

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. 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	Development of an action plan to improve the circularity of large household appliances in Kenya
Technical assistance reference number	2020000018
Country / countries	Kenya
NDE organisation	Kenya Industrial Research and Development Institute
NDE focal point	Mr. Kelvin Khisa
NDE contact information	<i>Kelvin.khisa@kirdi.go.ke</i>
Proponent focal point and organisation	<i>Ministry of Environment and Forestry</i>
Designer of the response plan	
Implementer(s) of technical assistance	TNO
Beneficiaries	<i>Instruction: Beneficiaries are defined as people and institutions benefitting from the TA</i>
Sector(s) addressed	<i>Instruction: Select relevant sector(s) from the CTCN taxonomy https://www.ctc-n.org/resources/ctcn-taxonomy</i>
Technologies supported	Waste management/recycling/ Recycling of Waste Electronic and Electrical Equipment
Implementation start date	(01/03/2021)
Implementation end date	(31/05/2022)
Total budget for implementation	USD 281,950

<p>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</p>	<p>Output 1: Development of implementation planning and communication documents Output 2: Status quo analysis of the management of large household appliance waste in Kenya Output 3: Identification and definition of activities for an improved waste management infrastructure for large household appliances Output 4: Identification of opportunities for a circular waste management infrastructure for large household Appliances Output 5: Development of an action plan and conceptualization of a pilot project for an improved and circular waste management infrastructure for large household appliances</p>
<p>Methodologies applied to produce outputs and products</p>	<p>Desk research, stakeholder mapping, questionnaires and structured interviews with key stakeholders, data gathering and analysis, information meetings in various counties of Kenya, business case assessment</p>
<p>Reference to knowledge resources</p>	<p>The UNFCC TEC documents were reviewed but no direct use was made of TEC knowledge products.</p>
<p>Deviations</p>	<p>No major deviations, along the execution, it was agreed with CTCN to do reporting for Kenya two weeks after delivery of final reports for Zimbabwe, Zambia and Malawi.</p>
<p>Anticipated follow-up activities and next steps</p>	<p>The ownership of the project rests rest with the NDE Kenya, Dr. Kelvin Khisa of Kenya Industrial Research and Development Institute (KIRDI) and Dr .Augustine K.Kenduiwo, focal point of Ministry of Environment and Forestry. Key stakeholders have been identified. Follow-up activities are further detailed in the roadmap and pilot concept and include :</p> <ul style="list-style-type: none"> • Supporting the implementation of an EPR on LHHAs in Kenya • Supporting the establishment of online digital platforms for an improved ecosystem of LHHA repair, refurbishment and recycling • Monitoring of the roadmap implementation

2. Lessons learned

	Lessons learned	Recommendations
<p>Lessons learned from the CTCN TA process</p>	<p>The intense cooperation with local and well-informed consultants is crucial. The contribution of the live interviews was essential in achieving the roadmap and the pilot concept.</p> <p>Policies are well in place in Kenya: it is the recognition of</p>	<ul style="list-style-type: none"> • Facilitating the data gathering (interviews, questionnaires, workshops) from stakeholders should be given more priority early in the process. • Focus on the exploration of roadblocks towards implementation of existing

	<p>the essential roadblocks that hamper implementation that would help in these cases.</p> <p>The informal sector forms an essential element in achieving progress in Kenya</p>	<p>policies instead of describing better policies</p> <ul style="list-style-type: none"> • Involve the essential informal sector sooner and more intense • Earlier preparation of the stakeholder interaction process, including smooth facilitation (e.g. remuneration of travel costs, time) • Arrange regular interaction with the CTCN secretariat and CTCN officers, invite them to relevant (online) meetings
<p>Lessons learned related to climate technology transfer</p>	<p>Lessons learned include: A thorough stakeholder mapping at an early stage is important to analyse which stakeholders are critical for the technology transfer and implementation</p>	<ul style="list-style-type: none"> • Explain clearly the different steps in the implementation process and define the key stakeholders in that process • Identify the opportunities for over-coming barriers • Define ownership of the implementation process

3. Illustration of the TA and photos

3.1 Pictures during the TA

The TA has been of an exploratory nature, distilling a roadmap and a concept for a pilot based on extensive interviews of households and of firms from the informal and formal sector, related to the management of LHHAs.

The illustrations give a feeling of the interviews with these stakeholders.

An example of a more organised management of LHHA waste is the WEEE Centre in Nairobi: several pictures show the activities at the WEEE Centre, including the refurbishment of battery packs for electric mobility.

The stakeholder meetings (of which a picture is included) illustrate the cross-sectoral nature of the TA: the meetings included federal and county officials, but also local repair shop owners from informal settlements.



Figure 1 Informal repair shop in Nairobi



Figure 2 Interviewing informal repair owner, Nairobi



Figure 3 Interviewing households from higher income category

Figure 4 Interviewing households

Figure 5 Disassembly process of WEEE at the WEEE Centre





Figure 6 & 7 Disassembled WEEE at WEEE Centre



Figure 7



Figure 8 Testing rig for refurbished battery packs (WEEE Centre)



Figure 9 Stakeholder meeting – January 2022 – Nairobi

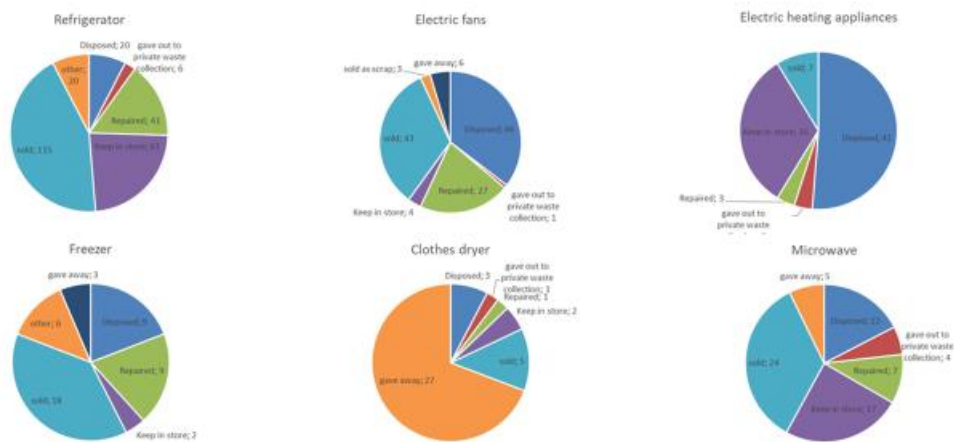
3.2 Powerpoint slides illustrating the key results

The selected PowerPoint slides were all used during the extensive stakeholder meetings in January and April 2022.

From the identification of the ways in which currently LHHAs are dealt with at the end of their (first) useful life, we extracted key findings that led to the idea that using web-based solutions (digital platforms) may lead to an excellent tool, lowering the barriers for so-called 'value retention processes' for the informal sector, thus increasing both the lifetime of such appliances and improving the profitability of repair shops.

DISPOSAL OF LHHAs: OCCURRENCE AND TYPE OF DISPOSAL

- › Fans and heating appliances have highest level of disposal



2022-04-21 stakeholder meeting



TNO innovation for life 16

MAIN GAPS IDENTIFIED IN ACTIVITY 2: ANALYSIS OF CURRENT SITUATION

- › Formal capacity building and knowledge sharing on how to refurbish/treat LHHAs at repair shops has potential to improve
- › Currently, there is not much interaction between WEEE Centre, repair shops and recyclers
- › There is a lack of collection infrastructure and adequate technology for LHHAs value retention activities
- › Spare part availability is a barrier
- › Policies are developed but not in place yet
- › Households do not have a motivation to give their used appliance to recycling or refurbishment shops
- › Households normally do not know what to do with LHHAs waste

2022-04-21 stakeholder meeting - concept of a pilot



TNO innovation for life 2

FINDINGS IN ACTIVITY 3 AND 4: PRACTICES IN OTHER COUNTRIES

- › Implemented and enforced policies are key enablers for creating funds for value retention activities
- › Based on findings in other countries a powerful tool to address the analyzed gaps for the different value retention process is digitalization.
 - › digital tools are used for various purposes, suitable to the identified knowledge gaps.
 - › Digital platforms are used in both developed and developing countries.

2022-04-21 stakeholder meeting - concept of a pilot

CONSEQUENCES: DIRECTION FOR PILOT ACTIVITIES

- › Through combining the obtained information from activities 2,3 and 4, the stakeholders meetings and the market analysis, we assessed that such platforms might be also applicable for Kenya.
- › Benefits for pilots in this direction are:
 - The potential to increase collaboration and strengthen the current infrastructure
 - Digital platforms are openly accessible and allow inclusive contribution (woman, youth)
 - When the pilot turns out to be effective, there are possibilities to scale an online platform and increase impact

2022-04-21 stakeholder meeting - concept of a pilot

POSSIBLE ELEMENTS OF THE PILOT

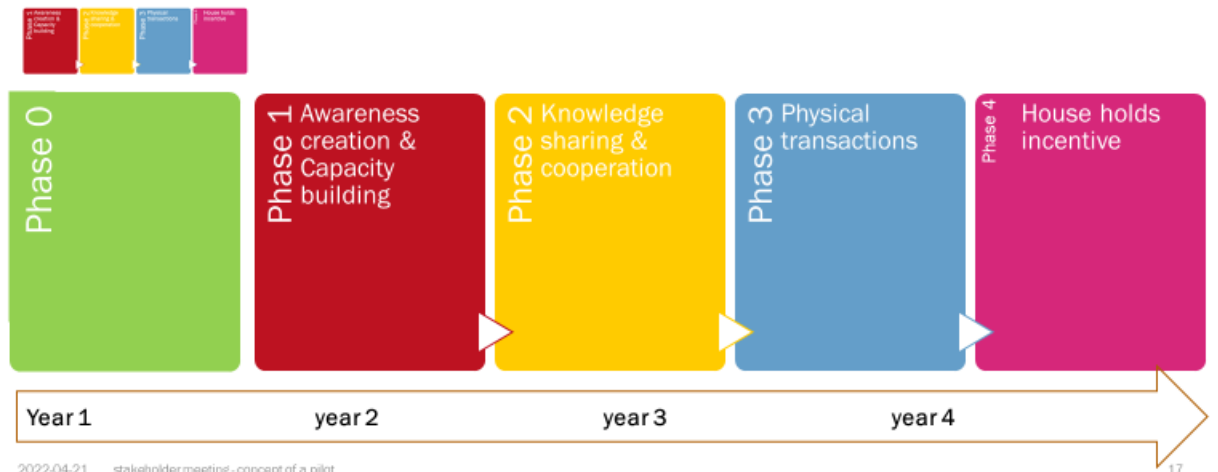
- › Pilot activities may be composed from different 'menu'
- › A combination of elements is possible and interaction among them is relevant to create impact



2022-04-21 stakeholder meeting - concept of a pilot

PILOT PHASES

PHASE 0 – FEASIBILITY PILOT



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.

<p>Challenge</p>	<p>Kenya is still grappling with e-waste data gathering and processing. The economic development of Kenya will undoubtedly lead to an increase in the ‘consumption’ of electric and electronic equipment (EEE) (among which fall the large household appliances LHHAs) and consequently also to a rise in WEEE, waste from EEE. But the absolute level of LHHAs in society and therefore also the absolute level of discarded or otherwise end-of-life LHHAs is still rather low.</p>
<p>CTCN Assistance</p>	<p>The CTCN assistance consisted of :</p> <p>A) The report on activity 2 (Current status), this report observed and concluded the following:</p> <ul style="list-style-type: none"> - Though the consumption of LHHAs will grow, the absolute level of LHHAs in society and therefore also the absolute level of discarded or otherwise end-of-life LHHAs is still low. - The high value that LHHAs represent for consumers has resulted in an active repair sector and (partly) connected informal sector, that fulfils an appreciated function in dealing with goods and materials that are beyond repair. Households stick to their equipment, invest in repair activities and either give away or sell equipment that is no longer in need. - All stakeholders acknowledge the fact that national and county government could play a more active role in implementing and enforcing regulations and mechanisms that increase circularity of EEE by, for example, investing in skills for repair, providing incentives for value retention processes, establishing modern infrastructure that encourage segregation and collection of waste and enforcing specific laws for e-waste management which is lacking at the moment. - The implementation of an EPR on LHHAs in 2022 may become an important driver for such changes. The funds that may become available as a consequence of implementing an EPR may be used for the much desired capacity building and for additional incentives for consumers to deal with worn out products more consciously. - The scale of enterprises in the repair sector is generally small which hampers investments in equipment and knowledge building. From a business point of view, it will be advantageous to either increase volumes or (with the same goal) stimulate more intense cooperation between players in the value chain. This not only calls for collaboration among all stakeholders covering both the informal sector and the formal sector, but also for cooperation between and among counties, especially now that waste management is a responsibility at county level. - Increased transparency with respect to available spare parts, available capacities and repair and test equipment may lead to an interesting cooperation and business model for the sector. - Increased scale of operations and implementation of the EPR will lead to the required investment for costly environmentally benign technologies for treatment of (e.g.) cooling equipment. <p>B) The reports on activity 3 and 4 which include an analysis of practices in other countries, led to the following conclusions:</p> <ul style="list-style-type: none"> - internet based platforms provide a great opportunity for value creating business activities in Kenya, that are also beneficial for the environment. <p>Increased connectivity between and among repair and refurbishment shops and</p>

	<p>spare parts manufacturers to share materials and exchange knowledge will stimulate such circular activities.</p> <p>Additionally, training and education could be given to (in)formal workers to increase knowledge and safety in handling LHHA's. This helps to create more standardization in the processes.</p> <ul style="list-style-type: none"> - At the end of life, proper recycling of all components from LHHA's is required. Such recycling technologies may require significant investments. Considering the low volume of waste from LHHA's such an investment requires contributions from distributors and importers. The envisioned EPR is an essential instrument in providing the cash flow for such investments - Recycling enabled by an EPR should be organized centrally and maybe combined with other recycling activities, such as recycling of electronic waste - Scaling up value retention activities can be supported by providing incentives to consumers to hand in the used appliances. - Communicating the availability of collection points and other aspects of waste management to households is important to set up. - Involvement of manufacturers and importers is important for clear communication, since they can provide information to consumers on how to properly handle the appliance and offer guidance on how to do easy repairs. - Examples from other countries show that it is important to include the informal sector in the transition process through (1) formalizing the informal sector or (2) increasing the collaboration with the informal sector by the formal economy.
Anticipated impact	<p>The problem at hand is in fact a future problem: the current consumption of LHHA is still low, but will grow once the economy will grow. The TA has the desired impact to anticipate this growth and to stimulate improved handling of end-of-life products at an early stage.</p> <p>The action plan described in the reports of activity 2-5 can lead to the implementation of this improved handling through the formulation of the pilot for LHHA. This , together with supporting policy measures like EPR, can have a positive impact on recycling/ repair of LHHA and thus contribute to a more circular system for LHHA in Kenya.</p> <p>The relevant stakeholders have been identified, together with the different steps for implementation of the roadmap: they include:</p> <ul style="list-style-type: none"> - Responsible ministries at federal level - Selected county representatives (at least in pilot phase) - Representatives of formal and informal businesses in the value chain of imports, distribution, retail, repair, refurbishment and recycling. <p>The policy aspects of the roadmap await the formal approval of the EPR on WEEE which is expected in 2022.</p> <p>The technical aspects of the roadmap (i.e. the concept pilot phase) will require the EPR and will have a duration of 3-4 years. However, a feasibility phase (Phase 0) has been suggested that will last for 1 year and which may start as appropriate funds have been allocated.</p> <p>The environmental (CO₂ emission) impact reported elsewhere in this closure report will be the ultimate goal of the envisioned pilot project.</p>

<p>Co-benefits: Achieved or anticipated co-benefits from the TA</p>	<p>The expected co-benefits of this TA will be the formation of a more robust repair and refurbishment sector, through lowering the barriers (knowledge, capacities, technology, spares) that currently hamper value retention activities in the Kenyan society.</p>
<p>Gender aspects of the TA</p>	<p>The status of gender mainstreaming in e-waste management was assessed as a cross-cutting issue, therefore, the assessment pays special attention to gender along the e-waste management value chain. A circular e-waste management system is one that is not only sustainable, but also inclusive in nature. The following parameters were considered:</p> <ul style="list-style-type: none"> • Gender of owner in e-waste enterprise • Percentage of female workers in waste enterprise • Training, technical and business capacity • Registration of the enterprises (registration, licensing, certification) <p>In the roadmap it is emphasized that it is important to reduce the current hindrances and encourage the inclusion for youth and female entrepreneurs, enhancing creative solutions and ideas. This will benefit the circular handling of LHHAs and stimulate an inclusive society. Following recommendations were defined to increase inclusiveness:</p> <ul style="list-style-type: none"> - Develop inclusivity guidelines for mainstreaming existing and new policy areas. - Set targets for the percentage of female entrepreneurs and workers active in the repair and recycling businesses. - Foster training programs for female entrepreneurs in repair, recycling or other circularity businesses. - Set up youth accelerator programs aimed at fostering young entrepreneurship in circular activities for LHHAs.
<p>Anticipated contribution to NDC</p>	<p>The impact on CO₂-emissions, reported elsewhere in this document, refers to emissions in the whole value chain (a consumption based perspective) and not to the local emission of greenhouse gases, which determines the contribution to the NDC. Since it can be expected that the scope-2-emissions related to electric equipment will rise in the Kenyan society as a direct result of the growth in GDP, it is not feasible to assess the contribution to the NDC based on scaled up repair, refurbishment and recycling activities.</p>
<p>The narrative story</p>	<p>Since the Kenyan GDP is expected to steadily grow in the coming decades, the consumption of goods, among which EEE and LHHA will grow as well. The CTCN technical assistance requested by Kenya's Ministry of Environment and Forestry therefore focuses on development of a roadmap for Large House Hold Appliances (LHHA). CTCN Consortium partner TNO , together with SIB-K was selected to execute the developed Technical assessment Plan was selected to execute the technical Assistance.</p> <p>Following a comprehensive status quo analysis of LHHA in Kenya and interaction with stakeholders it emerged that value retention processes (repair and refurbishment) can help mitigate the consequences in terms of CO₂-emissions of this growth. Currently, there is a lively repair and refurbishment sector (mostly informal) that is hampered in its operations by lack of knowledge, capacities, technologies and spare parts. The scale of operations is therefore not only limited by the relatively low possession of LHHAs but also by the lack of 'circular' skills and means.</p> <p>We come to the conclusion that concrete implementation of Extended Producer Responsibility is an essential building block towards a financially sustainable</p>

	<p>solution to improving value retention processes and recycling. Furthermore, we have suggested to scale up operations by stimulating cooperation between entrepreneurs in the informal sector. The latter can be stimulated by using digital solutions -platforms aimed at exchanging knowledge, skills and spares- that are abundantly introduced in the Kenyan society.</p>
<p>Contribution to SDGs</p> <p>A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/</p>	<p>This TA contributes to :</p> <ul style="list-style-type: none"> • SDG 12, Responsible consumption and production : the need for sustainable consumption and production patterns through prevention, reduction, recycling and reuse • SDG 11, Sustainable Cities & Communities : The need for collection and separation of household waste will contribute to sustainable cities and communities • SDG 13 Climate Action, the TA will initiate pathways for lowering GHG emissions

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	Qualitative description
Please note indicators below highlighted as anticipated	<i>Numerals only; disaggregates must sum to the total</i>	<i>List the various elements corresponding to the quantitative value as well as timelines and responsible institutions</i>
Total number of events organized by proponents and implementing partners	7	<ol style="list-style-type: none"> 1) Stakeholder's roundtable meeting held on 7th July 2021 to provide overview of the project, to share experiences of E-waste management in Kenya and to chart a way forward. 2) Focused group discussion held in Meru County on 23rd November 2021 3) Focused group discussion held in Mombasa on 7th December 2021 4) Focused group discussion held on 9th December 2021 in Kisumu County 5) Stakeholders meeting held on 12th January 2022 to share findings of the assessment. 6) Stakeholder's meeting to review the roadmap and pilot project held on 31st March 2022. 7) Stakeholders Meeting held on 21st April 2022 to provide overview of assessment results and validate the roadmap and pilot project
Number of participants in events organized by proponents and implementing partners	137	
a) Number of men	<i>List total number here</i> 93	<i>Disaggregate by country</i> All Kenya
b) Number of women	44	All Kenya
Number of climate technology RD&D related events	0	0

Number of participants in climate technology RD&D events	<i>List total number here</i>	
a) Number of men	0	0
b) Number of women	0	0
Number of training organized by proponents and implementing partners	<i>List total number here</i> 0	<i>List the title of the training sessions and capacity strengthening activities</i> 0
Number of participants in trainings organized by proponents and implementing partners	<i>List total number here</i> 0	0
a) Number of men	0	0
b) Number of women	0	0
Total number of institutions trained	<i>List total number here</i> 0	0
a) Governmental (national or subnational)	0	<i>List the name of organisations trained here</i> 0
b) Private sector (bank, corporation, etc.)	0	<i>List the name of organisations trained here</i> 0
c) Nongovernmental (NGO, University, etc.)	0	<i>List the name of organisations trained here</i> 0
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)	n.a.	<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)	n.a.	<i>increased knowledge, capacity and/or understanding= 4+ on 5-pt scale</i> n.a.
a) Percentage of men	0	0

b) Percentage of women	0	0
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	<i>List total number here</i> 5	The reports for output 2,3,4,5, close-out report
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.	6	<p><i>List the name of the documents</i></p> <p>https://www.linkedin.com/company/weeecentre/posts/?feedview=all</p> <p>https://twitter.com/CircularDsgNrb/status/1481160607823020035</p> <p>https://twitter.com/KEPSA_KENYA/status/1481192065920815105</p> <p>https://www.tno.nl/en/about-tno/news/2021/4/towards-a-circular-e-waste-infrastructure-for-kenya/?utm_medium=social&utm_source=linkedin&utm_campaign=reach-tno-i4d-2021&utm_content=influencer</p> <p>https://twitter.com/SustainaBizKe/status/1498393332090818567</p> <p>https://sustainableinclusivebusiness.org/stakeholder-engagement-on-action-plan-to-improve-the-circularity-of-large-household-appliances-in-kenya/</p>
b) Number of tools and technical documents strengthened, revised or developed	1	<p><i>List the name of the documents</i></p> <p>Kenya Climate Emissions Reduction Tool</p>
c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)	0	<i>List the name of the documents</i>
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	<i>List total number here</i> 1	

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	1	Extended Producer Responsibility (EPR) regulations 2021
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	List total number here 1	
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		Meru county circular Economy policy
Anticipated number of technologies transferred or deployed as a result of CTCN support	3	Recycling of Waste Electronic and Electrical Equipment Product component and materials recycling Electronic devices
Anticipated number of collaborations facilitated or enabled as a result of technical assistance	List total number here 1	
a) Number of South-South collaborations		List the names of the organisations (excluding the CTCN or TA implementers)
b) Number of RD&D collaborations		List the names of the organisations (excluding the CTCN or TA implementers)
c) Number of private sector collaborations	1	Collaboration with Waste Electric and Electronic Equipment Centre support to establish E-waste collection centre in Kisumu
Number of countries with strengthened National System of Innovation as a result of CTCN support	1	List names of countries Kenya
Insert any additional indicators here		

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 CO₂ equivalent (CO₂e) 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 CO₂e reduced or avoided as a result of the TA on annual basis	Anticipated metric tons of CO₂e reduced or avoided as a result of the TA in total
Quantitative value (emissions reductions)	<i>Total number (numerals only, no rounding or abbreviations)</i>	<i>Total number (numerals only, no rounding or abbreviations)</i>
Unit	tCO ₂ e	tCO ₂ e
GHG assessment boundary (project emissions) Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions	See analysis below: the pilot itself could lead to a consumption-based reduction of 250 tCO₂/yr.	A complete rollout of the consequences could lead to a reduction of (consumption based, i.e. in the chain) of 1,250 tCO₂eq
Baseline emissions Describe baseline scenario, baseline candidates, emission factors and emissions calculated	<p>TNO has analysed the environmental footprint of Large Household Appliances (and ICT equipment) using the following methodologies:</p> <ul style="list-style-type: none"> - Computational methodology: Simapro 8.5.2.0 - Using the Ecoinvent 3.4 cut-off by classification & economic allocation. <p>The data show that the CO₂-footprint of these devices is high and strongly differs as well. Since the scope of our project is Large Household Appliances, the figure for washing machines, 7 kg CO₂ per kg product, is relevant for assessing the impact of repairing LHHAs.</p> <p>From Rufeng Xiao et al¹. detailed data about the CO₂-footprint of refrigerators was retrieved. Given a total of 1,67 ton CO₂/unit, with a 15% contribution from the manufacturing stage and an estimated 61 kg per unit, we arrive at 15 kg CO₂ per kg of refrigerator or 250 kg</p>	

¹ Rufeng Xiao, You Zhang, Xin Liu, Zengwei Yuan, A life-cycle assessment of household refrigerators in China, Journal of Cleaner Production, Volume 95, 15 May 2015, Pages 301-310

	<p>CO2 per unit. Since refrigerators are the item that represents the highest import value in the Kenyan situation we will use 15 kg CO₂/kg of LHHAs as a proxy.</p>	
<p>Methodology Explain the method or process of verifying the indicator and how data was gathered</p>	<p>See footnote 1, see assumptions in next box</p>	
<p>Assumptions Describe assumptions made during calculation and quantification of GHG reductions</p>	<p>The pilot project is aimed at stimulating value retention processes for LHHAs. In essence this comes down to stimulating repairs and refurbishment. In both cases the availability of spare parts and insights in and availability of technology will be crucial. The use of internet platforms will provide the opportunity to improve on this. Although it is hard to assess the impact of the absolute scale of improved maintenance of LHHAs, we will use the following assumptions:</p> <ul style="list-style-type: none"> - Value of LHHAs: the average value of imported refrigerators in Kenya in between 2000 (10 M\$) and 2020 (50M\$) with no further growth in this volume - Value per unit refrigerator: 300\$ - Average number of refrigerators: 30M\$ each year or 100,000 units per year - Extension of lifetime (i.e. lower need for new units) could lead to a reduction of 5% (a net figure including the lifetime improvement per unit and the number of units offered for repair) refrigerators on a yearly basis - The maximum amount of CO₂ emission prevented would then be: 100,000 x 5% x 250 kg CO₂ = 1,250 ton CO_{2eq} per year. - The pilot itself would of course only cover a part of this figure since it would involve only part of the total volume of LHHAs. At the most the pilot would lead to 20% of this figure, i.e. 250 ton CO_{2eq} per year 	

Core indicator 2	<p>Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of technical assistance</p> <p><i>Please provide a qualitative description of the anticipated impacts on the categories below</i></p>
<p>Infrastructure and built environment Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)</p>	<p>The proposed action plan on LHHH recycling will not have a direct influence on infrastructure resilience.</p>
<p>Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)</p>	<p>The impact on Ecosystem resilience and biodiversity was not investigated.</p>
<p>Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)</p>	<p>The basic impact of this TA and the proposed pilot is to empower the repair and refurbishment sector. Sharing information and technologies will lead to an improved image and an improved capability of this sector thus making them more robust. Enhancing cooperation, enabled by digital platforms -the core of the pilot- will also lead to a more visible and more robust sector.</p>
<p>Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)</p>	<p>The impact of sub-optimal refurbishment and recycling technologies on workers in the informal repair sector is well-known. Empowering the (informal) repair and recycling sector is expected to lead to more and more decent jobs. Available (and shared) technologies will improve the working conditions in e-waste-handling.</p>

Core indicator 3	Anticipated number of direct and indirect beneficiaries as a result of the TA	
	Quantitative value	Means of verification
Total beneficiaries	<i>Total number</i>	
Number of adaptation beneficiaries	1,063,690	<p>The project adopted the assumption of the penetration rate of 2.4% for the rural areas and 19.1% in the urban areas. The calculation was based on the population as per the numbers from the Kenya Census 2019 report. Mombasa (1.2M) and Nairobi (4.39M) were considered to adopt adaptation measures with the implementation</p>

		of innovation hubs and voluntary Producer Responsibility Organizations.
Number of mitigation beneficiaries	153,470	The project used a penetration rate of 2.4 percent in rural regions and 19.1 percent in urban areas as a starting point. The population was calculated using data from the Kenya Census 2019 report. Meru (1.5M) and Kisumu (610,000) were evaluated to take mitigation measures by drafting policies focusing on waste management and climate change.
Number of adaptation-and mitigation beneficiaries		

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>
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> USD 1,75 M		
Anticipated amount of public funding mobilised from national/domestic sources				
Anticipated amount of public funding mobilised from international/ regional sources		USD 1M	The developed EPR regulations allow development partner support in establishing Producer Responsibility Organizations. (European Union (EU), Africa Enterprise Challenge Fund (AECF), Danish Embassy, DOEN)	The setup of a PRO would require institutional development, infrastructure, and capacity development

<p>Anticipated amount of private funding mobilised from national/domestic sources</p>		<p>USD 0,75M</p>	<p>Anticipated amount of private funding mobilised from national/domestic sources will be raised through the setup of Producer Responsibility Organizations through membership fees. We anticipate a interest from development partners in setting-up a pilot project</p>	<p>The annual turnover of most membership organizations ranges from 1-2M. This is the estimated membership fee to be raised by the PRO.</p>
<p>Anticipated amount of private funds mobilised from international/regional sources</p>			<p>There are a number of options for private funds: <i>Infraco</i> - <i>Infraco</i> provides infrastructure projects with finance and expertise, enabling them to grow from an early concept to a bankable investment possibility and ultimately to a long-term operating business. The purpose is to collaborate with projects from the beginning, either directly if they already have a lead developer, or indirectly through their teams to provide on-the-ground project development skills. <i>Infraco</i> also invests in the development of ground-breaking projects or innovative infrastructure businesses that need to scale up or demonstrate commercial viability in order to attract more funding. The objective would be to take advantage of equity financing, depending on the funding structure.</p>	<p>Looking for the current programs in the domain of circular economy of these different possible funding organisations</p>

			<p><i>The Africa Enterprise Challenge Fund (AECF)</i> is an African development financier that invests in innovative commercial initiatives to alleviate rural poverty, build resilient communities, and create jobs. The AECF has invested approximately \$392 million in 26 Sub-Saharan African countries, providing catalytic money and technical advice to entrepreneurs that fail to meet commercial investors' normal risk-return parameters. Their level of interest in Kenya is observed from their support offered to e-waste companies.</p> <p><i>European Union</i> has increased interest on circular economy. They recently funded WEEE Centre to on matters e-waste and the establishment of a hub.</p> <p><i>Embassy of the Kingdom of the Netherlands.</i> Sustainability is key with a focus on circular economy. The pilot would be an interesting aspect. This aligns to the shift -from aid to trade, the focus here will be on facilitating foreign direct investment in management of waste</p>	
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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.