



## Appendix 2: Specification of Requirements

### Plastic packaging waste flow in Kenya

#### Background

The Environment Sector Cooperation between Kenya & Denmark focuses among other things on supporting the development and implementation of a recycling strategy for plastic packaging.

The amount of plastic packaging is growing in Kenya and will continue to grow. Polyolefin is the highest revenue generating material segment in the total plastic packaging market in Kenya. PET is the second largest consumed plastic resin after polyolefin and is likely to maintain its dominance in the market, due to its extensive usage in the food and beverages packaging<sup>1</sup>. Between 2010 and 2014 annual plastic production in Kenya expanded by a third to 400,000 tonnes<sup>2</sup>.

Kenya has a large number of plastic packaging producers (134 companies). These companies are involved in production of various plastics articles such as packaging bags, crates, bottles as well as containers. The large plastics include Acme Containers, Elgon Packaging, Kenpoly Manufacturers, Nas Plastics, BlwoPlast, Thermopack, Printpack amongst others<sup>3</sup>.

Kenya has a target to increase recycling of waste including plastic packaging waste. In the National Solid Waste Management Strategy (May 2015) the target is to gradually increase waste recovery (recycling, composting and waste to energy) to 80% by 2030.

In March 2017 Kenya has decided to introduce a ban specifically on plastic bags, mainly carrier bags<sup>4</sup>. However, a ban on plastic bags will only solve part of the problem with plastic waste as other types of plastic packaging waste will still be generated. Therefore, the development and implementation of recycling strategies for plastic packaging are needed.

In order to develop a recycling strategy it is necessary to have rough estimates of the plastic packaging flows in Kenya. In particular the amounts of plastic packaging put on the market per year in Kenya and the main types of plastic used in plastic packaging marketed in Kenya. Furthermore, an estimate on the amount of plastic packaging waste recycled in Kenya currently would be helpful in development of the recycling strategy. In addition knowledge about the companies recycling, importing or exporting plastic packaging waste is useful for understanding the potentials for the recycling industry in the future.

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<sup>1</sup> Plastic Packaging Market in South Africa, Kenya, and Nigeria, Forecast to 2019 – Frost & Sullivan 2016

<sup>2</sup> The Economist 2017: Plastic bantastic P 36 March 25th-31st

<sup>3</sup> The packaging landscape in Kenya – A users guide 2012

<sup>4</sup> Gazette notice no. 2334 dated 28th February 2017

## Objective

Provide knowledge on the mass flow of plastic packaging waste in Kenya. Especially the amount of plastic packaging waste generated per year and waste treatment of plastic packaging waste. In addition the aim is to have knowledge on the main type of plastic used in plastic packaging and map the recyclers, exporters and importers of plastic packaging waste in Kenya.

## Description of tasks

### *1. Estimation of the amount of plastic packaging put on the market in Kenya yearly*

Plastic packaging has a short lifetime. Therefore, a proxy for the amount of plastic packaging waste generated is the amount put on the market in the same year.

The contractor has to deliver estimation for the amount of plastic packaging put on the market in Kenya yearly. This estimation can be done in different ways depending on the availability of data sources<sup>56</sup>.

Denmark has for more than 15 years<sup>7</sup> used a methodology based on national statistical data about plastic packaging production and foreign trade of goods packed in plastic packaging. The statistic is divided into approx. 10,300 different product groups. The division into product groups is an international standard used by most countries.

The model is based on identifying the product groups for empty plastic packaging and product groups which mainly are packed in plastic packaging. The amount of empty plastic packaging is estimated from the production statistic. The amount of plastic packaging (both sales and transport packaging) from filled products is based on estimation from experts in packaging issues.

The calculation model is based on adding the amount of empty plastic packaging marketed with the net supply of plastic packaging from filled products from import and export.<sup>8</sup>

The amount of empty plastic packaging marketed  
+  
The net supply of filled plastic packaging from import and export.  
=  
The amount of plastic packaging put on the market

(for further information on the methodology see appendix 3)

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<sup>5</sup> WRAP 2014: Plastic Packaging Market Study (Plastic Flow) 2014

[http://www.wrap.org.uk/sites/files/wrap/Plastic\\_Packaging\\_Market\\_Study\\_2014\\_o.pdf](http://www.wrap.org.uk/sites/files/wrap/Plastic_Packaging_Market_Study_2014_o.pdf)

<sup>6</sup> NCM 2003: A survey of Nordic Packaging Data Collection Methods- TemaNord 2003:562 (see Appendix 3)

<sup>7</sup> <http://www2.mst.dk/Udgiv/publikationer/2015/04/978-87-93352-09-4.pdf>

<sup>8</sup> NCM 2003: A survey of Nordic Packaging Data Collection Methods- TemaNord 2003:562 (see Appendix 3)

The contractor can use one or more of the proposed methodologies above or suggest another documented methodology for estimation of the amount of plastic packaging put on the market in Kenya yearly. The contractor has to describe and argue for the suggested methodology.

It would be desirable to estimate the amount of the main plastic types (e.g. HDPE, LPPE, PP, PET) as well.

#### *2. Mapping of recyclers, importers and exporters of plastic packaging waste*

The task is to identify plastic recyclers, importers and exporters of plastic packaging waste in Kenya. National Environment Management Authority (NEMA) gives licenses to plastic recyclers and exporters and NEMA will provide the contractor with the list of current licensed plastic recyclers.

#### *3. Estimation of the amount collected for recycling in Kenya or exported for recycling*

The task includes the development of a questionnaire to recyclers, importers and exporters of plastic packaging waste and collecting the answers to the questionnaire from the stakeholders identified in task 2. The questionnaire have to collect information on the total amounts of plastic packaging waste processed/imported/exported and information on the main plastic types (e.g. HDPE, LPPE, PP, PET).

An estimate on recycling of plastic packaging waste in Kenya can be obtained by adding:

1) the amount of plastic packaging waste collected in Kenya which the plastic recyclers in Kenya are processing (import of plastic packaging waste has to be subtracted) + 2) the amounts collected in Kenya which the exporters of plastic packaging waste are exporting for recycling outside Kenya. The sum of these amounts will give the estimate for amount of Kenyan plastic packaging waste recycled.

#### *4. Estimation of plastic packaging waste flow*

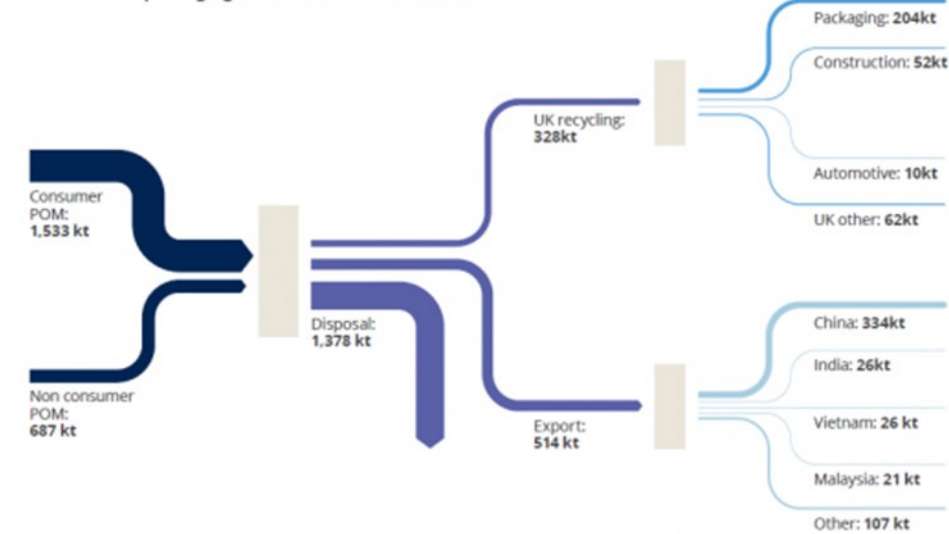
The task is to calculate a plastic packaging waste flow and end markets for Kenya based on the results and information obtained in Task 1 and 3

The idea is to have a diagram for plastic packaging flow as the one below for UK (WRAP 2017)<sup>9</sup>. It might not be possible to have the same details for Kenya. However, rough estimates will also be of help as a starting point.

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<sup>9</sup> <http://www.wrap.org.uk/content/plastic-packaging-flow-and-end-markets-o>

Chart 3: Plastic packaging flow and end markets, 2014



Source: WRAP estimates

## 5. Report

The contractor must deliver a final report in English explaining the methodology used and the result of the mass flow analysis has to be described and concluded. Electronic databases and calculation sheets developed under the project has to be submitted to the Danish Environmental Protection Agency (DEPA).

### Deliverables

- Estimation of the amount of plastic packaging put on the market in Kenya yearly
- Mapping of plastic recyclers and exporters and importers of plastic packaging waste including participation in a meeting for recyclers
- Estimation of the amount collected for recycling in Kenya or exported for recycling
- Report explaining the methodology used and the detailed result of the mass flow analysis

All deliverables have to be reported in English.

### Quality assurance:

The contractor shall assure the quality of the deliverables. All deliverables has to be delivered proofread. After receiving a draft, the DEPA can comment on the draft and ask the contractor for corrections to be made to the deliverables, before the contractor can finalize the report.

### Timeframe

The study will run for 4 months. (1 September to 31 December 2017)

**Time plan:**

- Delivering draft estimations of the plastic packaging flow ( plastic packaging on the market and plastic packaging recycled) by 1 November 2015
- Delivering draft report by 15 November 2017
- Delivering of final report by 15 December 2017

**Payment terms:**

The contract price can be invoiced as follows:

25% after delivering draft estimation of plastic packaging put on the market in Kenya yearly

25% after draft estimation of the amount collected for recycling in Kenya or exported for recycling

25% after delivering of draft report

25% after delivering final and approved report

**Organization and stakeholder involvement**

The project will be organized by a steering committee with participation of DEPA, NEMA, the Danish Embassy and the contractor.

NEMA will issue a letter to the contractor which allows access of information/data from various governments and non-state actors involved in the plastics business and this will include sourcing data from Kenya Revenue Authority (KRA), Kenya Bureau of Standards (KEBS) among other lead agencies and plastic manufacturers/recyclers.

A kick-off meeting should take place within one week after the contract enters into force at the Danish Embassy.

In addition, 1 meeting in the end of September and 1 meeting in November or December will take place in Nairobi.

The contractor shall take minutes during all meetings and send them to the DEPA for comments and approval within 1 week after the meeting.

Communication during the contract will be carried out by email and telephone. If necessary, teleconferences/videoconferences will be organized.

The result will contribute to the working group on development of a plastic recycling strategy for Kenya. This working group is organized by NEMA. The contractor is expected to present the results for the working group at a meeting in December 2017.

All communication in the project will be in English.