

# Technical Assistance Closure Report Template

## Objective of the technical assistance (TA) Closure Report:

- To communicate publicly in one document a summary of progress made and lessons learned during the TA towards the anticipated impact (sections 1-4).
- To document qualitative and quantitative data collected during TA, for use in donor and UN reporting (Annex 1).

## Steps for completing the TA closure report:

- The lead TA implementer submits the closure report at the end of the technical assistance as a final deliverable. The TA closure report will capture outputs, outcomes and impacts of all activities conducted under the TA. Please copy and summarise relevant material from previous TA outputs/deliverables and the Response Plan, as relevant.
- A CTCN Manager will review and revise the closure report before final approval by the CTCN Deputy Director.

## Important note on public and internal use of the closure report:

Once approved by the CTCN Deputy Director, the TA closure report will be a public document available on the CTCN website [www.ctc-n.org](http://www.ctc-n.org). Selected content will be used for targeted communication activities. Annex 2 is for internal use only and will not be publicly available.

## Closure Report for CTCN Technical Assistance

### 1. Basic information

Title of response plan	Assessment of the current status of the circular economy in the waste sector for developing a waste stream specific roadmap in Zambia
Technical assistance reference number	2020000017
Country / countries	Zambia
NDE organisation	Ministry of Technology and Science
NDE focal point	Mr. Ben Makayi
NDE contact information	makayinjamba2004@gmail.com
Proponent focal point and organisation	Mr. Michael Annel Phiri, Zambia Environmental Management Agency, <a href="mailto:aphiri@zema.org.zm">aphiri@zema.org.zm</a>
Designer of the response plan	Valentin Rudloff, CTCN, Valentin Rudloff, <a href="mailto:valentin.rudloff@un.org">valentin.rudloff@un.org</a>
Implementer(s) of technical assistance	TNO Netherlands, SIB-KEPSA, Nairobi, Kenya, local consultants Andrew Chinyepe, Chandirekera Mutubuki-Makuyana (both from Harare, Zimbabwe)
Beneficiaries	Zambia Environmental Management Agency (ZEMA), Ministry of Higher Education, local authorities, Ministry

	of Local Government and Rural Development, private sector, waste transfer centres
Sector(s) addressed	Waste management/municipal solid waste
Technologies supported	Municipal waste identification Waste collection and separation Conversion technologies for plastic waste
Implementation start date	(01/02/2021)
Implementation end date	(31/04/2022)
Total budget for implementation	USD 243,950
Description of delivered outputs and products as well as the activities undertaken to achieve them. In doing so, review the log frame of the original response plan and refer to it as appropriate	Output 1 : Development of implementation plan and communication documents Output 2 : Analysis of existing circular economy initiatives and key players in Zambia Output 3 : Identification of the perceived value of the circular economy and of the benefits, weaknesses, opportunities and challenges in Zambia's waste sector Output 4 : Circularity analysis of one prioritized waste stream Output 5: Development of a circular economy roadmap and identification of a potential circularity pilot project
Methodologies applied to produce outputs and products	Stakeholder mapping, questionnaires and interviews, data gathering and analysis, SWOT analysis, structured interviews with key stakeholders , roadmap development, conceptualization of pilot concept
Reference to knowledge resources	The UNFCCC TEC documents were reviewed but no direct use was made of TEC knowledge products was made  <i>Link to TEC knowledge database:</i> <a href="https://unfccc.int/ttclear/tec/documents.html">https://unfccc.int/ttclear/tec/documents.html</a>
Deviations	No major deviations, except a one month later delivery of results and final reports
Anticipated follow-up activities and next steps	The Ownership of the project results is with NDE, Mr. Ben Makai, Ministry of Technology and Science. The anticipated timeline of the proposed pilot concept is 1-3 years. Key stakeholders have been identified. These include :  ZEMA Ministry of Local Government Ministry of Green Economy and Environment City Council Lusaka (Dept. Waste Management) City Council Livingstone (Dept. Health and Waste) Keli Clean Livingston Manja Pamodzi Lusaka Also, a mapping of short, medium and long term interventions has been made, outlining the next steps

	in terms of the transition to a more circular waste system. has been established.
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## 2. Lessons learned

	Lessons learned	Recommendations
Lessons learned from the CTCN TA process	The TA process was well prepared, however implementation on the ground was challenged by sometimes bad communication means, COVID restrictions. As a consequence, data gathering on the ground was a challenge that took more time to complete than anticipated	Recommendations include : <ul style="list-style-type: none"> <li>Facilitating the data gathering (interviews, questionnaires, workshops) from stakeholders should be given more priority early in the process.</li> <li>Preparation of the stakeholder interaction process, including smooth facilitation (e.g. remuneration of travel costs, time).</li> </ul>
Lessons learned related to climate technology transfer	Define clearly the intervention to be made and the main actors for these interventions.	Arrange sufficient feedback of stakeholders in the implementation plan.  Recommendations include : <ul style="list-style-type: none"> <li>Risk mitigation measures</li> <li>Identified opportunities for over-coming barriers</li> <li>Long-term sustainability (e.g. building endogenous capacities, funding opportunities, etc.)</li> </ul>

## 3. Illustration of the TA and photos

For communication purposes, please provide 2-4 Power Point slides, including illustrations or charts, describing barriers, opportunities, methodology, activities, outputs and achieved results. The illustrations must be copied into the TA Closure report but must also be delivered as power point files. Also, please provide at least five high-resolution pictures in jpg format, capturing technical assistance. The pictures should illustrate how the TA has impacted the lives of the beneficiaries in particular and the communities in general.



*Figure 1: Chunga Sanitary Landfill, the only engineered landfill in Zambia*



*Figure 2: Illustration of the challenge in gaining access to the Chunga Sanitary Landfill during the rainy season*





*Figure 3: The Manja Pamodzi truck at the Chunga Sanitary Landfill*



*Figure 4: Manja pamodzi team explaining to the project team on the collection process and collaboration with informal waste pickers*



*Figure 5: A project team visit to Chunga landfill facilitated by Lusaka City Council.*



*Figure 6: A stakeholder meeting with sector players at Protea Hotel, Zambia*



Figure 1: Visit of part of project team Local government office

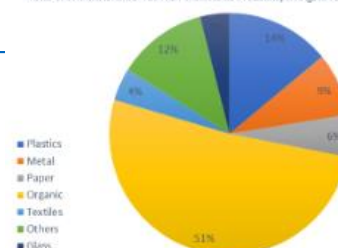


## Activity 2: Baseline assessment and analysis of existing circular economy initiatives and key players in Zambia

### SUMMARY OF RESULTS

- Low waste collection percentage - 58% (Local Authorities).
- The Waste Management Unit provides large waste skips, which are placed in strategic areas
- CBEs are common in city councils, serving the high - density, less profitable peri -urban areas
- No separation of waste at source for waste collected by local authorities and some private collectors, except CBOs & Social enterprises
- 51% of the waste generated is organic waste, 14% is plastic waste, 4% glass and 6% paper consist Metal is relatively substantial (mainly cans) and accounts for 9% of the overall waste content.

Total Waste Generated from all Households in Lusaka, Livingstone and Kitwe







## Activity 2: Baseline assessment and analysis of existing circular economy initiatives and key players in Z

### SUMMARY OF RESULTS

- Based on the household survey of the respondents, 26.5% indicate that their waste is collected by private players, while 18.6% of the respondents indicated that the public sector collects their waste.
- Waste is still mixed during collection because there is no capacity for separated collection.
- Data on waste generated remains a challenge
- Only 33% of respondents were willing to pay more for waste collection services, while 51% were not.
- Source separation is uncommon. 82,8 percent of households do not separate any waste, 17.2 primarily separate organic waste and plastics
- There is only one engineered landfill in the country



## Activity 2: Baseline assessment and analysis of existing circular economy initiatives and key players in Z

### SUMMARY OF RESULTS

- Informal waste pickers collect valuable components at dumps or landfills to separate them.
- Waste Transfer Centres buy up the separated.
- Plastics, paper (mainly cardboard), metal (primarily cans), and glass are the most common types of waste collected from landfills (primarily bottles).
- Plastic has the most developed waste market
- Waste recycling in Zambia is not very common. A few big players are involved in recycling various waste streams; however, these are mostly foreign-owned companies
- Small-scale home industries are also active in the manufacturing of products from waste

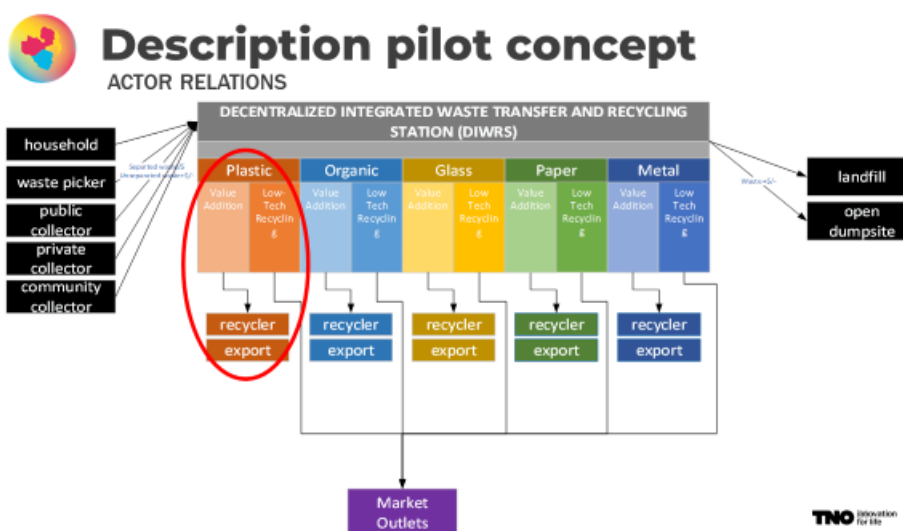




## Objectives to the roadmap

› When translating the three key components to the project, the following three overarching and key objectives are identified:

- |                                |   |
|--------------------------------|---|
| 1. Plastic waste management:   | <b>Increased recycling rate of plastics</b>   |
| 2. Municipal waste management: | <b>Development and implementation of a sustainable waste management system</b>        |
| 3. Circular economy:           | <b>Reduction of virgin material use and increased reuse of resources and products</b> |

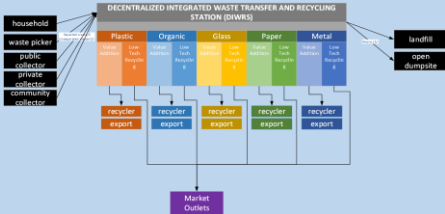


## 4. Impact Statement

The information in the table below will be used to communicate results and anticipated impacts of this technical assistance publicly. Please copy information from impact statement developed in the M&E Plan and update as relevant.

Challenge	The amount of waste produced annually in Zambia is estimated to be around 3,6 million tonnes. This large amount of waste is not handled or managed in a sustainable way, which endangers the health of the population and causes environmental degradation, health effects and loss of resources. Besides some
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	<p>separation of organic waste for domestic composting, and a low level of separation of plastics (mainly organized directly from higher income households by private players), proper separation at source is almost inexistent. This lack of separation of different waste streams leads to contamination of the different types of waste, reducing the potential for downstream recycling. Moreover, local authorities face quite severe challenges to collect waste, such as lack of budget and infrastructure. Hence the large majority of waste is collected by several private companies or Community Based Enterprises (who serve the high density areas). Most of the collected waste ends up on open dumpsites that are controlled by local authorities</p>
CTCN Assistance	<ul style="list-style-type: none"> <li>• The Climate Technology Centre and Network (CTCN) was engaged through the Zambia Environmental management Agency (ZEMA) to provide technical assistance in the 'Assessment of the current status of the circular economy in the waste sector for developing a waste stream specific roadmap in Zambia' project.</li> <li>• The team of consultants led by TNO from the Netherlands, has been working on the assessment of the current waste management situation in Zambia, the identification of potential routes for improving the waste system from a circular economy perspective, and a deep dive into the plastic waste system in Zambia. The insights of these activities have been used as the basis for the development of a national roadmap for the improvement of the waste system and the conceptualization of a pilot project for the management of end-of-life plastics</li> <li>• The roadmap for Zambia is based on four pillars of enhancing the institutional framework, promoting constructive collaboration, increasing knowledge and awareness and improving the physical infrastructure. Within each pillar, interventions and action points are defined on the short, medium and in some cases long term.</li> </ul>

	<p>Additionally, it is identified for the interventions whom the lead actors are to further take up responsibility of the execution of the intervention. The interventions are supported by more detailed sub-interventions, however operationalization and quantification of the roadmap is beyond the scope of this project and is suggested as a follow-up activity.</p> <ul style="list-style-type: none"> <li>The proposed pilot concept is focused on the concept of decentralized integrated waste transfer and recycling station (DIWRS)</li> </ul>  <p>One of the challenges met in the TA was the involvement of all stakeholders, both from the public sector and also from the private sector. This took more time than anticipated. In the last stakeholder event however, stakeholders from both public domain and the private domain were well represented.</p>
Anticipated impact	<p>Within the scope of SDG-12, responsible production and consumption, Zambia produces 0,5 kg municipal solid waste per capita par day. A growing part of this quota per person is plastic waste. Also, Zambia exports 0,1 kg plastic per capita per day.</p> <p>For this reason, the CTCN intervention is timely and links to SDG-12.</p> <p>It is anticipated that the proposed interventions will facilitate the reduction of plastic waste, thereby contributing to improved health conditions (less pollution and disease vectors) as well as emission reductions. Moreover, the proposed pilot project acts as showcase to initiate similar activities in other parts of Zambia.</p>

	<p><b>Other anticipated impact include:</b></p> <ul style="list-style-type: none"> <li>• Increased understanding of the interventions relevant for Zambia to transition to a more circular economy in plastics</li> <li>• Increased understanding on the potential pilot directions for Zambia to gain experience with sustainable (plastic) waste management and valorization</li> <li>• Jointly defined actions and directions for project continuation</li> </ul>
Co-benefits: Achieved or anticipated co-benefits from the TA	<p><b>Co-benefits of the TA include :</b></p> <ul style="list-style-type: none"> <li>• The roadmap and pilot concept will generate a market for plastic recycle products</li> <li>• The concept pilot will generate jobs on the side of waste collection and separation</li> </ul>
Gender aspects of the TA	<p>Our output 2 study found on the participation of women in the waste value chains, that women are present in all the waste value chains but at more downstream levels they are very few (most are pickers or small aggregators). This was particularly in the formal, higher levels of the value chain such as large aggregators, recyclers and manufacturers. Thus, gender aspects need to be addressed in the proposed pilot facility.</p>
Anticipated contribution to NDC	<p>The implementation of a of a decentralized integrated waste transfer station and recycling (DIWRS) will contribute to the NDC. Upon scale up and multiplication, the DIWRS may contribute up to 10% to Zambia's NDC.</p>
The narrative story	<p>Zambia is a landlocked country in Southern Africa with a current population of 18 million . The country's population growth rate stood at 2.8% between 1980 and 2010. The rapid increase in population has resulted in urbanization, increasing demand for natural systems, and a strain on the existing water and waste management infrastructure. Lusaka City Council (LCC) reported in 2017 that around one million tons of garbage is generated in Lusaka each year, with just around half of the waste being brought to the landfill . Research conducted by UN-Habitat in 2010 indicated that Zambia generates about 0.52 kg of waste per person each day, so about 9.776 tonnes (for a population of 18.8 million). Although this can</p>



	<p>appear moderate compared to the 1.2 kg per person generated in developed countries, most waste in developing countries is poorly managed due to inadequate infrastructure and insufficient waste management budgets. Just about 3% of that material is reused or recycled, causing environmental degradation, rising GHG emissions, severe health problems, and loss of resources that could otherwise be valorised. As the economy is expected to develop, this increases the population falling into the middle-income group, growing consumption patterns, leading to an even faster increase in waste generation, exposing Zambia to even more solid waste challenges.</p> <p>The main challenge for Zambia, as one of Africa's fastest-growing economies, with a growing middle class and shifting consumption and production patterns, is that waste generation will increase in the coming years, exposing Zambia to increased environmental degradation, rising GHG emissions, and health concerns. As every other country worldwide, Zambia currently has a linear economy, largely based on its wealth of natural resources, including significant copper mining and processing, building, agriculture, and textiles. As a result, the country has specialized in economic activities based on the extraction and partial processing of these resources, resulting in significant environmental impacts. There is still much less attention for industrial activities that generate added value through reuse and recycling. Yet, a circular economy could provide ample economic opportunity for the country as well, decreasing its dependency on imports of non-domestic resources, circulating them within their economy.</p> <p>To address the above indicated challenge and to support this transition, Zambia filed a request with CTCN for a Technical Assistance (TA) project on a circular waste system to tackle the challenges of waste and loss of resources and take dedicated steps towards a more circular economy.</p> <p>TNO was selected as the contractor for execution of this project. Results that were developed include a waste stream-specific national roadmap for a more circular management system, including the conceptualization of a pilot project. The anticipated impact includes a contribution to Zambia's NDC.</p>
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<p>Contribution to SDGs</p> <p>A complete list of SDGs and their targets is available here:  <a href="https://sustainabledevelopment.un.org/partnership/register/">https://sustainabledevelopment.un.org/partnership/register/</a></p>	<p><b>This TA contributes to :</b></p> <ul style="list-style-type: none"> <li>• <b>SDG 12, Responsible consumption and production : the need for sustainable consumption and production patterns through prevention, reduction, recycling and reuse</b></li> <li>• <b>SDG 11 Sustainable Cities &amp; Communities :</b> The need for collection and separation of household waste will contribute to sustainable cities and communities.</li> <li>• <b>SDG 13 Climate Action, the TA will initiate pathways for lowering GHG emissions</b></li> </ul>
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## Annex 1 Technical assistance data collection

Please add quantitative and qualitative values for the indicators selected in the M&E plan and monitored throughout the technical assistance in the tables below. Indicators which have been monitored in addition to the proposed indicators below may be added at the end of table A. Non-relevant indicators should be left blank.

### A. Output and outcome indicators

Indicator	Quantitative value <i>Numerals only; disaggregates must sum to the total</i>	Qualitative description <i>List the various elements corresponding to the quantitative value as well as timelines and responsible institutions</i>
Please note indicators below highlighted as <b>anticipated</b>		
Total number of events organized by proponents and implementing partners	<b>20</b>	<ul style="list-style-type: none"> <li>• Kick-off meeting (online)</li> <li>• Stakeholder meeting on periodization of waste streams</li> <li>• Stakeholder meeting on technology pathways</li> <li>• Stakeholder meeting on roadmap and pilot concept</li> <li>• Stakeholder meetings output 2 &amp; 3 (4)</li> <li>• Informal one per month meeting with NDE (online, 12)</li> </ul>
Number of participants in events organized by proponents and implementing partners	<b>Ca. 140</b>	
a) Number of men	<b>70 %</b>	<i>Disaggregate by country</i> <b>All Zambia</b>
b) Number of women	<b>30 %</b>	<b>All Zambia</b>
Number of climate technology RD&D related events	<b>3</b>	<b>Stakeholder meetings</b>
Number of participants in climate technology RD&D events	<b>60</b>	
a) Number of men	<b>70 %</b>	
b) Number of women	<b>30 %</b>	
Number of training organized by proponents and implementing partners	<i>List total number here</i> <b>0</b>	<i>List the title of the training sessions and capacity strengthening activities</i>
Number of participants in trainings organized by proponents and implementing partners	<i>List total number here</i> <b>0</b>	
a) Number of men	<b>n.a.</b>	
b) Number of women	<b>n.a.</b>	

Total number of institutions trained	<i>List total number here</i>	
a) Governmental (national or subnational)	<b>n.a.</b>	<i>List the name of organisations trained here</i>
b) Private sector (bank, corporation, etc.)	<b>n.a.</b>	<i>List the name of organisations trained here</i>
c) Nongovernmental (NGO, University, etc.)	<b>n.a.</b>	<i>List the name of organisations trained here</i>
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)	<b>n.a.</b>	<i>Satisfied= 4+ on 5-pt scale</i>
Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form)	<b>n.a.</b>	<i>Increased knowledge, capacity and/or understanding= 4+ on 5-pt scale</i>
a) Percentage of men	<b>n.a.</b>	
b) Percentage of women	<b>n.a.</b>	
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	<i>List total number here</i>	
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.		<b>Project fact sheet</b>
b) Number of tools and technical documents strengthened, revised or developed		<ul style="list-style-type: none"> <li>• <b>Output 2 report (Baseline assessment and analysis of existing circular economy initiatives and key players in Zambia)</b></li> <li>• <b>Output 3 report (Identification of the perceived value of the circular economy and of benefits, weaknesses, opportunities and challenges in Zambia's waste sector)</b></li> <li>• <b>Output 4 report (Circularity analysis of the prioritized waste stream)</b></li> <li>• <b>Output 5 report (National Roadmap for a circular economy in organic waste management)</b>List the name of the documents</li> </ul>
c) <i>Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)</i>		<ul style="list-style-type: none"> <li>• <b>Presentation Output 3 (SWOT analysis waste streams)</b></li> </ul>



		<ul style="list-style-type: none"> <li>• <b>Presentation output 4 (technology pathways)</b></li> <li>• <b>Presentation output 5 (roadmap)</b></li> </ul>
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	List total number here <b>12</b>	<b>See report Output 2 Zambia, chapter 5 &amp; 6</b>
a) Adaptation related		List the type and name of documents supported
b) Mitigation related		List the type and name of documents supported
c) Both adaptation- and mitigation related		List the type and name of documents supported
<b>Anticipated</b> number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	List total number here <b>0</b>	<b>The development of policies in Malawi is not backed by practical strategies of how to do it in practice</b>
a) Adaptation related		List the type of documents anticipated to be proposed, adopted or implemented
b) Mitigation related		List the type of documents anticipated to be proposed, adopted or implemented
c) Both adaptation- and mitigation related		List the type of documents anticipated to be proposed, adopted or implemented
<b>Anticipated</b> number of technologies transferred or deployed as a result of CTCN support	List total number here <b>0</b>	<u>Instruction:</u> List the type of technologies supported by this assistance. Technologies must be identified from the CTCN taxonomy of climate sectors and technologies (download in pdf format and choose from column C): <a href="https://www.ctcn-n.org/resources/ctcn-taxonomy">https://www.ctcn-n.org/resources/ctcn-taxonomy</a>
<b>Anticipated</b> number of collaborations facilitated or enabled as a result of technical assistance	List total number here <b>1 (DWIRS)</b>	
a) Number of South-South collaborations	<b>0</b>	List the names of the organisations (excluding the CTCN or TA implementers)
b) Number of RD&D collaborations	<b>1</b>	<b>See identified interventions in roadmap</b>
c) Number of private sector collaborations	<b>0</b>	List the names of the organisations (excluding the CTCN or TA implementers)
Number of countries with strengthened National System of Innovation as a result of CTCN support	<b>1 (Zambia)</b>	List names of countries
<b>Insert any additional indicators here</b>		

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## B. Core impact indicators

Please fill in the tables for anticipated impacts of the CTCN assistance. Every technical assistance should contribute to at least one of the indicators below. For guidance on how to report on core indicators see the '[M&E Guidance Document for TA Implementers](#)'.

Core indicator 1	Anticipated metric tons of CO <sub>2</sub> equivalent (CO <sub>2</sub> e) emissions reduced or avoided as a result of CTCN TA	
	<i>Please add your calculations in word or excel format as an Annex to this Closure Report, where applicable.</i>	
	Anticipated metric tons of CO <sub>2</sub> e reduced or avoided as a result of the TA on annual basis	Anticipated metric tons of CO <sub>2</sub> e reduced or avoided as a result of the TA in total
Quantitative value (emissions reductions)	<p><b>It is anticipated that collection and separation and recycling of plastics will prevent a strong increase of CO<sub>2</sub> emissions in the absence of these measures<sup>1</sup>.</b></p> <p><b>On the basis of TNO experience and Life Cycle assessment of plastic recycling<sup>2</sup>, a decrease of 500 kg CO<sub>2</sub>eq. per ton of mixed household waste is estimated.</b></p> <p><b>If we assume for a pilot a recycling rate of 1 ton plastic waste per week, or 52 tons per year, this results in a CO<sub>2</sub> saving of 52*500= 26,000 kg = 26 ton of CO<sub>2</sub>eq.</b></p>	<p><b>For the pilot we have assumed that six DIWRS units will be realized; they can process a plastic waste flow of 6*52*1=312 tonnes of plastic waste flow per year, resulting in a projected CO<sub>2</sub> reduction of 6*26,000= 156,000 kg CO<sub>2</sub> = 156 tCO<sub>2</sub>per year.</b></p>
Unit	tCO <sub>2</sub> e	tCO <sub>2</sub> e
<b>GHG assessment boundary (project emissions)</b>  Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions	<b>The estimated CO<sub>2</sub> emission reduction is based on current sizing of the DIWRS and on literature references and should be verified in practice.</b>	

<sup>1</sup> Jiajia Zheng & Sangwon Suh, Nature Climate Change volume 9, pages 374–378 (2019)

<sup>2</sup> Schwarz, A. E., Ligthart, T. N., Godoi Bizarro, D., De Wild, P., Vreugdenhil, B., & van Harmelen, T. (2021). Plastic recycling in a circular economy; determining environmental performance through an LCA matrix model approach. Waste Management, 121, 331–342.  
<https://doi.org/10.1016/j.wasman.2020.12.020>

<b>Baseline emissions</b> Describe baseline scenario, baseline candidates, emission factors and emissions calculated	<b>The baseline scenario is the practice in absence of collection and separation measures</b>	
<b>Methodology</b> Explain the method or process of verifying the indicator and how data was gathered	<b>The estimation of emission reduction is based on the reference in the footnote 1 and should be considered as a indicative value, to be confirmed in practice.</b>	
<b>Assumptions</b> Describe assumptions made during calculation and quantification of GHG reductions	<b>The assumptions of the calculation of CO<sub>2</sub> reduction should be verified when the DIRWS installation is realised and a measurement program will be executed.</b>	

<b>Core indicator 2</b>	<b>Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of technical assistance</b>  <i>Please provide a <b>qualitative</b> description of the anticipated impacts on the categories below</i>
<b>Infrastructure and built environment</b> Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)	<b>The system of collection, separation and conversion of household waste and plastic waste will result in less landfill, and this will have impact on infrastructure and built environment (less dump sites).</b>
<b>Ecosystems and biodiversity</b> Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	<b>Ecosystems and biodiversity were not investigated, but it is expected that the proposed intervention with a DIRWS will result in an increased ecosystem resilience.</b>
<b>Economic</b> Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	<b>The system will create some extra jobs in collection/separation and recycling of plastics , as well as selling the plastic recycle products to the market.</b>
<b>Health and wellbeing</b> Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	<b>The system will have a moderate positive impact on health and wellbeing, due to less waste in dump places or in the public domain area and better regulation of the household waste stream.</b>

Core indicator 3	Anticipated number of direct and indirect beneficiaries as a result of the TA	
	Quantitative value	Means of verification
Total beneficiaries	3,144,400	
Number of adaptation beneficiaries	1,304,400	We assume that initiatives will be in some large cities, Lusaka (3,042,000), Kitwe (735,000), Ndola (571,000), with a total population of 4,348,000. The project anticipates that 30% of the population will benefit from reduced health concerns as a result of incorrect disposal of plastics; water drainages blockage leading to water borne diseases, burning of plastics leading to respiratory illnesses and micro plastics in food). This number will grow gradually with the upscaling of the proposed pilot projects.
Number of mitigation beneficiaries	1,840,000	The proposal on policy enhancement and support in enforcement is observed as mostly mitigation measures to support sustainable waste management. The project assumes a reach of 10% of the population in Zambia.
Number of adaptation-and mitigation beneficiaries	See above	Describe calculation methods and assumptions made

Core indicator 4	Anticipated amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)			
	Quantitative value confirmed in USD	Quantitative value anticipated in USD	Qualitative description <i>List the institutions, timelines, and description or title of the investment</i>	Methods <i>Describe methods used for quantification of funds leveraged</i>
		3,55 Mio USD		
Total funding	<i>Total number in USD (numerals only, no rounding or abbreviations)</i>	<i>Total number in USD (numerals only, no rounding or abbreviations)</i>		
Anticipated amount of public funding mobilised from national/domestic sources		1.1 Mio USD	Enhancing policy and regulatory enforcement	Environmental Protection was allocated \$56 Million, this represents 0.6% of the total budget. In this regard the assumption was that 0.2% will be allocated for pilots



Anticipated amount of public funding mobilised from international/ regional sources		1,2 Mio USD	EU Green Deal, AECF	An estimated cost to execute four pilot projects was considered as the amount of resources to be raised during the conceptualization and pilot implementation stage.
Anticipated amount of private funding mobilised from national/domestic sources		0,50 Mio USD	Private sector companies in the plastics sector	The enforcement of the Extended Producer Responsibility scheme is anticipated to raise resources from the membership fees to facilitate the collection and recycling of plastics. The municipal councils will also allocate resources in setting up waste management companies (specific councils).
Anticipated amount of private funds mobilised from international/regional sources		0,25 Mio USD	Multinational companies joining the EPR Scheme, Alliance to end Plastic Waste,	Amount required to setup one of the pilot projects for plastic valorisation
Anticipated amount of private funding mobilised from national/domestic sources		0,50 Mio USD	Enhance the valorisation of (plastic) waste & Increase collection levels	„
Anticipated amount of private funding mobilised from national/domestic sources		0,50 Mio USD	Pilot with DIRWS	„

**Annex 2 (for internal use – to be filled in by the CTCN)**

**CTCN evaluation**

This section will be completed by the relevant CTCN Technology Manager.

- Evaluation of the timeliness of the TA implementation as measured against the timeline included in the response plan;
- Evaluation of TA quality as defined in the response plan;
- Overall performance of the Implementers;
- Overall engagement of the NDE and Proponent;
- Lessons learned on the CTCN process and steps taken by the CTCN to improve.