

The VET Toolbox programme aims to improve the effectiveness of VET systems in selected sub-Saharan African countries by making them more opportunity-driven, turning investments into drivers for inclusive economic growth, social development, and decent job creation. It is co-funded by the European Union (EU) and the German Government (BMZ), and implemented by the British Council, Expertise France, GIZ, and LuxDev. GIZ is implementing the VET Toolbox in Kenya, Mozambique, Nigeria, Tanzania, and Uganda.



VET Toolbox Implementation Report: Unlocking Kenya's E-waste Treasure: VET Toolbox Lessons Learned



Co-funded by
the European Union





Context

Electronic waste, or e-waste, is a growing environmental and health concern in Kenya and globally. As a result of the advancement of technology and the increased use of electronic devices, the volume of e-waste generated in Kenya has escalated significantly, leading to environmental pollution and health risks.

E-waste contains toxic substances such as lead and mercury, which can leach into the soil and waterways when handled and disposed of improperly, posing serious risks to human health and the environment.

According to the Global E-waste Monitor Report 2020, the world generates a staggering 53.6 million metric tonnes (Mt) of e-waste, and only 17.4% of this was officially documented as having been properly collected and recycled.

To remedy this, the Vocational Education and Training (VET) Toolbox provides an ideal platform to train youth across various training institutions about e-waste management and repairs. These efforts boost Kenya's e-waste recycling efforts and create much-needed jobs in the green economy.

The VET Toolbox project launched in 2022 saw 400 trainees trained to assemble and dismantle devices, identify electronic component types, and recycle them.

The objective of VET Toolbox in Kenya

To create and improve employment opportunities for beneficiaries through the enhanced delivery of demand-driven skills in e-waste management and recycling.

Implementation of the project:

The feedback below relates to the implementation of the VET Toolbox programme in Kenya. The implementation of the programme was the joint effort of various stakeholders. These stakeholders include Computers for Schools Kenya (CFSK), the Waste Electrical and Electronic Equipment Centre (WEEE Centre), Meru University of Science & Technology, the National Training Industrial Authority (NITA), E-waste Initiative Kenya (E-WIK), the National Environment Management Authority (NEMA) and the beneficiaries/trainees.

The following lessons learned have been collated from their respective feedback:



Key successes / What went well

Africa's first-ever e-waste management curriculum was developed and swiftly approved through the VET Toolbox programme.

The e-waste management curriculum was developed alongside Kenya's training authority, the National Industrial Training Authority (NITA). The VET Toolbox implementation team relied heavily on the guidance of NITA and collaborated with several stakeholders to produce the first-ever e-waste management curriculum in Africa in record time.

The drafting and fast approval of this curriculum demonstrated the importance of public and private partnerships. A key highlight, noted by Eddy Oloo, the VET Toolbox Project coordinator, is that the curriculum was approved within six months by the training authority, which was no small feat.

According to Jane Kamau, director: Industrial training and skills development at NITA, the norm is that curriculum development and assessments can take up to a year or more before approval. This fast-tracked curriculum development and approval is a testament to the power and importance of collaboration between

the public and private sectors.

Curriculum development is an expensive exercise, says Zakayo Mutonga, centre manager at NITA Athi River. "NITA would not have pursued this without adequate funding. The partnership with GIZ [with funding from the VET Toolbox] and other stakeholders allowed us to mobilise resources, collaborate, engage and develop a comprehensive training package. Involving several industry players in the process also ensured that the industry would accept the outcome of that curriculum development."

For Meru University of Science & Technology (MUST) lecturers Dr Stephen Karanga and Dr Amos Omamo, the curriculum ticked all the boxes and was inclusive. "The entry requirements for trainees were such that students who were not well-seated in academic performance had an opportunity to learn and excel at this course."

Developing a dedicated curriculum for e-waste management has already facilitated the training of the first cohort of students. They are now equipped with much-needed knowledge and skills to handle, recycle and dispose of electronic waste responsibly.

The development of this e-waste management curriculum is a crucial milestone in Kenya's

history. It is aiding in creating a talent pool of skilled individuals who will become eco-warriors while safeguarding the environment.

Recommendations

- At the end of the pilot programme, conduct a curriculum audit to determine gaps in the curriculum and update the curriculum for the roll-out of phase two of the programme.
- The curriculum is well crafted and easy to understand, but more emphasis needs to be placed on the practical aspects of e-waste management and repairs without neglecting the theoretical learnings.
- The curriculum needs to be upscaled into more advanced-level curricula for those who want to become experts in e-waste management and repair.
- The designed comprehensive learning materials for the curriculum implementation need to be more practical orientated and require further revision.
- The curriculum must be shared with other training institutions that are open to teaching e-waste management in Kenya.
- Training institutions must ensure they have adequate equipment for the effective implementation of the e-waste curriculum.



The training of trainers on e-waste management and recycling in the five VET institutions was executed successfully to ensure long-term impact.

The training of trainers has equipped 21 trainers with e-waste management skills, enabling them to train participants from the formal or informal sector. Trainers have played an integral role in upskilling 400 youths in Kenya.

The training took place over ten days, which was a considerably short period of time. Thus, the trainers needed more time to grasp the theoretical and practical lessons. Feedback from Stephen Waweru, an e-waste trainer at NITA, is that the trainers needed to be provided with a textbook to support their learning. “We relied on desktop research to understand the subject better. The course did not provide enough reference material to rely on,” he said.

He added that the notes given needed to be more in-depth for them to build effective lesson plans. Lastly, Stephen Waweru said the training of trainers needed to focus more on teaching practical lessons. “Trainers need to be given sufficient time to grasp the subject and do the practical work to enable them to teach confidently.”

Lastly, while trainers say the training was successful, they have appealed to the VET Toolbox implementation team to be aware that the circular economy, as well as e-waste management and recycling, are new concepts. The trainers themselves need adequate time to learn about these concepts in order to teach them.



Recommendations

- The training of trainers programme needs to be improved by equipping trainers with practical skills.
- Increase the amount of time allocated to the training of trainers and the training of trainees.
- Time allocated to training must be increased to ensure that trainers have enough time to grasp complex concepts.
- Trainers' feedback must be collated before the curriculum is audited and adapted for the second phase of the roll-out.
- Trainers must see the e-waste management process at recycling centres or workshops before facilitating training. They should be sent on industrial attachments for a week to become fully exposed to the industry.
- Create an additional text book with comprehensive reference materials to further accommodate the self-learning of trainers.

Strengthened public-private partnerships

The VET Toolbox implementation team in partnership with the Waste Electrical and Electronic Equipment Centre (WEEE Centre) have facilitated structured public and private dialogues, as well as workshops with several stakeholders in the e-waste management sector, to create more awareness about e-waste management in Kenya.

The VET Toolbox implementation team has also worked closely with the National E-waste steering committee of Kenya. The team has helped the committee schedule and structure meetings through several interactions and workshops. It continues to offer technical advice with the aim of

advising the Government about formulating a legal and regulatory framework for sustainable e-waste management in Kenya.

The public-private dialogues have mobilised selected Technical and Vocational Education and Training (TVET) centres to train 400 youths. The goal is to ensure that at least 75% of the trainees get practical work experience and that 100 new jobs are created, spread across the following job profiles: new e-waste collection centre administrators, technicians for assembling and disassembling e-devices to identify valuable and invaluable components, and waste collectors.

Challenges

Low enrolment of women in the e-waste management training programme

During the implementation of the VET Toolbox project, there was a low enrolment of women in the e-waste management training programme. Cultural factors and prevailing stereotypes that associate technical courses primarily with males were identified as significant contributing factors to this phenomenon. There was also a lack of a conducive learning environment, especially for nursing mothers.

Feedback from Eddy Oloo, the coordinator of the VET Toolbox project, is that several women had concerns that they wouldn't be accommodated as nursing mothers or mothers to small children.

Recommendations

- Create awareness about the role that women can play in the e-waste sector.
- Set strict quotas for the enrolment of women in the programme.
- Debunk gender stereotypes and myths about technical fields of study.
- Create policies and strategies to attract and retain women in technical VET programmes.
- Build the capacity of training institutions so they can take responsibility for encouraging women to apply for technical VET programmes.
- Lobby and promote policies that bring changes to the infrastructure of training institutions. For example, nursing rooms for new mothers.



The industry is relatively new, and there are very few e-waste companies to absorb the cohort of graduates in the programme.

Every trainee must complete a three-month internship programme as part of the e-waste management programme. However, because Kenya's e-waste industry is relatively young, a few industrial centres can't absorb all students as interns after graduation.

The feedback from Dr Karanga and Dr Omamo at Meru University of Science & Technology (MUST) is that they have had several discussions with the formal and informal sectors, such as the WEEE Centre, E-WIK and learning institutions, to absorb trainees into internships, but more is needed. Some graduates will have to resort to creating their own enterprises.

Additionally, stakeholders say the three months allocated to the internship needs to be increased.

"Three months does not give trainees enough time to fully understand e-waste management and the practical skills required to join e-waste recycling companies or open their own enterprises," says Dr Omamo.

Recommendations

- Rotate trainees during their internships from across the formal to the informal sector. This will give them a comprehensive view of the industry and help transfer knowledge across the sectors.
- Engage several counties to involve trainees in their day-to-day e-waste dismantling and sorting activities.
- The attachment programme should be extended to ensure that the trainees are given enough time to become skilled recyclers who can run their own enterprises.
- Provide toolboxes to trainees after they complete their training programme to enable them to create their own enterprises/e-waste centres across various counties.
- Encourage and equip trainees to start their own small enterprises and collection centres once they are trained.
- Engage with stakeholders on how to sustain the project.



Lessons learnt and recommendations

Key Successes	Challenges and observations	Lessons learnt and recommendations
<p>Development of qualification pack and National Occupational Standard and accredited curriculum for processing technician on NC1, aligned to the KNQF level 2 and approved by Kenya's training authority, National Industrial Training Authority (NITA)</p>	<ul style="list-style-type: none"> • The norm is that curriculum development and assessments can take up to a year or more before approval. • This fast-tracked curriculum development and approval is a testament to the power and importance of collaboration between the public and private sectors. • The curriculum is well crafted, but more emphasis needs to be placed on the practical aspects of e-waste management and repairs without neglecting the theoretical learnings. • The training curriculum is on a lower qualification level and very suitable for new e-waste sector entrants. 	<ul style="list-style-type: none"> • Partnerships with various stakeholders led to the mobilisation of resources, collaboration, engagement and development of a comprehensive training package. • Conduct a curriculum revision for the launch of phase two of the program. • Upscale the curriculum to more advanced levels and design comprehensive courses that cover e-waste collection, recycling processes and sustainable disposal methods. • Integrate the curriculum with broader environmental and sustainability frameworks to highlight its significance and interconnectedness with global challenges.
<p>Promoted public and private dialogue by working with the National E-waste Steering Committee. [The role of the e-waste steering committee is to lobby for favourable policies in the e-waste sector. Its mandate is to improve e-waste management in Kenya and promote the growth of small businesses in the e-waste sector.]</p>	<ul style="list-style-type: none"> • By engaging stakeholders from both spheres, a diverse range of perspectives, resources, and expertise were harnessed. • The steering committee does not have a legal mandate yet. • Members of the steering committee need to make annual contributions to support its financial sustainability. • The implementation team collaborated closely with the National Steering Committee on E-waste Management. • There is a misconception in the e-waste management industry that the project aims to formalise the sector, introducing new systems that may disrupt and stifle existing operations. 	<ul style="list-style-type: none"> • Facilitating public and private sector dialogue is key. • The private sector plays a vital role. Its active involvement can greatly improve the programme's effectiveness and long-term success. • The dialogues enabled the team to align curriculum development with real-world demands and fostered a conducive environment for a successful curriculum roll-out. • Public-private dialogues need to be utilised to build more trust between the industry players and promote stronger engagements between the formal and informal sector.

Lessons learnt and recommendations

Key Successes	Challenges and observations	Lessons learnt and recommendations
<p>Development of training materials on e-waste management and recycling (including occupational standards, curriculum, learning materials, assessment instruments and certification)</p>	<ul style="list-style-type: none"> The trainers noted that their training materials, while comprehensive, did not provide sufficient practical lessons. The developed learning guides for the trainees still need to be piloted and subsequently reviewed. 	<ul style="list-style-type: none"> The training materials developed for trainers need a stronger practical component. Before the curriculum is audited and adapted further, collate industry and trainers' feedback first.
<p>The training of trainers on e-waste management and recycling was executed successfully</p>	<ul style="list-style-type: none"> Existing gender stereotypes and myths about technical fields of training must be further debunked. Low enrolment of women in the e-waste training programme. Nursing women did not feel comfortable joining the training. The environment was not conducive to their needs. Basic equipment provided by the five institutions for training was not always sufficient for the training of 400 youths. Having fewer tools meant that trainers needed to increase the teaching time to give every trainee a chance to learn on a practical level. 	<ul style="list-style-type: none"> Creating policies, strategies and strict quotas to attract and retain women in training to improve the issue of low enrolment. Building the infrastructure (e.g. nursing rooms) and capacity of training institutions so they can take responsibility for encouraging women to apply for the training programmes Prior to the commencement of training, VET institutions must undergo an audit to determine whether they have adequate equipment for the effective implementation of the training programme.

Lessons learnt and recommendations

Key Successes	Challenges and observations	Lessons learnt and recommendations
Beneficiaries are slated to gain sustainable employment in the e-waste sector	<ul style="list-style-type: none">• The e-waste sector in Kenya is young and still growing. Very few formalised recyclers can absorb all the graduates after training is complete.• The majority of e-waste management activities are taking place in the informal sector.• The implication is that trainees from the e-waste training programme may need help finding internships or formal employment.• The curriculum already includes entrepreneurship modules to equip trainees with skills to start small and medium-sized enterprises.	<ul style="list-style-type: none">• Help graduates to start their own collection centres and equip them with the tools of the trade can kickstart their careers in e-waste management.• Another lesson is the importance of creating a one-stop shop/recycling facility where graduates can process and recycle their e-waste for a fee.• Additionally, setting up small collection centres across different counties in Kenya that can be used as collection points and enable graduates to become self-employed.

Conclusion

After collating feedback from various stakeholders involved in the implementation of the project, the overwhelming conclusion is that the VET Toolbox programme is a quality training programme that has the potential to contribute massively to job creation and the GDP of the Kenyan economy. The training programme has the potential to grow exponentially across various counties in Kenya, closing the skills gap and skills mismatch in the country.

Kenya's investment climate is among the strongest in Africa and the East African community. East Africa's largest economy is strategically located and has a vibrant capital market, broad market access, relative political stability and favourable investment policies.

The VET Toolbox activities are helping increase the talent pool in e-waste management, recycling and repairing e-devices. With approximately 51,000 tonnes of waste generated in Kenya annually, there is no shortage of e-waste in the country – but there is a shortage of skilled e-waste recyclers to fill the gaps as recyclers across Kenya.

This, indeed, is a gold mine waiting to be unearthed.



Thank you.