up a steering committee that includes a representative of each stakeholder category.

4.8 SUPPORT NEGATIVELY IMPACTED PARTIES

Economic displacement of certain groups or persons may occur as a result of introducing this roadmap to reduce the use of SUPs in Jordan, limiting or harming their income generation and livelihood.

4.8.1 IDENTIFY NEGATIVELY IMPACTED GROUPS

Negatively impacted stakeholders are the informal waste sector, private sector parties, such as businesses engaged in SUPs manufacturing, trading, and organizations who use SUPS, such as restaurants and stores. Some of the identified stakeholders will be able to make the transition away from SUPs without significant economic impacts. While others may suffer more significant economic impacts as they are forced to proceed with this transition.

4.8.2 NEGATIVELY IMPACTED GROUPS SUPPORT PLAN

In parallel to this road map, measures that enable negatively impacted individuals or groups to improve or restore their incomes should be put in place. A plan for supporting these groups should be developed. The plan should specify the scale of impact on the individuals and/or groups, with a focus on gender aspects and the requirements of vulnerable groups, and ensure that the proposed support measures are proportional to the scale of impact and to be provided transparently, consistently, and equitably. The plan must also include provisions for monitoring the effectiveness of all support activities and evaluating them upon completion.

Firstly, the support plan should aim to minimize economic displacement by exploring alternatives for the businesses to transition away from SUPs into other more sustainable products in order to alter their production processes and routes of income in a timely manner to avoid negative impacts. Secondly, if any negative impacts are unavoidable, the plan should aim to mitigate them through appropriate measures, this includes incorporating affected parties into special financing programs and public incentive programs. Thirdly, the support plan should seek to enhance the living conditions of vulnerable individuals who may be economically displaced, by adequate support programs. Finally, to ensure transparency and accountability, all activities related to the roadmap should be carried out

through a transparent process that includes proper disclosure of information, meaningful consultation, and informed participation of those affected.

It is recommended to consult with representatives from the affected parties throughout the roadmap implementation phases. A dedicated communication line should be provided by the MoENV for Affected Persons or groups to enable them to communicate their concerns. Compensation methods for affected people may also include facilitating arrangements for obtaining employment or changing business activities and products to accommodate to the roadmap, along with supplementary assistance such as skills training, credit, licenses or permits, and specialized equipment. Special assistance may be provided to women, minorities, or vulnerable groups who may face difficulties in finding alternative livelihoods if applicable.

TO DO: Identify all potential negatively impacted organizations and parties by the roads map and consult with representative groups from them, providing full transparency, before and throughout the road map implementation. Establish a support plan that aims to minimize or mitigate all adverse economic impacts through various methods, including offering alternate employment, and supporting impacted parties to transition away from SUPs in timely manner in order to avoid economic losses.

5 SUMMARY OF ACTIONS AND IMPACTS

A summary of the measures and their key characteristics is shown in the table below. An overview of the potential impacts of the measures is also indicated hereafter. Potential impacts are based on the information obtained through the stakeholder engagement process and on a review of relevant literature, including the regional guidelines, the Impact Assessment of Single-Use Plastics for the European Commission11, and other relevant reports which cover actions that can be taken to minimize the impact of plastics on the environment.}

The impacts are categorized into:

- **Environmental impacts:** likely effects of the measures on greenhouse gas emissions, littering, water and air pollution and related biodiversity impacts;
- **Economic impacts:** likely financial effects of the measures on the actors along the SUPs value chain, including producers and retailers, public authorities, food and beverage businesses, the informal sector, and consumers;
- **Social impacts**: likely effects of the measures on the community, e.g. employment, better living conditions.

[11] ICF and Eunomia (2018). Assessment of measures to reduce marine litter from single use plastics. Report for DG Environment, https://ec.europa.eu/environment/waste/pdf/Study_sups.pdf

These impacts are not mutually exclusive and will need to be considered as a whole. For example, the financial costs to producers or retailers associated with some of the measures may be significantly outweighed by the environmental benefits. Furthermore, the combined impacts of the measures are not discussed here. Anticipating how the impacts will relate is only possible to assess through a modelling exercise, so further work may be needed to reach conclusions on this.

SUMMARY OF THE IMPACTS:

Some broad assumptions about the appropriateness of the measures depending on the item are stated in the regional guidelines. These are relevant for the food and beverage SUPs covered in this study. In particular, the design of policy measures to eliminate or reduce the consumption of problematic SUPs must consider the necessity for the item in question, and, where relevant, the availability of alternative products and systems to switch to. For example, where alternatives are widely available and accessible, or the consumption of the SUP item in question is for convenience only, a ban, or levy on the SUP item is likely to be suitable. On the other hand, where alternatives to the SUP item of concern are available only to a limited extent, and the need for the SUP is clear, then bans and charges to directly reduce consumption are not appropriate. Instead, it may be necessary to consider the potential for system/design changes at other points in the value chain, for example, to encourage collection of such items, or their redesign, to prevent litter, or to support behavior change to new systems of reuse. In all cases, there will be a need for clear communication and awareness programs, as well as transparency and accountability, to ensure engagement with and uptake by all actors in the supply chain.

Environmental impacts: Measures which drive a shift in consumption away from SUPs to MUs or SUNPs, such as consumption levies, bans or sales restrictions, will have the greatest environmental benefit in terms of reduction in greenhouse gas emissions, reduction in (marine) litter, amelioration of air and marine pollution and reduction in material demand. This is due to the important reduction or complete avoidance of consumption of SUPs. It is noted that between SUNPs and MUs, only the shift towards the use of MUs will result in the reduction of litter in the marine and terrestrial environment. Further, the environmental impact of SUNPs needs to be carefully considered when considering such a shift. Information campaigns, advocacy and voluntary agreements may also lead to these environmental benefits, but to a lesser extent as these measures do not place any obligation on the industry as a whole and are reliant on businesses and consumers' goodwill and awareness.

Well-designed and regulated EPR schemes which include the full cost of litter clean-up are likely to have one of the biggest effects on litter. EPR also has the potential to be an important driver of changes to SUP design, through incentivizing producers to reduce waste generation and pollution associated with these items.

Measures which lead to better waste management, such as improvements to waste collection and infrastructure for recycling, mandatory labelling, and specific requirements on product design, are likely to lead to greenhouse gas benefits by diverting waste from landfill and burning, as well as increasing the availability of good quality recyclate and the associated reduction in need for virgin material. Better collection and sorting of waste will also have an impact on marine litter.

Economic impacts: Measures targeting consumption of SUP products (e.g. bans, consumption levies, information campaigns) can lead to either an increase or loss in sales, depending on the type of product that consumption is switched to. Where the general trend of change in consumption is towards MUs (as for bans) this leads to a net loss in sales of SUPs. This will result in reduced turnover for producers but may lead to savings for consumers and potentially F&B businesses. All measures lead to a loss for producers of SUPs, and net gains are only made by producers where the increased turnover for producers of alternative products is greater than this lost revenue.

Careful consideration needs to be given relating to market response when measures such as bans and consumption levies are introduced, allowing enough time for F&B businesses and consumers to adapt to MU and SUNP alternatives. Business and individuals who make a living through working with SUPs should be consulted with and given proper notification and support to be able to transition away from SUPs in a timely manner. EPR schemes that require the costs of litter-clean up to be paid by producers leads to an internalization the costs of waste management. It shifts the costs of waste management from the public to producers, in-line with the polluter pays principle. EPR can also provide a revenue stream which can be used for funding information campaigns for raising consumer awareness.

Any measure targeting the improvement of waste management will lead to a cost for public and waste management authorities due to investment in new collection systems and infrastructure. This will represent a high upfront cost, with ongoing management costs. However, the financial cost may be outweighed by the environmental impact of diverting waste from landfill, dumping or burning, and revenue may be created by providing recyclate. Any potential levy (i.e. landfill tax) in the future will incentivize public authorities to improve waste management.

Social impacts: All the measures will lead to community benefits related to reduction in marine and terrestrial litter. Measures related to improving waste management will also lead to health benefits related to reduction in air and water pollution.

Any measure which promotes the use of MUs may lead to the creation of jobs in relation to collection and washing services in the short and longer term. It could also create new business opportunities. The increase in jobs is likely to significantly offset reductions in manufacturing jobs linked to the decrease in SUPs production. Measures relating to improving the waste management system will also likely lead to the creation of jobs at new waste facilities and in the waste management sector as a whole, for example in the running of a well-established EPR scheme. Countering the negative impacts on the informal sector (reskilling, capacity building) and creating new opportunities should be fully considered.

Summary of the key actions of the policy measures:

Policy measure	Actions to be taken	Policy driver	Enforcement	Relevant SUPs
Advocacy	Civil movements lobbying industry and governments for action on SUPs	Industry	Voluntary	All
Information/awarenes s campaigns	Public campaigns by public authorities or industry ed at informing the public about the issues and tions around SUPs	Government / Industry	Voluntary	All
Voluntary agreements & good in-house practices	Actions taken by companies to enact solutions on SUPs without changes in regulations. Examples: promotion of refillable options, providing eat-in space with MU items	Industry	Voluntary	All
Sales restrictions by public authorities	Public authorities exercise their influence to restrict use of SUPs in particular locations or events	Government	Mandatory	All
Consumption levies	Economic instrument at the country level that increases the cost of SUP items and incentivizes non-use, or substitution by SUNP and MU items	Industry / Government	Mandatory	Cutlery, plates and trays drinks cups and lids, food containers
Bans	Complete market ban on the sale of certain SUP items by a given year	Government	Mandatory	All
EPR - including litter clean-up costs coverage	Policy which places (partially or fully) the responsibility on producers for the collection, treatment, or disposal of their products. Significant in the SUP context only if the EPR scheme covers more/better collection than is already in place, including litter clean-up costs.	Government	Mandatory	Food containers, drinks cups and lids
Improved waste management	Improvements in waste management across the country, including better waste collection systems and treatment infrastructure especially for recycling	Government	Mandatory	All
Mandatory labelling	International or national labelling system whereby the authorities introduce labelling on products to make it easier for consumers, sorters and converters to deal with the product at end-of-life.	Government	Mandatory	Drink cups and lids, food containers and packaging cutlery, plates, and trays
Specific requirements on product design	Product design measures taken to improve environmental performance of SUPs (e.g. recyclability or recycled content). Measure often taken at supra-national level (e.g. EU requirement on tethering of bottle caps)	Government / Industry	Mandatory	Drink cups and lids, food containers and packaging cutlery plates and trays

The proposed time frame for each suggested measure is indicated hereafter:

Roadmap to address SUP items in Jordan		Year 1				Year 2				Year 3			
Tasks/measures	leadership /stakeholders involved	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Constitution and running of a steering committee	MoEnv /All												
Communication strategy drafting	MoEnv / Com Consultant / SC												
Implementation of the communication strategy	MoEnv / stakeholders / volunteers												
Waste quantity study	MoEnv / Consultant												
Waste management studies	MoEnv / Consultant												
Waste treatment infrastructures analysis	MoEnv / Consultant												
packaging EPR scheme implementation	MoEnv / All												
Voluntary agreements negotiation and finalization	MoEnv / HORECA									Implementation			
Voluntary agreements	MoEnv / retailers												
Plastic bags regulation amendment	MoEnv												
Plastic bags regulation monitoring	MoEnv												
Waste collection scheme pilot projects	MoEnv/ Municipalities / retailers / producers												
Analysis of the pilot projects results and collection system choice	MoEnv / Municipalities / retailers / producers												
Informal sector study	MoEnv / Municipalities / Consultant												
Informal sector capacity building													

6 CONSULTATION ON THE ROADMAP TO ADDRESS SUP ITEMS

During a consultation workshop held on 17 May 2023 in Amman, this roadmap was presented and discussed. The workshop convened key stakeholders representing the SUPs value chain. These stakeholders included representatives from relevant ministries, agencies and local authorities, the private sector ranging from solid waste operators, the plastics industry to the banking sector, numerous associations, research institutions, donors, NGOs, etc.

The primary purpose of the meeting was to deliberate on the draft roadmap and its associated policy measures, with the aim of achieving a consensus on their suitability and feasibility within the current context of Jordan. This deliberation took a step-by-step approach, with a clearly defined timeline to guide the process. The outcome of this discussion was the agreement on a final version of the roadmap, which will be subsequently implemented. The Ministry of Environment will assume leadership in driving the implementation of the agreed-upon roadmap and policies.

The agenda of the consultation meeting is annexed to this document.

7 CONCLUSION

The study on the selected SUPs baseline confronted a clear obstacle in finding reliable data on their production and consumption. However, the consultation with specific stakeholders and the current trend on environmental issues (public awareness increasing worldwide) allows for hope that acceptance and adhesion to concrete measures is likely. Given the current state of governance on key issues, Voluntary Agreements and/or Commitments led by the private sector (industry, retailers, shop owners, etc.) and supported by the MoEnv, hold some of the greatest potential for positive environmental, economic and social impacts.

Improving waste management, through higher participation or coverage rate, reducing contamination at the Material Recovery Facilities and reducing waste going to dumpsites and landfills, would set the scene for the introduction of an effective EPR scheme for materials including SUP food containers, drink cups and lids and beverage containers.

Measures which drive a shift in consumption away from SUPs to MUs or SUNPs, such as consumption levies, bans or sales restrictions, will have the greatest environmental benefit in terms of reductions in greenhouse gas emissions, reduction in marine litter, reduction of air and marine pollution and reduction in material demand.

Along these lines, the plastic bags regulation, if well applied (a modification of the current legislation is to be considered to give less importance to the biodegradable plastic alternative) and monitored, is certainly an important piece of the overall approach.

From a financial perspective, where the general trend of change in consumption is towards MUs (as is the case for bans or incentives to reduce all SU items), this leads to a net loss in sales of SUPs. This will result in reduced turnover for producers but may lead to savings for consumers and potentially new

businesses. A well-tailored global and yearly budget needs to be allocated to the overall implementation of the roadmap.

From a social perspective, all the measures will lead to community benefits related to reduction in litter. Measures related to improving waste management will also lead to health benefits related to reduction in air and water pollution.

The implementation of a circular economy strategy in a given territory, whatever the products category targeted, requires prior and constant consultation with all the actors involved. This consultation must be inscribed as a “modus operandi” and therefore sufficiently structured. However, it requires leadership that must be embodied by public decision-makers who remain the coordinators of the process, not only in terms of the decisions to be made but also in terms of consultation with the sector. Their role must be perceived by all the actors as guaranteeing the proper functioning of the consultation process.

8 ANNEXES

8.1 SUMMARY OF POTENTIAL IMPACTS OF MEASURES TO REDUCE CONSUMPTION OF SUPs

Policy	Environmental Impact	Economic Impact	Social Impact
Advocacy	Useful precursor of other measures, as helps to make business and consumer aware of the issues surrounding SUPs. Increased awareness of F&B customers of environmental issues related to SUPs which could impact their consumption behavior towards these SUPs. Lobbying government can lead to environmental considerations being prioritized.	Limited, as no one is obliged to do anything. Can help to highlight best practice of existing circular systems, especially where they save money for the retailers.	Community benefits related to reduction in marine and terrestrial litter.
Awareness/ information campaigns	Measures which drive a shift in consumption away from SUPs to MU or SUNP alternatives lead to a greenhouse gases benefit, providing alternatives are truly sustainable. Awareness campaigns is one of the measures which will have an impact on marine litter by reducing the purchase/use of at-risk items by consumers.	Public authorities will bear some of the cost of running campaigns. Increase in costs for producers who may part-fund campaigns (could be included in EPR requirements). Producers of plastic products make a loss, and net gains are only made where the increase in turnover for producers of alternative products is greater than this lost revenue. Consumers would stand to increase their net financial outlay if information campaigns led to a shift towards MU or SUNP products with higher purchase costs.	Community benefits related to reduction in marine and terrestrial litter.
Voluntary agreements & good in-house practices	F&B businesses voluntarily choosing more sustainable choices has positive impact on the environment through reduction of SUPs consumed, uptake in reuse and associated reduction in virgin material required, and the promotion of sustainable alternatives. Careful consideration is needed when selecting	Potential savings to businesses giving out/buying in fewer SUPs. Businesses could choose to charge for SUPs. As this isn't a levy, there would be no obligation on businesses to report and they could keep the revenue. However, this might encourage more sales of SUPs if businesses find they can recoup the cost, but unlikely as charging will probably disincentivize consumers. Potential cost of buying more sustainable alternatives. Although costs	Community benefits related to reduction in marine and terrestrial litter.

Policy	Environmental Impact	Economic Impact	Social Impact
	alternatives to SUPs to guarantee better environmental outcomes. The increased extraction of "sustainable" materials can then turn their excessive consumption into an unsustainable practice.	may be mitigated if fewer need to be given out (e.g. customers bring their own, or dispense with use) and could lead to medium to long term potential savings as behavior shifts towards more reuse. Businesses who follow through on their commitments might be disadvantaged as it might be more costly, so might not be beneficial relative to other businesses who don't have a commitment or aren't following it through.	
Sales restrictions by public authorities	Restrictions on the use of SUPs in environmentally sensitive areas (e.g., beaches, islands, archeological sites) can help protect these areas and is a good place to start raising awareness. Restrictions on SUPs and obligations on reusables at particular events/in specific sites can raise awareness of the issue and lead to more environmental behavior in general.	Potential savings to businesses/public authorities by not purchasing SUPs and using MU items instead, where possible. Potential upfront costs in investing in alternatives (e.g., MU), although over time this may end up being cheaper. Cost of collecting/washing MU but public authorities might invest in mobile dishwashers that could be rented out at events (e.g., current system in Vienna).	Community benefits related to reduction in litter. There may be opportunities for local employment for collection and washing of MU alternatives. Although F&B sector may not see this as a benefit, as they will want to save on cost.
Consumption levies	Measures which drive a shift in consumption away from SUPs to MU or SUNP alternatives may lead to a greenhouse gases benefit, providing alternatives are truly sustainable. Consumption levies is one of the measures which will have an impact on marine litter by reducing the sale of at-risk items.	Measures targeting consumption of SUP products, e.g., consumption levies, can lead to either an increase or loss in sales, depending on the type of product that consumption switches to. Producers of plastic products make a loss, and net gains are only made where the increase in turnover for producers of alternative products is greater than this lost revenue. Retailers of SUPs likely to also face a loss of sales. For F&B businesses, this may result in cost savings as they dispense with fewer items and don't need to buy so many. There is an additional cost burden on consumers, as the levy is applied to the purchase price of the product at the point of sale. Although this cost can be avoided by not opting for single-use items. Business compliance costs increase as more businesses are required to report, e.g. information related to the reduction in use of SUPs.	Community benefits related to reduction in marine and terrestrial litter.

Policy	Environmental Impact	Economic Impact	Social Impact
Bans	Measures which drive a shift in consumption away from SUPs to MU or SUNP alternatives lead to a greenhouse gases benefit, providing alternatives are truly sustainable. They lead to a decrease in demand for material, as they drive consumers to switch to reusable alternatives. Bans of relevant items is one of the measures that is most effective for reducing marine litter (e.g. bans of plastic bags).	Measures targeting consumption of SUP products, e.g. bans, can lead to either an increase or loss in sales, depending on the type of product that consumption switches to. Where the general trend of change in consumption is towards reusable products (as for bans) this leads to a net loss in sales of SUPs, leading to reduced turnover for producers of SUPs, potential savings for F&B businesses and savings for consumers who sell/use fewer SUPs. Producers of plastic products make a loss, and net gains are only made where the increase in turnover for producers of alternative products is greater than this lost revenue. Retailers of SUPs likely to also face a loss of sales. If the ban means that retailers need to opt for more expensive alternatives, they might try and circumvent the ban, so the measures need monitoring. Careful consideration needs to be given relating to market response when bans are introduced, allowing enough time for F&B businesses and consumers to adapt to MU and SUNP alternatives.	Community benefits related to reduction in litter and air pollution from burning. The use of reusable alternatives is linked to the creation of jobs in relation to collection and washing services in the short and longer term. It could also create new business opportunities. The increase in jobs is likely to significantly offset reductions in manufacturing jobs due to decrease net consumption.
EPR - including litter clean-up costs coverage	The environmental benefits are highly dependent on how the EPR scheme is set up. Wider extended producer responsibility (EPR) systems ensure that producers are internalizing the costs (including the environmental costs associated with litter and marine pollution) associated with the end-of-life management of the SUPs they place on the market. So, an EPR scheme which includes the full cost of litter clean-up is likely to have one of the biggest effects on marine litter. EPR also has the potential to be an important driver of changes to SUP design to reduce waste generation and pollution associated with such	Well-implemented EPR schemes require that the costs of litter-clean up are paid by producers. This internalizes the costs of waste management i.e., shifts the costs from the public to producers, in-line with the polluter pays principle. EPR can also be a good way of funding awareness raising information campaigns.	Community benefits related to reduction in marine and terrestrial litter. There will also likely be creation of jobs through a well-established EPR scheme. Impacts on the informal sector should be countered.

Policy	Environmental Impact	Economic Impact	Social Impact
	items. The introduction of an EPR scheme can also raise awareness of the public and improve recycling, thus reducing waste going to landfill.		
Improved waste management	Diversion from dumping, burning or illegal landfilling towards recycling will reduce methane and CO2 emissions. Reduction in leakage into the environment and littering will lead to environmental benefit.	Cost to public authorities and waste management authorities for investment in new collection systems and infrastructure for treating waste. This will represent a high upfront cost, with ongoing management costs. However, the financial cost will be outweighed by the environmental impact of diverting waste from landfill, dumping or burning. Also, any potential levy (i.e., landfill tax) in the future will incentivize public authorities to improve waste management.	Community health benefits related to reduction in litter and air pollution from burning. Creation of jobs (also for the informal sector) through new waste infrastructure facilities (e.g., sanitary landfills, composting facilities, material recycling facilities) located predominantly in the urban areas.
Mandatory labelling	Shift in behavior of consumers towards better waste management of SUPs (e.g., increased recycling) or towards choosing more sustainable alternatives will have greenhouse gases benefit. Better processing of SUPs at material recycling facilities due to clearer labels, leading to more material being reprocessed and thus reducing the need for virgin material.	There will be an initial cost to public authorities and producers in creating and implementing a new labelling system. There will be an initial cost to waste management companies (including material recycling facilities) for dealing with the new products diverted to recycling, but in the medium to long term, this may create income through more/better recyclate material.	Community benefits related to reduction in marine and terrestrial litter. Creation of jobs in the waste management sector.
Specific requirements on product design	Product design enabling higher recycled content will lead to greenhouse gases benefits as it reduces the need for virgin raw material and incentivizes better recycling and reprocessing of materials.	There will be a cost to producers for creating and implementing new product designs. There will be an initial cost to waste management companies (including material recycling facilities) for dealing with the new products diverted to recycling, but in the medium to long term, this may create income through more/better recyclate material.	Community benefits related to reduction in marine and terrestrial litter. Creation of jobs in the waste management sector.

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8.2 AGENDA OF THE CONSULTATION WORKSHOP

WES NATIONAL "TWIN" ACTIVITIES CO-ORGANISED WITHTHE MINISTRY OF ENVIRONMENT OF JORDAN
(ACTIVITY NO: N-E-JO-1&2)
JOINING FORCES TO COMBAT
SINGLE-USE PLASTICS (SUPs) IN JORDAN:
CONSULTATION WORKSHOP ON A PROPOSED ROADMAP TO ADDRESS SUPs AND DRAFT RECOMMENDATIONS FOR STAKEHOLDERS ON GREEN BANKING AND GREEN INVESTMENT OOPPORTUNITIES TO CURB PLASTIC WASTE

DATE AND PLACE: 17 May 2023 at the Hilton Hotel in Amman, Jordan

GENERAL BACKGROUND:
The EU funded "Water and Environment Support (WES) in the ENI Neighbourhood South Region" project is a regional technical support project. WES project aims to protect the natural resources in the Mediterranean context and to improve the management of scarce water resources. WES mainly aims to solve the problems linked to environmental pollution and the unsustainable use of water.
Since April 2021, WES has been providing technical assistance to the Ministry of Environment (MoENV) of Jordan to support the implementation of the Green and circular Economy agenda and green investment opportunities in the waste sector in Jordan with emphasis on Single-Use Plastics and in advancing sustainable consumption and production. More specifically, with the support and services of WES consortium members MedWaves, ACR+, GOPA Infra, MIO-ECSDE and LDK Consultants, the WES national "twin" activities are nearing their conclusion:

a) Activity N-E-JO-1, that contributes to the reduction of the use of Single-Use Plastics (SUPs) in Jordan, as advised in the Green Growth-National Action Plan on Waste under "Waste Sector Priority N°12 - Develop a joint public-private roadmap to transition to reduce the use of SUPs at the household and commercial levels".
b) Activity N-E-JO-2, that tackles the aspects of green banking in relation to the same issue of the reduction of the use of SUPs.

OBJECTIVE OF THE CONSULTATION WORKSHOP:
The objective of the consultation workshop is to present and discuss with the relevant stakeholders, the outcomes of the two interlinked WES national activities on plastic waste management in Jordan:

- a draft Roadmap to address SUP items in Jordan;
- draft recommendations for stakeholders on green banking and green investment opportunities to curb plastic waste in Jordan.

PARTICIPANTS INVITED TO THE CONSULTATION WORKSHOP:
Invitees to the consultation are the major stakeholders linked to SUPs and plastics in the country: representatives of relevant ministries, agencies and local authorities, the private sector ranging from solid waste operators, the plastics industry to the banking sector, numerous associations, research institutions, donors, NGOs, etc.

WORKING LANGUAGE OF THE CONSULTATION WORKSHOP:
The working languages will be English and Arabic.

JOINING FORCES TO COMBAT SINGLE-USE PLASTICS (SUPs) IN JORDAN:
CONSULTATION WORKSHOP ON A PROPOSED ROADMAP TO ADDRESS SUPs AND
DRAFT RECOMMENDATIONS FOR STAKEHOLDERS ON GREEN BANKING AND GREEN INVESTMENT
OOPPORTUNITIES TO CURB PLASTIC WASTE
17 May 2023, the Hilton Hotel, Amman, Jordan

AGENDA

08:30 - 09:00	Registration
09:00 - 09:30	Session 1: Welcome and opening remarks
09:00 - 09:30	Welcome, opening remarks and introduction to the consultation objectives *Dr. Mohammad ALKHASHASHNEH - H.E Secretary General, Ministry of Environment & WES Focal Point - Jordan* *Mr. Omar ABU EID - EUD, Energy, Environment & Climate Change Programme Manager Cooperation Section- Jordan* *Prof. Michael SCOULLOS - WES Team Leader*
09:30 - 10:45	Session 2: Addressing plastic waste and promoting green and circular economy in Jordan
09:30 - 09:50	National efforts in promoting green and circular economy in Jordan: Overview of the Green Growth National Action Plan and the National Municipal Solid Waste Management Strategy *Dr. Jihad ALSAWAIR, Director of Green Economy Unit and Minister advisor for technical affairs at the Ministry of Environment*
09:50 - 10:10	Baseline situation in Jordan and proposed sustainable alternative options to transition away from manufacturing and using SUPs *Dr. Eyad BATARSEH, Senior WES expert in environment and waste management and*
10:10 - 10:45	***Open discussion*** *Moderated by Prof. Michael Scoullos, WES Team Leader*
10:45 - 11:15	Coffee break
11:15 - 13:00	Session 3: Discussion on the draft joint Roadmap to address SUPs in Jordan
11:15 - 11:30	Regional context and proposed policy measures in relation to Single Use Plastics *Mr. Pedro FERNANDEZ, Senior Expert in Plastic Pollution Prevention Measures, WES/ MedWaves*
11:30 - 12:00	Presentation of the proposed public-private Roadmap to address SUP items in Jordan *Mrs. Françoise BONNET, Senior WES Circular Economy and Legal Expert*
12:00 - 13:00	Open discussion *Moderated by Prof. Michael Scoullos, WES Team Leader*
13:00 - 14:00	Lunch
14:00 - 15:30	Session 4: Discussion on green banking and green investment opportunities to curb plastic waste in Jordan
14:00 - 14:15	Update on the National Green Banking Strategy under development in Jordan *Mr. Mohamed Amaireh, Central Bank of Jordan*
14:15 - 14:45	Presentation of the draft recommendations for stakeholders on green banking and green investment opportunities to curb plastic waste in Jordan *Dr. Adli KANDAH, Senior expert on (Green) Economics and Banking, Dr. Koussai QUTEISHAT, Senior Environment and Water Finance Expert, Eng. Ahmad Al QATARNEH, Senior Solid Waste expert*
14:45 - 15:30	Open discussion *Moderated by Prof. Michael Scoullos, WES Team Leader*
15:30 - 16:15	Session 5: Stakeholder consultation results and closing session
15:30 - 15:45 15:45 – 16:00 16:00 – 16:15	Summary of the key consultation outcomes by Prof. Michael Scoullos, WES Team Leader Participants' commitment on follow-up and evaluation of the consultation Wrap-up and closing of the consultation workshop *Dr. Jihad ALSAWAIR, Director of Green Economy Unit and Minister advisor for technical affairs at the Ministry of Environment* *Mr. Omar ABU EID - EUD, Energy, Environment & Climate Change Programme Manager Cooperation Section- Jordan* *Prof Michael SCOULLOS, WES, Team Leader*
16:15	Closing

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