

CircuWasteVETAfrica



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D4.2 – Added Value Services Compendium

From Skills Gaps to Co-designed TVET Services and Sustainable VET–Market Partnerships

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Authors	Enrique Romeo (MUNDUS), Milton Lima (CFP-STP)
Reviewers	Adriano Mauro (AREA)
Abstract	This Compendium presents the added value TVET services developed by CircuWasteVETAfrica partners in Angola, Ghana, Namibia and São Tomé and Príncipe. Based on identified skills gaps, stakeholder consultations and the Training of Trainers dedicated module, the proposed services aim to strengthen practical training, waste valorisation, green entrepreneurship and cooperation between VET providers and the labour market. The document also outlines the next steps for implementing and formalising these services through sustainable public-private partnerships.
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DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

OTHER: Software, technical diagram, etc.

EXECUTIVE SUMMARY

African **vocational education and training (VET) providers** have a strategic role in preparing learners and workers for the transition towards **more circular and resource-efficient economies**. However, this requires training provision to respond more closely to **labour-market needs**, offer more practical learning opportunities and establish stronger cooperation with companies, public authorities, municipalities and organisations across the waste value chain.

The *Added Value Services Compendium* presents a portfolio of services designed by participating VET providers and partners in **Angola, Ghana, Namibia and São Tomé and Príncipe**. Its purpose is to transform the knowledge and competences developed through CircuWasteVETAfrica into **structured and repeatable institutional services** that support green skills development, employment, entrepreneurship and improved waste-management practices.

The services were identified through a **participatory methodology** combining stakeholder mapping, skills gap analysis, institutional capacity assessment, Training of Trainers results, national workshops, bilateral meetings and co-design sessions. This process enabled VET providers and relevant stakeholders to examine local challenges, identify opportunities for collaboration and define services adapted to each country's **economic, environmental and institutional context**.

The findings reveal several **common priorities** across the four countries: closer alignment between training and labour-market requirements; greater access to practical and work-based learning; improved technical, digital and occupational safety skills; stronger green entrepreneurship competences; and more systematic cooperation between VET institutions and public and private actors. At the same time, the proposed portfolios reflect **distinct national needs**. **Ghana** prioritises structured internships, industry-linked training, circular product innovation, entrepreneurship and textile upcycling. **Angola** focuses on practical waste-management training, environmental education, separation at source and professional integration. **São Tomé and Príncipe** emphasises the valorisation of fish waste and agro-industrial residues, alongside work-based learning and green entrepreneurship. **Namibia** prioritises continuing professional development, structured internships, environmental compliance, career awareness and the anticipation of emerging green skills.

The proposed services include **specialised and continuing training, internships and work-based learning, waste valorisation, circular product development, technical support and green entrepreneurship initiatives**. Meetings, awareness activities and partnership agreements are considered enabling mechanisms that support the design, delivery and formalisation of these services rather than services in themselves.

The analysis shows that the proposed services are at **different levels of maturity**. Some have identified partners, delivery arrangements and expected results, while others still require technical refinement, stakeholder validation, resource planning or pilot testing. It is therefore recommended that each VET provider **prioritise the most feasible and relevant services**, confirm stakeholder responsibilities, define measurable targets, secure the required resources and test the delivery model before integrating it into its regular institutional offer.

The next stage should focus on **formalising the priority collaborations through Memoranda of Understanding or other appropriate agreements**. These arrangements should clearly define roles, resources, workplace supervision, quality assurance, safety requirements and sustainability mechanisms. By converting project results into **lasting institutional services and VET–market partnerships**, CircuWasteVETAfrica can improve the relevance of vocational training while contributing to **green employment, entrepreneurship and more sustainable waste-management systems**.

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ABBREVIATIONS

CB-VET	Capacity Building in the Field of Vocational Education and Training
CFPSTP	Centro de Formação Profissional de São Tomé e Príncipe
CPD	Continuing Professional Development
EU	European Union
MoU	Memorandum of Understanding
NGO	Non-Governmental Organisation
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PPP	Public–Private Partnership
QA	Quality Assurance
STP	São Tomé and Príncipe
SWA	Solid Waste Association
ToT	Training of Trainers
TVET	Technical and Vocational Education and Training
VET	Vocational Education and Training
WBL	Work-Based Learning

1. INTRODUCTION

1.1 PARTICIPATED STRATEGIC PLANNING

Work Package 4, “Participated Strategic Planning,” provides the main framework through which CircuWasteVETAfrica connects VET institutions with their surrounding stakeholder ecosystems. Led by the **Municipality of Swakopmund (SWA)** and implemented throughout the project, its overarching objective is to develop **durable partnerships between VET providers and relevant public and private stakeholders**, with particular attention to the circular waste supply chain.

The Work Package follows a progressive process. First, **Task T4.1** mapped local and national stakeholders involved in waste generation, collection, management, recovery, recycling, training, regulation and employment. This was followed by **Task T4.2**, which examined employers’ organisational and technical needs and identified existing and emerging skills gaps. The results created an evidence base for matching stakeholder needs with the expertise, training capacity and institutional resources of the participating VET providers.

The stakeholder mapping and skills gap analysis covered **24 organisations across Ghana, Namibia, São Tomé and Príncipe and Angola**. Waste-management companies and VET institutions represented the largest groups consulted. The analysis identified strong demand for training in areas such as **sustainable business practices, digital tools for waste management, community outreach, recycling and waste-reduction techniques**. It also found considerable stakeholder interest in supporting capacity-building through **guest lectures, workshops, curriculum development, internships and apprenticeships**.

Building on this evidence, **Task T4.3, “Capitalising Project for Added Value TVET Services Design,”** moves from identifying needs to designing practical institutional responses. Under this task, participating VET providers use their existing expertise and the competences developed through the project to define services addressing concrete needs expressed by public authorities, companies, communities and other stakeholders.

The competences developed through the Training of Trainers programme provide an important foundation for this process. The programme combined six areas of learning related to **pedagogical upskilling, circular waste technical skills, circular business models, micro-entrepreneurship, innovation and public-private collaboration**. Task T4.3 enables participating institutions to capitalise on these competences by applying them beyond the initial training programme and converting them into services that can become part of their longer-term institutional offer. Each partner individual action plan is available on the project webpage: <https://circuwastevetafrica.eu/vet-added-value-services/>.

The proposed services are therefore expected to reflect three complementary elements:

- The **core expertise and operational capacity** of each VET provider.
- The **competences and materials developed through the project**.

- The **validated needs of public and private stakeholders** in each national context.

The service proposals developed through T4.3 are presented in this Compendium and linked to the stakeholder discussions undertaken during the project. They also provide a foundation for subsequent partnership development, through which priority collaborations may be formalised through **Memoranda of Understanding, placement agreements, service agreements or other appropriate instruments**.

1.3. PURPOSE AND SCOPE OF D4.2

This deliverable, **D4.2 – Added Value Services Compendium**, presents the portfolio of added value TVET services proposed by the participating institutions within the CircuWasteVETAfrica project. Its main purpose is to demonstrate how identified skills gaps, stakeholder needs and project-generated competences can be transformed into **concrete, structured and potentially sustainable services**. The Compendium covers the service portfolios developed in relation to **Ghana, Angola, São Tomé and Príncipe and Namibia**. For each country, it explains the relevant institutional and sectoral context, the principal needs identified, the stakeholders involved and the services proposed in response. It also considers the resources, responsibilities, expected results, implementation arrangements and sustainability requirements associated with the services. The document draws upon the **project application, the stakeholder mapping and skills gap analysis, the Training of Trainers materials and report, the interim technical report, national consultations and the service proposals developed by the participating institutions**. Together, these sources establish a traceable relationship between the needs identified, the competences available and the services proposed.

More specifically, D4.2 aims to:

- Present the **added value services proposed by each participating VET provider**.
- Explain the **needs and opportunities** addressed by each service.
- Identify the intended **target groups and beneficiaries**.
- Describe the main **service components and delivery arrangements**.
- Clarify the roles of VET providers and collaborating stakeholders.
- Identify expected results and potential contributions to **green skills, employment and entrepreneurship**.
- Assess the principal requirements for **implementation, sustainability and replication**.
- Indicate the next steps required to develop and formalise priority collaborations.

The Compendium presents services at **different levels of maturity**. Some proposals may already have identified partners, delivery arrangements and implementation opportunities, while others may require additional technical development, stakeholder confirmation, resource planning or pilot testing. Inclusion in the Compendium therefore indicates that a service has been identified or designed as a relevant opportunity; it does not necessarily mean that the service is already fully operational.

D4.2 is intended as a practical reference for **VET managers, trainers, companies, public authorities, municipalities, civil society organisations and other potential partners**. It can support institutional

decision-making, partnership discussions and the mobilisation of financial or in-kind resources for future implementation.

1.4. DEFINITION OF AN ADDED VALUE TVET SERVICE

For the purposes of this Compendium, an **added value TVET service** is defined as:

A structured and repeatable activity offered or coordinated by a VET provider that applies its institutional expertise and project-generated competences to respond to a validated need of learners, workers, employers, public authorities or local communities.

An added value service goes beyond the delivery of a one-off project activity. It transforms training capacity, technical knowledge, facilities, stakeholder relationships or educational materials into an organised offer with a **clearly defined purpose, target group, delivery model and expected result**.

Within CircuWasteVETAfrica, an added value TVET service should normally demonstrate the following characteristics:

- **Needs-based:** it responds to an identified labour-market, institutional, environmental or community need.
- **Competence-based:** it draws on the expertise of the VET provider and on competences developed through the project.
- **Structured and repeatable:** it has defined activities, beneficiaries, responsibilities, resources and delivery arrangements that allow it to be implemented more than once.
- **Stakeholder-linked:** it involves or benefits relevant companies, public authorities, communities or other organisations.
- **Results-oriented:** it seeks to generate measurable benefits related to skills, employment, entrepreneurship, operational improvement or environmental performance.
- **Sustainable:** it has the potential to be integrated into the provider's institutional offer, supported through partnerships or maintained through an appropriate financial or resource model.

Added value services may take different forms, including **specialised training, continuing professional development, work-based learning and internships, technical assistance, circular product development, waste valorisation activities, entrepreneurship support and tailored services for companies, public authorities or communities**.

A stakeholder meeting, awareness event, consultation or Memorandum of Understanding is **not considered an added value service by itself**. These activities may support the identification, co-design, validation or formalisation of a service, but the service must contain a substantive and structured offer that produces value for a defined target group. The added value of these services therefore lies in their capacity to connect **VET expertise with real economic, social and environmental needs**, enabling participating institutions to become active contributors to their local circular economy ecosystems while strengthening their relevance, visibility and long-term sustainability.

2. METHODOLOGY

2.1. SOURCES AND EVIDENCE USED

The development of this Compendium followed a **document-based and participatory methodology**. It combined the project's description of action framework, the results of previous activities, stakeholder evidence and the Action Plans prepared by the participating VET providers. This approach ensured that the proposed services were connected to **documented needs, available institutional competences and concrete collaboration opportunities**.

The principal sources used were:

- The **CircuWasteVETAfrica project Description of Action**, which defines the objectives of Work Package 4, the progression from stakeholder mapping to service design and the expected purpose of D4.2.
- **D4.1 – Stakeholder Mapping and Skills Gap Analysis**, which provides the main evidence on participating organisations, current competences, priority skills gaps, training needs, sectoral challenges and stakeholder willingness to collaborate.
- **D2.1 – Training of Trainers Materials**, which describes the technical, pedagogical, digital, entrepreneurial and partnership-related competences developed by the project.
- **D2.2 – Training of Trainers Report**, which provides evidence on the implementation, participation, evaluation and results of the Training of Trainers programme.
- The **interim technical report**, which documents the progress achieved during the first implementation phase and the transition from stakeholder analysis and capacity building to the initial design of added value TVET services.
- The **T4.3 guidance materials and Stakeholder Meeting Template**, which established a common process for organising co-design sessions, recording consultation results and preparing national Action Plans.
- The **VET-Market Co-Design Action Plans** prepared for Ghana, Angola, São Tomé and Príncipe and Namibia, including the proposed actions, stakeholders, responsibilities, timelines, resources, expected results and potential instruments for partnership formalisation.
- The outcome of the **Validation Workshop** conducted in Sao Tome in July 2026, where Ghana, Namibia, Sao Tome and Angola presented their initial Added Value Services to relevant local stakeholders and discussed opportunities for collaboration
- Available **supporting evidence**, including consultation reports, meeting agendas, attendance lists, presentations, photographs and records of agreed next steps.

The sources were analysed through **evidence triangulation**. Information from the Action Plans was compared with the findings of D4.1, the competences covered by the Training of Trainers programme and the requirements established in the project application. This made it possible to verify whether each proposed service demonstrated a logical relationship between:

An identified need → an available or project-developed competence → a proposed service → an implementation arrangement → an expected result.

Particular attention was given to distinguishing between **confirmed information and proposals that still require further development**. Where stakeholders, resources, targets or delivery arrangements had not yet been fully confirmed, the service was treated as being at an earlier stage of maturity. Inclusion in the Compendium therefore does not imply that every service is already operational or formally endorsed.

The available evidence also has some limitations. The scope and detail of the documentation differ between countries, and some Action Plans contain more complete information than others. Stakeholder participation was also uneven across countries and stakeholder categories. Consequently, the Compendium uses only information supported by the available sources and identifies aspects requiring **additional confirmation, validation or resource planning**.

2.2. STAKEHOLDER CONSULTATION PROCESS

Stakeholder engagement was organised as a **progressive process**, beginning with the identification of relevant actors and continuing through the analysis of needs, co-design of services and preparation of collaborative Action Plans.

The first stage (T4.1) involved the **mapping of organisations and institutions operating in or connected to the circular waste value chain**. National partners identified actors involved in waste generation, collection, treatment, recycling, recovery, training, regulation, community engagement and employment. The mapping considered each organisation's activities, influence, interest, potential contribution and relevance to employment and training opportunities.

Stakeholders were selected through a **purposive sampling approach**, prioritising organisations and individuals with direct involvement, relevant experience or demonstrated interest in green waste management and the circular economy. The stakeholder groups included:

- Waste-management and recycling companies.
- Employers and industry representatives.
- VET institutions, trainers and academic staff.
- National and local public authorities.
- Policy-making and regulatory bodies.
- NGOs and environmental organisations.
- Civil society and community-based initiatives.
- Informal-sector actors and waste-recovery initiatives.

The second stage (T4.2) consisted of a **Skills Gap Analysis involving 24 organisations across Angola, Ghana, Namibia and São Tomé and Príncipe**. Data were collected through a structured questionnaire combining multiple-choice questions, Likert-scale items and open-ended questions. This allowed the project to collect both **quantitative and qualitative information** on current competences, priority training needs, organisational challenges, preferred learning formats and possible stakeholder contributions.

Questionnaires were distributed electronically using the stakeholder lists developed during the mapping process. National partners supported participation through reminder emails and direct follow-up. Quantitative responses were analysed using frequencies, percentages and mean scores, while qualitative responses were coded and grouped into recurring themes.

The consultation process identified common needs related to **advanced waste-treatment technologies, financial and project management, policy implementation, sustainable resource management, digital tools, data analysis, occupational health and safety, community outreach and practical learning opportunities**. Stakeholders also expressed interest in supporting training through guest lectures, workshops, curriculum development, internships and other forms of work-based learning.

Under T4.3, consultation moved from collecting information to **structured co-design**. Participating partners were invited to organise one or more working sessions involving representatives of VET institutions and the relevant market actors identified during the earlier mapping. Depending on the national context, these sessions took the form of:

- Stakeholder workshops.
- Roundtable discussions.
- Bilateral meetings.
- Working groups.
- Institutional consultations.
- In-person, online or hybrid sessions.

The discussions were guided by three central questions:

1. **What skills gaps or sectoral challenges need to be addressed?**
2. **What training or support services are currently missing, insufficient or outdated?**
3. **What realistic forms of collaboration could respond to these needs?**

A common Stakeholder Meeting Template was used to record the participating organisations, meeting objectives, needs identified, collaboration opportunities, agreed actions, responsible organisations and indicative timelines. Partners were also encouraged to retain agendas, attendance lists, photographs, presentations and meeting minutes as **supporting evidence of the consultation process**.

The results of these consultations were translated into national **VET-Market Co-Design Action Plans**. Draft services and collaboration ideas were subsequently shared during the Capitalisation Plan Workshop in São Tomé and Príncipe. This provided an opportunity for **peer review, discussion and refinement across the consortium**. However, this consortium-level discussion should be distinguished from the definitive external validation and formalisation of individual partnerships, which require continued engagement with the organisations responsible for implementing each service.

2.3. ADDED VALUE SERVICE DESIGN PROCESS

The design of the added value services followed the **progressive logic established for Work Package 4**. The process connected stakeholder evidence with institutional capacities and transformed broad collaboration ideas into more structured service proposals.

The first step was the **identification of priority needs**. The results of the stakeholder mapping, Skills Gap Analysis and national consultations were reviewed to determine which training, employment, environmental or organisational challenges could reasonably be addressed by a VET provider.

The second step involved **matching the identified needs with the competences and resources of the participating institutions**. This included both their existing expertise and the new competences developed through the Training of Trainers programme. The matching process considered knowledge and materials related to:

- Circular economy principles.
- Green waste management.
- Waste reduction, separation, recycling and valorisation.
- Circular business models.
- Micro-entrepreneurship.
- Frugal and digital innovation.
- Innovative teaching methodologies.
- Work-based learning.
- Public-private partnerships.

The third step consisted of generating **potential service concepts**. VET providers and stakeholders discussed how these competences could be converted into practical offers for learners, workers, companies, public authorities or communities. The possibilities included specialised training, continuing professional development, structured internships, technical assistance, circular product development, waste-valorisation initiatives and green entrepreneurship support.

The fourth step was the **co-design of the service delivery model**. During consultations, participants considered the activities to be undertaken, the organisations involved, the expected contribution of each partner and the resources required. Where sufficient information was available, they also discussed target groups, timelines, indicators, workplace supervision, certification, occupational safety and possible sustainability mechanisms.

The fifth step involved translating the agreed concepts into **structured Action Plans**. The common Action Plan format requested the following information for each proposed action:

- Action or service title.
- Objective and need addressed.
- Description of the proposed activity.
- Partners involved.
- Roles and responsibilities.
- Indicative timeline.
- Resources required.
- Expected outputs and outcomes.
- Indicators of success.

- Connection with future partnership formalisation.

The Action Plans were then reviewed to distinguish between **supporting actions and substantive added value services**. Meetings, awareness events, stakeholder forums and partnership agreements may be essential to implementation, but they are not automatically services in themselves. To be presented as an added value TVET service, a proposal needed to contain a structured offer producing identifiable value for a defined target group.

Finally, the proposed services were consolidated into a common Compendium format to facilitate comparison across countries. The consolidation process preserved the specificities of each national context while applying a shared structure covering the **need addressed, target group, service description, stakeholder responsibilities, expected results, implementation arrangements and formalisation requirements**.

The methodology recognises that the proposed services are at **different stages of maturity**:

- **Proposed:** a relevant service concept has been identified, but further definition or consultation is required.
- **Co-designed:** the service has been discussed with relevant stakeholders and its principal components have been defined.
- **Implementation-ready:** partners, responsibilities, resources, delivery arrangements and immediate next steps have been sufficiently specified to support piloting or implementation.

This classification prevents early-stage ideas from being presented as fully operational services while recognising their potential for further development.

2.4. SERVICE SELECTION CRITERIA

The project documentation does not establish a formal numerical scoring system for selecting services. Therefore, the proposals included in this Compendium were assessed through a **qualitative screening framework derived from the objectives of T4.3, the findings of D4.1 and the common Action Plan guidance**. The following criteria were applied:

Evidence-based relevance

The service should respond to a need identified through the stakeholder mapping, Skills Gap Analysis, national consultations or other documented evidence. Preference was given to proposals demonstrating a clear relationship between the **identified problem and the proposed response**.

Alignment with VET-provider expertise

The service should be compatible with the existing mandate, technical capacity, facilities or educational role of the participating VET provider. It should also make effective use of the **competences, methodologies or materials developed through CircuWasteVETAfrica**.

Stakeholder demand and engagement

The proposal should respond to an interest expressed by employers, public authorities, communities or other relevant actors. Services with identified partners, clearly proposed stakeholder contributions or evidence of consultation were considered more mature than ideas developed without external engagement.

Clarity and structure

The proposal should constitute a **defined and repeatable service**, rather than an isolated event or general intention. It should identify, as far as possible, its target group, activities, delivery arrangements, responsible organisations and expected results.

Technical and operational feasibility

The service should be realistic in relation to the available human resources, facilities, equipment, funding, timeframe and institutional capacity. Where essential requirements have not yet been secured, these should be clearly identified as implementation conditions.

Potential for measurable results

The proposal should generate identifiable benefits in areas such as **skills development, employability, work-based learning, entrepreneurship, organisational performance, community awareness or environmental improvement**. Wherever possible, the service should include measurable outputs or indicators.

Partnership potential

Priority was given to services capable of strengthening **durable cooperation between VET providers and market actors**. This includes proposals suitable for formalisation through MoUs, placement agreements, service agreements or other collaboration instruments.

Sustainability and repeatability

The service should have the potential to continue beyond a single project-funded activity. Possible sustainability mechanisms include integration into existing programmes, institutional budget allocation, employer contributions, affordable participation fees, public support, in-kind resources or future project funding.

Inclusion and accessibility

The service should consider the participation of **women, young people and groups facing social or economic barriers**. Selection and delivery arrangements should avoid reinforcing existing inequalities and should promote equitable access to green skills, employment and entrepreneurship opportunities.

Replication and adaptation potential

Where relevant, consideration was also given to whether a service could be transferred to other VET providers or national contexts. Replication does not require identical implementation; services may

need to be adapted to different waste streams, industries, regulations, institutional capacities and labour-market conditions.

Application of these criteria did not mean that every selected proposal was already complete. Services meeting a clear need but requiring further technical development were retained where they demonstrated sufficient relevance and potential. In such cases, the outstanding requirements are presented transparently as **next steps or conditions for implementation**.

3. OVERVIEW OF THE PROPOSED ADDED VALUE SERVICES

The proposed added value services represent the transition from **capacity building and skills analysis to practical institutional action**. They show how VET providers can use their existing expertise, the competences developed through the Training of Trainers programme and cooperation with external stakeholders to offer services responding to **local labour-market, environmental and community needs**. The service portfolios differ according to national conditions and institutional capacities. However, they share a common objective: to strengthen the role of VET providers as **training institutions, innovation facilitators and active partners within the circular economy ecosystem**.

3.1. SUMMARY OF SERVICES BY COUNTRY AND VET PROVIDER

The following table provides an overview of the principal service areas proposed in each country. The services are presented in greater detail in the corresponding national chapters.

TABLE 1 – SERVICE AREAS PER COUNTRY

Country	VET provider(s) and institutional framework	Main proposed service areas
Ghana	Ramseyer Vocational Technical Institute (RVTI), within the PRSD framework	Structured internships and industry placements; specialised green waste-management training; circular product development; textile waste upcycling; green entrepreneurship and microenterprise support.
Angola	VIS Angola, working with participating INEFOP/CINFOTEC and Don Bosco training centres	Practical training connected to waste-management operations; waste separation and recovery; environmental education; internships and professional integration; reuse and upcycling initiatives; support for waste-based entrepreneurship.
São Tomé and Príncipe	Centro de Formação Profissional de São Tomé e Príncipe (CFPSTP)	Valorisation of fish waste and agro-industrial residues; training adapted to the fisheries and Agripalma sectors; work-based learning; environmental awareness; circular product development and green entrepreneurship support.
Namibia	COSDEF and the wider VET and stakeholder network supported by the Municipality of Swakopmund, including relevant vocational training centres	Structured internships; continuing professional development for workers; regular identification of industry competence needs; environmental compliance and waste-policy training; career awareness and anticipation of emerging green skills.

In **Ghana**, the portfolio seeks to reinforce connections between training provision and employment opportunities. Particular emphasis is placed on **industry exposure, practical learning and the transformation of waste into marketable products**, including textile upcycling and other circular production activities.

In **Angola**, the services build on the different levels of circular economy experience found among the participating training centres. Some institutions already have practical experience with ecopoints, waste-oil recovery, textile reuse and waste-based products. The portfolio therefore combines **introductory awareness and waste-separation activities with more advanced practical training, internships and entrepreneurship support**.

In **São Tomé and Príncipe**, the proposals respond to the characteristics of a small island economy and to the need to reduce the environmental impact of poorly managed waste. The portfolio pays particular attention to **locally significant waste streams**, including residues produced by fisheries and agro-industrial activities, and to their potential use as inputs for new products and microbusinesses.

In **Namibia**, the services focus strongly on cooperation between VET providers, municipalities and industry. The proposed portfolio aims to improve **workforce development, environmental compliance, access to workplace experience and the continuous identification of emerging occupational and competence requirements**.

The services are currently at **different stages of maturity**. Some have identified stakeholders and relatively clear delivery arrangements, while others require further validation, technical planning, resource allocation or pilot testing.

3.2. MAIN NEEDS AND AREAS OF INTERVENTION

The proposed services respond to a combination of **shared cross-country challenges and specific national priorities**. The principal areas of intervention are summarised below.

Alignment between training and labour-market needs

VET provision is not always sufficiently connected to the current requirements of waste-management companies, municipalities and other circular economy actors. The proposed services seek to strengthen this alignment through **regular employer consultation, competence-needs reviews, curriculum adaptation and direct industry participation in training**.

Practical and work-based learning

Limited access to practical experience remains one of the most significant barriers to learners' employability. Structured internships, apprenticeships, company visits, practical workshops and supervised workplace activities are therefore central components of several national portfolios. These services are intended to help learners **apply technical knowledge in real working environments** and develop a clearer understanding of occupational expectations.

Technical green waste-management skills

Stakeholders identified a need for stronger competences in **waste separation, collection, treatment, recycling, upcycling, resource recovery and environmental compliance**. The national portfolios adapt these areas to locally relevant waste streams, industries and environmental challenges.

Digital, managerial and pedagogical capacity

The documentation also identifies gaps in digital tools, data collection, reporting, project management and modern teaching methodologies. Addressing these areas is important both for workers in the waste sector and for trainers responsible for transferring circular economy knowledge to learners.

Green entrepreneurship and circular product development

Given the limited availability of formal employment opportunities, the services also promote **self-employment and microenterprise development**. This includes identifying business opportunities, transforming waste into products, preparing basic business plans and strengthening financial, marketing and entrepreneurial competences.

Institutional and public-private cooperation

Collaboration between VET providers and external stakeholders remains uneven. Several proposed services therefore depend on stronger and more structured cooperation with **companies, municipalities, ministries, sectoral organisations and community initiatives**. These relationships are essential for providing technical expertise, workplace placements, equipment, mentoring and potential employment pathways.

3.3. CONNECTION WITH THE TRAINING OF TRAINERS PROGRAMME

The Training of Trainers programme provides the **competence base from which the added value services can be developed and delivered**. The 100-hour programme strengthened the pedagogical, technical, entrepreneurial and partnership-related capacities of trainers in Ghana, Angola and São Tomé and Príncipe. A total of **50 trainers completed the programme and received certificates**, including 21 in Ghana, 18 in Angola and 11 in São Tomé and Príncipe.

Its six modules connect directly with the proposed services:

TABLE 2 – TOT PROGRAMME CONTRIBUTION TO ADDED VALUE SERVICES

ToT module	Contribution to the added value services
Module A – Pedagogical Upskilling and Digital Pedagogy	Supports competency-based, learner-centred and digitally assisted delivery of specialised training and continuing professional development.
Module B – Technical Skills for Circular Waste	Provides the technical foundation for services related to waste separation, recycling, treatment, recovery and valorisation.

Module C – Circular Business Models	Supports the development of circular products, sustainable business ideas and services that transform waste into economic value.
Module D – Micro-Entrepreneurship	Enables trainers to guide learners and community participants in business planning, financial literacy and the creation of small green enterprises.
Module E – Frugal and Digital Innovation	Supports low-cost innovation, appropriate technologies and practical solutions adapted to limited-resource environments.
Module F – Public-Private Partnerships for VET Managers	Provides tools for structuring cooperation with companies, municipalities and public institutions, including internships, joint training and partnership agreements.

The relationship between the ToT programme and the proposed services is therefore **practical rather than merely thematic**. The training materials, teaching methodologies and competences acquired can be reused and adapted to create specialised courses, workplace-learning arrangements, entrepreneurship support and technical services for external stakeholders.

In **Ghana, Angola and São Tomé and Príncipe**, this connection is reinforced by the certified trainers who can act as institutional multipliers and service facilitators. In **Namibia**, where the principal contribution has focused on stakeholder engagement and partnership development, the ToT framework and materials can support future adaptation, staff development and replication in cooperation with Namibian VET providers.

The added value services consequently offer a mechanism for transforming the ToT from a **time-limited capacity-building activity into a longer-term institutional resource**, allowing project knowledge to continue benefiting learners, workers, employers and communities.

4. GHANA – ADDED VALUE SERVICES PORTFOLIO

4.1. VET PROVIDER AND NATIONAL CONTEXT

The Ghanaian portfolio was developed under the coordination of **PRSD**, with **Ramseyer Vocational Technical Institute (RVTI)** serving as the principal VET provider involved in the proposed services. RVTI plays an important role in preparing young people for employment and self-employment and has the potential to integrate **circular economy, sustainable waste management and green entrepreneurship competences** into its training provision.

Ghana's circular waste-management ecosystem is evolving in response to increasing urbanisation, waste generation and awareness of the economic potential of recycling and resource recovery. In the Ashanti Region, particularly in and around **Kumasi**, the ecosystem includes municipal authorities, waste collection and recycling companies, composting facilities, training institutions, garment enterprises, entrepreneurs and community initiatives.

The stakeholder mapping identified several relevant actors across this value chain. These include the **Kumasi Compost and Recycling Plant (KCARP)**, which operates in waste sorting, composting and recycling; **TrashSmart**, which works on waste recovery and the production of recycled construction materials; and other waste-management actors such as the **Kumasi Metropolitan Assembly Waste Management Department, Sika Waste Management Co. Ltd and Zoomlion Ghana Limited**. Textile and garment institutions, including **Nana Serwaa Garment Industry and Skills College** and **Unijay Fashion School**, also offer opportunities to address textile waste through reuse and upcycling.

Despite this growing ecosystem, dedicated vocational programmes covering **circular economy principles, waste valorisation, modern recycling technologies and green entrepreneurship** remain limited. Existing training provision is still largely centred on conventional technical skills, with insufficient exposure to real waste-management operations and limited systematic cooperation between training providers and industry.

The proposed portfolio responds to these gaps by positioning RVTI as an active intermediary between **education, industry and green employment**. The services combine structured workplace experience, circular product innovation, institutional knowledge exchange and textile upcycling. Together, they aim to improve learners' practical skills while strengthening the capacity of participating organisations and creating more durable pathways from training to employment and entrepreneurship.

4.2. NEEDS IDENTIFIED

The Ghana portfolio builds on the results of the stakeholder mapping, the Skills Gap Analysis and the consultations conducted under Task T4.3. These sources identified a combination of **technical, institutional, pedagogical and entrepreneurial needs**.

The wider Skills Gap Analysis highlighted particularly significant gaps in **advanced waste-treatment technologies, financial management for waste projects, policy implementation and sustainable resource management**. It also identified weaknesses in data analysis, reporting and evidence-based decision-making. Although these results reflect the wider group of organisations consulted across the four participating countries, they provided an important reference for the subsequent design of the Ghanaian services.

At national and institutional level, the following priority needs were identified:

- **Greater access to practical industry experience.** Learners require direct exposure to waste collection, segregation, sorting, composting, recycling, quality control and occupational health and safety.
- **Stronger VET–industry cooperation.** Existing links between training institutions and waste-management companies need to become more structured, regular and results-oriented.
- **Integration of circular economy and green skills into training.** Circular waste-management concepts are not yet sufficiently embedded in conventional vocational programmes.
- **Improved technical knowledge of waste treatment and valorisation.** Learners and trainers need to understand how different waste streams can be recovered and transformed into useful or marketable products.
- **Development of digital and pedagogical competences.** Trainers identified a need for more competency-based, learner-centred and digitally supported teaching approaches.
- **Entrepreneurship and business-development support.** Learners need the capacity to identify circular business opportunities, assess market demand, develop prototypes and create viable green microenterprises.
- **Textile waste reduction and upcycling.** Garment and fashion training generates material offcuts that could be reused as inputs for new products and practical learning activities.
- **More systematic monitoring of employment outcomes.** PRSD and RVTI require stronger mechanisms for tracking placements, practical competence acquisition, employer satisfaction and learners' progression into employment or further training.

These needs informed the selection of services focused on **industry placements, work-based learning, field visits, product innovation, institutional exchange and textile upcycling**.

4.3. STAKEHOLDERS CONSULTED

The service portfolio was developed through a **participatory co-design process** involving VET representatives, waste-management companies, training institutions and other circular economy actors. A physical stakeholder workshop was held at **Ramseyer Vocational Technical Institute on 29 May 2026**, followed by an **online consultation session on 16 June 2026**. Further bilateral discussions, telephone conversations and electronic exchanges were used to obtain additional technical information and refine the proposed actions. The principal stakeholders involved in the co-design process were:

- **Ramseyer Vocational Technical Institute (RVTI)**, as the main VET provider and coordinator of learner participation, training delivery, supervision and assessment.

- **TrashSmart**, as an industry partner offering practical experience in plastic waste segregation, sorting, recycling and recycled-brick production.
- **Kumasi Compost and Recycling Plant (KCARP)**, as a potential host for field visits, internships and work-based learning covering different stages of the waste-management value chain.
- **Aman-Sark Skills Development Institute (ASSDI)**, as a partner for trainer exchanges, peer learning, curriculum enhancement and joint green-skills activities.
- **Nana Serwaa Garment Industry and Skills College** and **Unijay Fashion School**, as potential partners in textile waste upcycling, sustainable production and practical skills development.
- **TVET practitioners, local entrepreneurs, business-development service providers and CircuWasteVETAfrica partners**, as possible contributors to mentoring, market validation, exhibitions and entrepreneurship support.

Other organisations identified through the stakeholder mapping—including public authorities, waste-management companies, NGOs and training institutions—form part of the wider Ghanaian ecosystem and may support the services during future implementation. However, their identification through the mapping process should be distinguished from a **confirmed operational commitment** to a specific service. During the consultations, stakeholders examined the results of the Skills Gap Analysis, identified possible collaboration areas and assessed the relevance and feasibility of each proposed intervention. Decisions were developed through consensus, with particular attention to actions capable of strengthening **learner employability, institutional capacity and circular economy competences**.

4.4. PROPOSED ADDED VALUE SERVICES

The Ghana Action Plan contains **six proposed actions**, which have been consolidated into the following portfolio of repeatable added value services.

Service 1. Industry Placement and Circular Economy Skills Training with TrashSmart

RVTI learners will undertake structured placements at **TrashSmart's Kumasi facility**, where they will receive practical training in plastic waste segregation, sorting, processing and recycled-brick production. TrashSmart will host and supervise the learners, provide access to its operational facilities and arrange transport and meal support during the placements. RVTI will nominate suitable learners, coordinate the timetable and assign a liaison person to monitor participation and learning outcomes. The service is expected to operate with **one cohort per semester**, beginning after the signature of the partnership agreement. Its intended results include:

- Learners trained and assessed in practical waste-processing operations.
- Improved understanding of occupational procedures and safety requirements.
- A stronger pathway between vocational training and industry.
- Increased access for TrashSmart to learners with relevant operational competences.

Success should be measured through the **number of learners completing the placement, learner satisfaction and the percentage assessed as competent in at least two operational areas**.

Service 2. Circular Product Innovation Hub with TrashSmart

The proposed **Circular Product Innovation Hub** will enable learners to design and prototype marketable products using recyclable waste materials supplied or identified in cooperation with TrashSmart. RVTI will coordinate training, learner participation, supervision and assessment. TrashSmart will provide technical guidance, waste materials, industry mentoring and support for prototype testing. Local entrepreneurs and business-development organisations may contribute advice on **product feasibility, pricing, market demand and business development**. The service is intended to take the form of **one innovation challenge per academic year**. Learner teams will identify a waste stream, develop a product concept, produce a prototype and present it for technical and market feedback. Where viable, selected ideas may progress towards market testing or the creation of student-led green enterprises. The resources required include workshop space, recyclable materials, design and fabrication tools, trainer time, mentoring, exhibition space and **seed funding for prototype development**.

Service 3. Industry Field Visits and Circular Economy Learning Tours with KCARP

RVTI and KCARP propose a repeatable programme of **industry field visits and circular economy learning tours**. The purpose is to expose learners to real waste-management processes and allow them to observe the complete operational chain, including collection, sorting, composting, recycling and the use of basic equipment. KCARP technical staff and tour guides will explain the different stages of the facility's operations, while RVTI will select learners, provide academic preparation and coordinate transportation. Personal protective equipment must be provided whenever learners enter operational areas. The visits can be organised whenever a new learner cohort becomes available. The intended target is for **at least 80% of learners in each participating cohort to gain direct practical exposure to the waste-management industry**. Although the Action Plan indicates that individual visits may be requested through a formal institutional letter, incorporating them into a broader collaboration agreement would make the service more predictable and sustainable.

Service 4. Internship and Work-Based Learning Programme with KCARP

This service will provide selected RVTI learners with **structured internships or industrial attachments of approximately four to eight weeks** at the Kumasi Compost and Recycling Plant. During the placement, learners will rotate through relevant operational units, which may include waste collection, sorting, composting, recycling, quality control and environmental health and safety. KCARP will assign workplace supervisors and provide orientation, mentoring and practical training. RVTI will prepare the learners, coordinate placements, conduct monitoring visits and assess their performance. Students will be required to comply with workplace and safety rules, complete the assigned activities and maintain a **placement logbook or practical learning report**. The programme is expected to improve learners' technical competence and employability while creating a more stable talent pipeline for the waste-management sector. Its indicators should include the number of learners placed, completion rates, employer satisfaction, certificates issued and the number of participants progressing into **employment, entrepreneurship or further training**. The Action Plan proposes two internship cohorts per year. However, the recorded start date predates the finalisation of the plan and should therefore be **updated and confirmed during partnership formalisation**.

Service 5. TVET Knowledge Exchange and Capacity-Building Partnership with Aman-Sark

RVTI and **Aman-Sark Skills Development Institute** propose a structured institutional exchange service focusing on circular economy education and green skills. The service will include joint workshops, trainer exchanges, peer-learning sessions, sharing of teaching materials and student innovation activities. Joint exhibitions and skills competitions may also be organised to showcase learner projects and promote wider interest in waste valorisation and green entrepreneurship. The two institutions will contribute trainers, facilities, learning materials and organisational support. Activities may be hosted on a rotational basis to ensure balanced institutional participation. The Action Plan envisages **quarterly exchange activities and an annual joint skills exhibition**. Expected results include improved trainer competences, better-quality green-skills training, increased learner exposure to different instructional practices and stronger cooperation between Ghanaian TVET institutions. As with the KCARP internship programme, the indicative start date recorded in the Action Plan should be reviewed and replaced with a **realistic implementation calendar**.

Service 6. Textile Waste Upcycling and Skills Development Partnership

The proposed textile service will bring together **RVTI, Nana Serwaa Garment Industry and Skills College and Unijay Fashion School** to explore the reuse of textile offcuts and other garment waste. The service should combine practical upcycling training with product design, entrepreneurship and sustainable production. Potential activities may include the collection and classification of textile waste, practical workshops, the development of reusable or marketable products, learner exhibitions and support for small business ideas. This action responds to a clearly relevant sectoral opportunity. However, the operational information in the submitted Action Plan repeats content from the Aman-Sark institutional exchange action and does not yet provide a reliable description of the textile partnership. The following elements must therefore be **completed and validated with Nana Serwaa and Unijay** before the service can be considered implementation-ready:

- The specific textile waste streams and products to be addressed.
- The roles of each participating institution.
- The target groups and number of learners.
- The training and production activities.
- The equipment, materials and workshop facilities required.
- The implementation calendar.
- The expected outputs and indicators.
- The proposed financial and sustainability model.

The service is consequently classified as **proposed**, while the TrashSmart, KCARP and Aman-Sark actions can be considered **co-designed, subject to formal confirmation and resource planning**.

4.5. IMPLEMENTATION AND SUSTAINABILITY

Implementation should follow a **progressive pilot-and-scale approach**. The first cycle should focus on testing the services with manageable learner groups, documenting results and adjusting the delivery arrangements before introducing them as regular institutional activities.

RVTI should appoint a **service coordinator or institutional liaison** responsible for maintaining communication with partners, preparing learners, coordinating schedules and consolidating monitoring information. Each external partner should also designate a focal point or workplace supervisor. Implementation will require a combination of institutional and partner resources, including:

- Qualified trainers and workplace supervisors.
- Access to operational facilities and workshop spaces.
- **Personal protective equipment and safety orientation.**
- Transport and, where agreed, meal or participation support.
- Recyclable and textile materials.
- Fabrication, sewing and design equipment.
- Learner logbooks and assessment tools.
- Mentoring and business-development support.
- Limited seed funding for prototype development and market testing.

Quality assurance should include **learner preparation, agreed learning outcomes, workplace supervision, practical assessment, participant feedback and partner review meetings**. RVTI should maintain records on participation, completion, skills acquired, products developed, employer satisfaction and progression into employment or entrepreneurship. The sustainability of the portfolio will depend on integrating the services into **RVTI's academic calendar and regular institutional offer**. The materials and competences developed through the Training of Trainers programme can be reused for successive cohorts, reducing the need to develop new content for each activity. External partners can contribute facilities, materials, expertise, supervision and workplace access. Where appropriate, sustainability may also be supported through employer contributions, participation fees for specialised training, sponsorship of innovation challenges, revenue from learner-developed products or future public and project funding. The strongest sustainability mechanism will be the creation of **mutually beneficial partnerships**: learners gain practical experience, RVTI improves the relevance of its training, and companies gain access to potential workers, innovative ideas and greater visibility within the green economy.

4.6. NEXT STEPS AND PARTNERSHIP FORMALISATION

The immediate priority is to convert the co-designed actions into **clear and operational partnership arrangements**. Before implementation, PRSD and RVTI should undertake the following steps:

1. **Validate the final service portfolio** with all participating organisations and confirm that the proposed activities, responsibilities and expected results remain accurate.
2. **Correct the inconsistencies in the Action Plan**, particularly the outdated dates and the duplicated information in the textile waste upcycling action.
3. **Confirm the legally authorised signatory** on the VET side and the representatives authorised to commit each external partner.
4. Develop a consolidated **RVTI–TrashSmart MoU** covering both the industry-placement programme and the Circular Product Innovation Hub.

5. Develop an **RVTI–KCARP MoU** covering internships, supervision, workplace learning, safety, assessment and certification. Regular field visits may be incorporated into the same agreement or arranged through formal institutional letters.
6. Formalise the **RVTI–Aman-Sark partnership** through an MoU specifying the frequency of exchanges, shared resources, host responsibilities and annual joint activities.
7. Prepare a separate service fiche and partnership agreement for **textile waste upcycling**, following direct validation with Nana Serwaa Garment Industry and Skills College and Unijay Fashion School.
8. Define an updated implementation calendar, learner-selection criteria, safeguarding and safety procedures, resource commitments and **measurable indicators** for each service.
9. Pilot the most implementation-ready services, beginning with the **TrashSmart placement and KCARP workplace-learning activities**, and review the results before scaling up.
10. Present the agreed collaboration models during the planned **Public–Private Partnerships process under T4.4** and secure the corresponding endorsements and signatures.

The MoUs should clearly establish the **purpose, duration, responsibilities, resources, supervision arrangements, occupational safety requirements, monitoring procedures, certification mechanisms and conditions for renewal or termination**.

Through this formalisation process, Ghana’s proposed actions can evolve from project-based collaboration ideas into a **repeatable portfolio of industry-linked TVET services** supporting practical green skills, employability, circular innovation and entrepreneurship.

5. ANGOLA – ADDED VALUE SERVICES PORTFOLIO

5.1. VET PROVIDERS AND NATIONAL CONTEXT

The Angolan Added Value Services Portfolio was developed under the coordination of **Voluntariado Internacional para o Desenvolvimento (VIS Angola)**, in cooperation with the **Don Bosco Vocational Training Centres**, **INEFOP** and actors from the waste-management, recycling, environmental-education and civil-society sectors. VIS Angola acts as the principal **strategic coordinator and partnership facilitator**. The Don Bosco centres are responsible for training delivery, learner preparation and cooperation with host companies, while **INEFOP – Instituto Nacional de Emprego e Formação Profissional** provides an essential link with the national VET system and is expected to support the recognition of the training programme. The portfolio focuses particularly on the Don Bosco training centres operating in:

- **Benguela Province.**
- **Dondo, Cuanza Norte Province.**
- **Luanda**, as an important institutional, industrial and stakeholder-coordination hub.

Angola is undergoing a gradual transition towards more circular forms of waste management. The Action Plan estimates municipal solid waste generation at approximately **19,400 tonnes per day**, or around seven million tonnes annually. Organic waste represents the largest waste stream, followed by plastics, paper and cardboard. The national circular waste value chain can be divided into four principal stages:

1. Waste collection.
2. Sorting and separation.
3. Recycling and material recovery.
4. Reintegration of recovered materials into production processes.

Despite the expansion of waste-collection services, especially in Luanda, the circular value chain remains at an early stage of development. Limited infrastructure, low separation at source, insufficient technical capacity and weak coordination mean that significant quantities of recoverable materials continue to be disposed of through landfill or uncontrolled dumping. The policy environment is becoming more supportive. The Action Plan refers to national circular economy initiatives, including **PLANEPP 2025–2027**, as an enabling framework for resource efficiency, waste valorisation, green skills and employment creation. The ecosystem includes:

- The **Ministry of Environment**, provincial governments and municipal administrations.
- **INEFOP**, Don Bosco centres, technical schools, universities and private training providers.
- Public and private waste operators, including **ELISAL**.
- Industrial and recycling actors such as **VISTA WESTE**, **FABRIMETAL** and **BEST ANGOLA METAL**.
- SMEs and emerging circular economy companies, including **ENVIROBAC** and other local collection and recycling initiatives.

- Environmental and civil-society organisations such as **ECO|Angola** and **OMWENHO**.
- Informal waste pickers and community-based collectors.
- International partners, including the **European Union** and **Expertise France**.

The informal sector performs an important environmental and economic function by recovering plastics, paper, cardboard and other recyclable materials. However, informal workers often lack adequate equipment, occupational protection, formal training and stable market relationships. Their progressive integration into organised value chains represents both an inclusion priority and an opportunity to improve recycling efficiency. Circular economy content within Angolan VET remains relatively limited. Although environmental sustainability is receiving greater attention, specialised curricula covering waste operations, recycling technologies, circular business models and green entrepreneurship are still developing. The portfolio therefore seeks to connect the CWVA training programme with practical experience, company cooperation and employment opportunities.

5.2. NEEDS IDENTIFIED

The Action Plan identifies several interconnected needs that should guide the development of added value services.

Practical technical competences

Companies and sectoral actors report a shortage of workers with practical competences in:

- Waste identification and classification.
- Separation and sorting procedures.
- Material recovery and recycling operations.
- Safe collection, storage and transport.
- Management of plastics, metals and electrical and electronic waste.
- Use of appropriate tools and personal protective equipment.
- Occupational health and safety.
- Basic waste monitoring and operational reporting.

Limited separation capacity contributes to high contamination levels and reduces the quantity and quality of materials that can be recovered.

Work-based learning and labour-market access

VET learners have insufficient access to structured internships, company visits and other forms of practical experience. This limits their understanding of workplace requirements and weakens the transition between training and employment.

The need is particularly significant at the Don Bosco centres. D4.1 notes that the Dondo centre has experienced declining results associated with weakened industry relationships, while INEFOP already has experience with internship partnerships that could inform the new model. The Action Plan therefore prioritises partnerships that enable learners to:

- Apply technical and entrepreneurial knowledge.
- Develop workplace and life skills.
- Gain experience in real operational environments.
- Establish direct contact with potential employers.
- Improve their opportunities for employment or self-employment.

Environmental awareness and behavioural change

Low public awareness of waste separation and recycling remains a significant barrier. Stakeholders highlighted the need for:

- Permanent awareness campaigns.
- Environmental education in schools and communities.
- Collection points supported by trained awareness agents.
- Practical guidance on correct waste separation.
- Communication through community activities and social media.

Economic vulnerability can also make separation difficult for households that cannot afford different containers. Awareness services should therefore promote realistic and affordable solutions adapted to local conditions.

Entrepreneurship and business competences

Young people and informal operators need stronger competences in:

- Business planning.
- Costing and financial management.
- Organisation of collection and recycling activities.
- Communication and customer relations.
- Market identification.
- Cooperative and association management.
- Circular business-model development.
- Preparation of viable green microenterprise initiatives.

These competences are essential if technical knowledge is to generate employment, income and sustainable local services.

Coordination and partnership development

Cooperation between VET providers, municipalities, public institutions, companies and civil society remains fragmented. Stakeholders expressed interest in a permanent space for dialogue through which actors could:

- Share market intelligence.
- Identify emerging competence needs.
- Coordinate internships and practical activities.
- Support curriculum adaptation.

- Discuss policy and regulatory barriers.
- Develop joint environmental-education initiatives.
- Formalise longer-term partnerships.

Inclusion and formalisation

Informal waste workers have limited access to training, equipment, social protection and formal markets. Supporting associations, cooperatives or other collective structures could improve their working conditions and strengthen their participation in formal recycling systems. Gender inequality also requires specific attention. Women remain underrepresented in technical waste-management occupations. The added value services must therefore include proactive recruitment targets, safe placement conditions and access for women to technical, operational and entrepreneurial roles.

5.3. STAKEHOLDERS CONSULTED

The Action Plan reports a first multi-stakeholder consultation held in **June 2026** at the **Don Bosco Vocational Training Centre in Mabubas, Luanda**. The process brought together representatives from the public, private, VET and civil-society sectors. The main organisations represented in the consultation documentation included:

- **VIS Angola**, providing strategic coordination and facilitation.
- **Don Bosco VET Centre Dondo**.
- **Don Bosco VET Centre Benguela**.
- **Don Bosco VET Centre Luanda/Mabubas**.
- **ECO|Angola**, contributing environmental-education experience.
- **OMWENHO**, contributing environmental awareness and community-engagement expertise.
- **ENVIROBAC**, representing circular economy and recycling activities.
- **ELISAL**, contributing waste-management and operational experience.
- **Expertise France**, contributing sectoral and development-cooperation perspectives.

The consultation examined three principal questions:

1. What are the main needs and operational challenges faced by the circular economy market?
2. What training and services can Don Bosco VET centres provide in response?
3. In which areas can VET providers, companies and public institutions collaborate?

Participants identified logistical limitations, low levels of separation and recycling, insufficient public awareness, limited legislative and economic incentives, weak coordination and inadequate internship opportunities. The process generated broad interest in:

- Strengthening networking between VET providers and market actors.
- Expanding internships and professional-integration opportunities.
- Developing permanent environmental-awareness activities.
- Creating a national stakeholder platform.
- Increasing municipal and public-institution participation.

- Supporting extended producer responsibility.
- Developing policies and incentives for recycling companies.

The consultation constitutes an important first step, but it does not amount to a final contractual commitment. The precise roles of the companies, number of placements and resource contributions must still be confirmed through bilateral discussions and MoUs.

The reporting documents should also be reconciled before final submission: the Action Plan refers to approximately **25 participants and a workshop on 16 June 2026**, while the associated consultation report records **39 participants** and contains different references to 11 and 16 June. The signed attendance list should be used as the definitive source.

5.4. PROPOSED ADDED VALUE SERVICES

The Action Plan contains one fully described core service and three additional service concepts identified in its roadmap. The first two action tables reproduce almost identical content and should therefore be treated as **one consolidated service**, rather than as two separate actions.

Service 1. Inclusive Circular Economy Training and Internship Programme

VIS Angola and the Don Bosco VET centres will deliver a second edition of the CWVA circular economy course in **Benguela and Cuanza Norte**, combined with structured internships in local companies. The programme will target at least **40 vulnerable young people**:

- 20 learners in each province.
- 12 women and 8 men in each provincial cohort.
- A combined target of 24 women and 16 men.

Don Bosco will deliver the course, prepare the learners and sign MoUs with participating companies. VIS Angola will coordinate the process and facilitate institutional relationships. INEFOP will be invited to recognise the course, while participating companies will provide internship places, workplace supervision and practical learning activities. Depending on the host organisation, learner activities may include:

- Waste sorting and separation.
- Collection and storage procedures.
- Recycling and material recovery.
- Occupational safety.
- Environmental awareness.
- Basic operational monitoring.
- Identification of circular business opportunities.
- Communication, teamwork and other workplace skills.

Implementation is provisionally planned from **March 2027**. The Action Plan identifies the need for four trainers, pedagogical materials and financial support for learner transport.

The expected outcomes are:

- At least 40 learners completing the course and internship.
- MoUs signed between Don Bosco centres and local companies.
- At least five participants obtaining an employment contract.
- Improved technical, workplace and life skills.
- Lessons learned for future replication.

Additional indicators should cover:

- Number and duration of internships.
- Competences achieved.
- Placement completion rate.
- Employer and learner satisfaction.
- Occupational-safety compliance.
- Employment and self-employment after completion.
- Outcomes disaggregated by gender and vulnerability profile.
- Number of partnerships maintained for future cohorts.

Service 2. Circular Economy VET–Stakeholder Platform

The roadmap proposes the creation of a permanent platform connecting VET providers with public authorities, companies, environmental organisations and civil society. The platform could support:

- Regular labour-market and competence reviews.
- Identification of host companies and internship opportunities.
- Coordination of environmental-awareness initiatives.
- Dialogue on waste-management regulations and economic incentives.
- Exchange of information about new technologies and waste streams.
- Joint development of training activities.
- Dissemination of the CWVA course and materials.
- Follow-up of MoUs and collaboration results.

The **Agência Nacional de Resíduos** is identified in the consultation documentation as a potential actor in the creation of this platform. VIS and Don Bosco could support the initial coordination. This service remains preliminary. Before launch, the partners must define its membership, governance, meeting frequency, secretariat, decision-making procedures, expected outputs and connection with national institutions.

Service 3. Course Dissemination and Institutional Adoption

The roadmap also anticipates an action focused on disseminating and expanding the CWVA course. This service could involve:

- Presentation of the curriculum to companies and public institutions.
- Internal multiplier sessions led by certified trainers.
- Adaptation of examples and practical exercises to Angolan waste streams.

- Integration of the course into the regular Don Bosco training offer.
- Dialogue with INEFOP on recognition and potential wider adoption.
- Delivery of short professional modules for workers, informal collectors or municipal personnel.
- Use of digital resources to reach VET centres beyond the pilot territories.

Angola already has an internal capacity base for this service: **18 trainers successfully completed the CWVA Training of Trainers programme and were certified**. These trainers can support subsequent learner cohorts and train additional colleagues. However, the Action Plan does not yet define target institutions, delivery formats, participant numbers, resources or adoption procedures. These elements should be agreed before the service is presented as fully operational.

Service 4. Circular Economy Skills Foresight and Training Review

The Action Plan's roadmap refers to a skills-foresight action intended to maintain alignment between training and labour-market developments. A periodic review could examine:

- Emerging waste streams and technologies.
- Competence requirements reported by companies.
- New regulatory and environmental obligations.
- Employment and entrepreneurship opportunities.
- Curriculum performance and learner outcomes.
- Skills required for plastics, metals, e-waste and organic waste.
- Opportunities connected with decentralised waste solutions in Benguela and Cuanza Norte.

The findings should be translated into curriculum recommendations, new practical exercises, trainer-development priorities and potential short courses. This mechanism is strategically relevant but is not yet described in an operational service fiche. Its frequency, participants, methodology, indicators and responsible institution must therefore be confirmed through the continuing T4.3 process.

Potential service extension: informal-sector organisation and upskilling

The needs analysis also supports a possible future service for informal waste workers. It could combine:

- Technical and occupational-safety training.
- Support for forming associations or cooperatives.
- Business and financial-management skills.
- Links with municipalities, recycling companies and formal buyers.
- Access to equipment and safer working procedures.
- Recognition of prior experience and practical competences.

This should be classified as a **potential service extension**, since the Action Plan does not yet assign responsible organisations, resources, dates or measurable targets.

5.5. IMPLEMENTATION AND SUSTAINABILITY

Implementation should begin with a manageable pilot in Benguela and Cuanza Norte. The first cohort should be used to test learner recruitment, training delivery, company matching, workplace supervision and employment follow-up before the model is expanded. VIS Angola should appoint a partnership coordinator, while each Don Bosco centre should designate an academic and internship focal point. Every host company should appoint a workplace mentor responsible for learner orientation, supervision and assessment. Each placement should be governed by a written agreement defining:

- Duration and working schedule.
- Intended learning outcomes.
- Permitted learner activities.
- Company and VET responsibilities.
- Supervision arrangements.
- Occupational-safety requirements.
- Personal protective equipment.
- Insurance and safeguarding provisions.
- Assessment procedures.
- Data collection and confidentiality.
- Conditions for suspension or termination.

Sustainability should be supported through:

- Integration of the CWVA course into the regular Don Bosco training offer.
- Recognition or endorsement by INEFOP.
- Use of the 18 certified Angolan trainers as institutional multipliers.
- Reuse of CWVA materials and digital resources.
- Company contributions through mentors, facilities, equipment and practical materials.
- Continued operation of internships during subsequent training cycles.
- Formal MoUs with companies and public institutions.
- Inclusion of the services in annual institutional planning.
- Mobilisation of municipal, private-sector and development-partner resources.
- Development of affordable short courses for companies and public institutions.
- Continuous monitoring of employment and partnership outcomes.

The financial model remains incomplete. The partners must agree who will cover learner transport, insurance, protective equipment, materials, trainer time and placement monitoring. Transport support is especially important because the programme targets learners experiencing poverty or vulnerability.

The model creates reciprocal value. Learners receive practical experience and access to employers; Don Bosco improves the relevance and attractiveness of its training; INEFOP gains a tested green-skills model; and companies gain access to trained learners and structured cooperation with VET providers.

5.6. NEXT STEPS AND PARTNERSHIP FORMALISATION

The immediate priority is to convert the preliminary portfolio into a coherent and formally endorsed Action Plan. The following steps are recommended:

1. **Correct the duplicated action tables** and confirm whether the internship programme represents one consolidated service.
2. Develop complete service fiches for the three actions mentioned in the roadmap: the stakeholder platform, course dissemination and skills foresight.
3. Reconcile the consultation date, participant number and final list of organisations using the signed attendance documentation.
4. Confirm the exact pilot territories, including the references to Benguela, Cuanza Norte, Navegantes and Cambambe.
5. Identify the companies capable of hosting the first learner cohort and confirm the number of placements available.
6. Conduct bilateral technical meetings with each potential host company to define feasible learner activities, workplace risks, schedules and mentoring capacity.
7. Define transparent learner-selection criteria, maintaining the proposed target of 12 women and 8 men in each province.
8. Prepare a placement handbook covering learning outcomes, supervision, occupational safety, safeguarding, insurance, assessment and certification.
9. Develop learner logbooks, workplace-assessment forms, employer-feedback questionnaires and post-training employment surveys.
10. Confirm the recognition procedure with INEFOP and determine whether the course can be incorporated into wider national VET provision.
11. Define the governance and terms of reference of the proposed VET–Stakeholder Platform.
12. Establish the methodology and frequency of the Skills Foresight and Training Review mechanism.
13. Prepare MoUs between the Don Bosco centres and participating companies, specifying roles, resources, focal points, placement commitments, monitoring and renewal conditions.
14. Validate the budget and cost-sharing arrangements for transport, materials, insurance, personal protective equipment and monitoring.
15. Present the revised services and draft partnership arrangements during the **T4.4 Public–Private Partnerships Workshop** which is scheduled for 28 October, 2026.
16. Pilot the combined course and internship programme from March 2027, evaluate the results and use the evidence to determine whether it should be expanded to other Don Bosco and INEFOP centres.

The Action Plan demonstrates genuine institutional interest and provides a credible foundation for work-based learning. Nevertheless, only the combined **training and internship programme** is currently described with targets, roles, resources and employment outcomes. The platform, dissemination and skills-foresight services should be considered **promising but still under development** until their operational arrangements are completed.

6. SÃO TOMÉ AND PRÍNCIPE – ADDED VALUE SERVICES PORTFOLIO

6.1. CFPSTP AND NATIONAL CONTEXT

The service portfolio for São Tomé and Príncipe was developed under the coordination of the **Centro de Formação Profissional de São Tomé e Príncipe (CFPSTP)**, based in Budo-Budo and represented in the Action Plan by **Milton Lima**. As a public vocational training centre whose courses are formally recognised by the national authorities, CFPSTP is well positioned to connect vocational education with the country's environmental, employment and sustainable-development priorities. CFPSTP already has relevant experience in environmental education. Before CircuWasteVETAfrica, the institution implemented a **45-day awareness and training campaign on waste collection and treatment** and planned to incorporate environmental and social management content into its training provision. The project has expanded this capacity by introducing competences related to circular economy, sustainable waste management, digital pedagogy, circular business models and green entrepreneurship.

The national context makes these competences particularly important. São Tomé and Príncipe is a small island country with delicate terrestrial and marine ecosystems, increasing urbanisation, growing tourism activity and limited waste-treatment infrastructure. According to the evidence compiled in D4.1, the country generates approximately **129,355 kg of municipal solid waste per day**, equivalent to around **0.79 kg per capita**, while an estimated **81.1% of this waste is inadequately managed**. Plastic waste alone accounts for approximately 16,751 kg per day, with a considerable proportion remaining unrecovered or leaking into the environment.

The circular waste value chain remains at an emerging stage. Waste collection, separation, recovery and recycling activities are fragmented, while many workers rely on informal knowledge and have limited access to structured technical training. At the same time, municipalities, environmental organisations, private initiatives and development partners are demonstrating growing interest in recycling, composting, environmental awareness and circular entrepreneurship.

CFPSTP can therefore play a strategic role as a **training provider, partnership coordinator and catalyst for locally adapted circular economy solutions**. D4.1 reports that CFPSTP has already achieved an employability rate of approximately **64% through its public-private cooperation and internship-based model**. This provides a strong institutional foundation for expanding structured work-based learning into the circular waste sector. The proposed portfolio connects CFPSTP's training capacity with the needs of municipalities, waste operators and nationally significant economic activities. Particular attention is given to the potential adaptation of services to the **Agripalma agro-industrial context and the fisheries sector**, both of which generate waste streams that could be addressed through improved prevention, separation, safe management and technically validated valorisation practices.

6.2. NEEDS IDENTIFIED

The stakeholder mapping, Skills Gap Analysis, Training of Trainers results and T4.3 consultations identified several interconnected needs affecting the development of a circular economy in São Tomé and Príncipe. The main needs include:

- **Technical waste-management competences**, particularly in waste identification, separation, collection, recycling, composting, material recovery and appropriate valorisation techniques.
- **Integration of circular economy principles into VET programmes**, as existing provision does not yet systematically cover resource efficiency, waste prevention, sustainable production or circular business models.
- **Occupational health and safety**, including the use of personal protective equipment, safe handling of organic and potentially hazardous waste, risk assessment and environmental health procedures.
- **Digital waste-management skills**, especially for data collection, waste-flow monitoring, reporting, logistics coordination and evidence-based planning.
- **Entrepreneurship and business-development competences**, including business planning, basic financial management, cooperative models, market analysis and the development of viable green microenterprises.
- **More structured cooperation between CFPSTP and labour-market actors**, enabling employers and public institutions to contribute to curriculum development, practical training and competence assessment.
- **Access to internships and work-based learning**, allowing learners to acquire practical experience in municipalities, environmental organisations, recycling initiatives and private companies.
- **Regular identification of changing competence requirements**, particularly in sectors where production processes, environmental obligations and waste-management practices are evolving.

The Training of Trainers process also showed that CFPSTP places particular importance on **entrepreneurship and digital pedagogy**. These areas are essential for transforming technical waste-management knowledge into employability, self-employment and locally appropriate business opportunities.

6.3. STAKEHOLDERS CONSULTED

The T4.3 co-design process was coordinated by CFPSTP through a **participatory and multi-stakeholder approach**. Between May and June 2026, the process included:

- Two stakeholder workshops.
- Three working-group sessions.
- Bilateral meetings with municipalities, NGOs and enterprises.
- Technical coordination meetings with VET representatives.

Participants represented VET institutions, municipal authorities, environmental agencies, waste-management operators, NGOs, youth organisations, private companies and development partners. The consultations validated the findings of T4.1 and T4.2, examined implementation feasibility and

prioritised actions according to their urgency, potential impact and contribution to employability and environmental sustainability. The submitted Action Plan identifies the following stakeholder groups as potential implementing partners:

- **CFPSTP**, as coordinator, training provider and learner-preparation institution.
- **Municipal authorities**, as providers of operational environments, local priorities and possible internship placements.
- **The Ministry of Environment**, as a relevant institutional and policy actor.
- **Waste-management and recycling operators**, as sources of labour-market information, technical expertise and workplace experience.
- **NGOs and environmental organisations**, as partners for awareness, mentoring, practical activities and community engagement.
- **Private-sector enterprises**, as contributors to skills identification, placements and sector-specific training.

D4.1 provides further information on organisations participating in the São Tomé and Príncipe skills analysis or expressing interest in collaboration. These include:

- **Bio Bags Plus Unipessoal Lda**, which expressed readiness to contribute to mentorship activities.
- **ECOBLASA**, identified as a waste-management company.
- **Câmara Distrital de Mé-Zochi**, identified as a potential provider of on-the-job training.
- **Câmara Distrital de Lobata**, which expressed interest in supporting in-person workshops.
- **Câmara de Água Grande**, also identified as a potential host or contributor to practical workshops.

The available Action Plan does not record a confirmed operational commitment from **Agripalma or a specifically named fisheries organisation**. Their inclusion in this portfolio should therefore be understood as a priority for **sectoral adaptation and future partnership development**, rather than evidence that formal agreements have already been concluded.

6.4. ADAPTATION TO THE AGRIPALMA AND FISHERIES SECTORS

The two services formally included in the CFPSTP Action Plan are cross-sectoral. However, they can be adapted to the **Agripalma and fisheries sectors** because these activities provide relevant working environments in which circular economy competences can be applied.

Adaptation to Agripalma and the agro-industrial sector

The Annual Circular Economy Competence Review should include a dedicated consultation with Agripalma and other relevant agro-industrial actors to identify:

- The principal organic and non-organic waste streams generated.
- Existing collection, storage and disposal procedures.
- Technical and occupational-safety competence gaps.

- Opportunities for waste prevention, separation, reuse or recovery.
- Data, reporting and environmental-monitoring requirements.
- Potential occupations and practical-placement opportunities.

Based on this review, CFPSTP could adapt training content to cover **agro-industrial waste mapping, source separation, safe handling, composting principles, resource efficiency, environmental monitoring and circular business opportunities**.

The Work-Based Learning Programme could subsequently place selected learners in appropriate operational areas, subject to agreement with the company. Learners could support supervised tasks such as waste-stream identification, separation procedures, environmental data collection and the assessment of possible low-cost circular solutions.

No specific product or valorisation process should be selected before completing a **technical characterisation of the residues and an environmental, health and market feasibility assessment**. This is particularly important where organic residues may be converted into compost, soil amendments, energy inputs or other products.

Adaptation to the fisheries sector

For the fisheries sector, the competence-review mechanism should bring together CFPSTP, fisheries authorities, fishing associations, fish markets, processors, municipalities and environmental organisations. The review should assess:

- The types and quantities of fish and seafood residues generated.
- Waste arising during landing, transport, storage, processing and sale.
- Existing disposal practices and their impact on coastal and marine environments.
- Hygiene, food-safety and occupational-risk requirements.
- Skills required for safe collection, storage and treatment.
- Opportunities for prevention, reuse or technically safe valorisation.
- Potential employment and entrepreneurship opportunities.

Training and workplace-learning activities could address **organic waste segregation, hygienic handling, cold-chain waste prevention, safe storage, environmental protection, data recording and circular entrepreneurship**. Potential uses of fisheries residues—such as composting, soil amendments or other biological products—would require specific technical testing and confirmation of the applicable environmental, sanitary and veterinary requirements. The portfolio therefore does not present these options as immediately operational products, but as **areas for feasibility assessment and future service development**. Across both sectors, adaptation should preserve a common educational structure while using **sector-specific case studies, workplace tasks, waste streams, risk assessments and business opportunities**.

6.5. PROPOSED ADDED VALUE SERVICES

The CFPSTP Action Plan contains two core added value services. Both are considered **co-designed**, although the final partner commitments, sectoral details and operational arrangements still require formal confirmation.

Service 1. Annual Circular Economy Competence Review Mechanism

CFPSTP will coordinate an annual mechanism through which VET providers, municipalities, enterprises, waste operators, NGOs and the Ministry of Environment review emerging skills needs in the circular waste sector. The purpose is to ensure that CFPSTP's training offer remains connected to **real labour-market, environmental and technological developments**. The process will collect feedback from employers and public authorities and translate it into updated training recommendations. The annual review should include:

- Identification of emerging occupations and technical tasks.
- Review of competence shortages reported by employers.
- Assessment of environmental and occupational-safety requirements.
- Review of digital, entrepreneurial and managerial skills.
- Recommendations for curriculum or short-course adaptation.
- Identification of potential internships and work-based learning hosts.
- Follow-up on employment and employer-satisfaction data.

Dedicated sectoral discussions should be organised for **municipal waste management, Agripalma and agro-industrial activities, and the fisheries value chain**.

CFPSTP will coordinate the review and prepare the resulting recommendations. Companies and sectoral organisations will provide labour-market and technical information, while municipalities and public authorities will help validate public-service and environmental priorities. The Action Plan envisages the launch of this mechanism in **September 2026**, with annual implementation thereafter. The principal indicators will be the number of review meetings held, the diversity of stakeholders participating, the recommendations produced and the number of training changes introduced in response.

Service 2. Work-Based Learning and Internship Programme

CFPSTP will establish structured internships and work-based learning placements with **municipalities, recycling initiatives, environmental organisations and private waste operators**. CFPSTP will prepare and select learners, define the intended learning outcomes, provide technical preparation and monitor the placements. Host organisations will appoint workplace supervisors, introduce learners to the operational environment and support practical competence development. Depending on the host organisation, learners may undertake supervised activities related to:

- Waste identification and separation.
- Collection and storage procedures.
- Recycling and composting operations.
- Material recovery and waste valorisation.
- Environmental awareness and community outreach.
- Occupational health and safety.

- Waste monitoring and basic digital reporting.
- Identification of circular business opportunities.

For placements in Agripalma or fisheries organisations, the learning programme must be adapted to the relevant waste streams, operational risks and regulatory requirements. The Action Plan proposes that the programme begin in **October 2026** and operate during every relevant training cycle. Required resources include workplace supervisors, transport support, training materials, personal protective equipment, learner logbooks and monitoring tools. Success should be assessed through:

- Number of host organisations participating.
- Number and proportion of learners completing placements.
- Practical competences achieved.
- Learner and employer satisfaction.
- Occupational-safety compliance.
- Progression into employment, entrepreneurship or further training.
- Number of placements maintained or renewed in subsequent cycles.

Potential sector-specific service extensions

The two core services may generate additional opportunities for:

- Short professional courses for municipal, agro-industrial and fisheries workers.
- Practical workshops on organic waste management and composting.
- Technical awareness sessions on occupational safety.
- Digital waste-monitoring and reporting support.
- Circular product-development challenges.
- Mentoring and green microenterprise support.

These extensions are consistent with the competences developed through the Training of Trainers programme. However, they should be classified as **proposed service extensions** until their target groups, partners, resources, indicators and delivery models are validated.

6.6. IMPLEMENTATION AND SUSTAINABILITY

Implementation should follow a **progressive pilot-and-scale approach**. CFPSTP should first pilot the services with a limited number of partners and learners, assess the results and improve the model before incorporating it into every training cycle. CFPSTP should appoint an institutional focal point responsible for:

- Coordinating the annual competence review.
- Maintaining the stakeholder database.
- Preparing learners and host organisations.
- Monitoring workplace placements.
- Collecting participation, competence and employment data.
- Organising periodic partner-review meetings.

Each placement should be governed by a written **learning or internship agreement** specifying the activities, duration, intended learning outcomes, supervision arrangements, occupational-safety responsibilities and assessment procedures. Implementation can build on the capacity created through the CWVA Training of Trainers programme. In São Tomé and Príncipe, **11 trainers successfully completed the programme and were certified**, providing CFPSTP with an internal group capable of adapting and delivering circular economy training.

Sustainability should be supported through:

- Integration of the competence review into CFPSTP's annual planning process.
- Inclusion of work-based learning in regular training cycles.
- Reuse of the CWVA curriculum and training materials.
- Contributions of facilities, supervision, waste materials and expertise from partner organisations.
- Institutional recognition of the training delivered by CFPSTP.
- Development of affordable professional courses for companies or municipalities.
- Mobilisation of public, private or development-partner resources.
- Formalisation of long-term placements and training cooperation through MoUs.

The model creates mutual value: learners acquire practical experience, CFPSTP improves training relevance and partner organisations gain access to trained learners, updated competences and support for identifying circular solutions.

6.7. NEXT STEPS AND PARTNERSHIP FORMALISATION

The immediate priority is to transform the co-designed services into **operational and formally supported partnerships**. CFPSTP should undertake the following steps:

1. **Confirm the complete list of participating organisations** and distinguish between stakeholders already consulted, proposed partners and organisations ready to make an operational commitment.
2. Organise the first **Annual Circular Economy Competence Review**, including dedicated discussions on municipal waste, Agripalma and fisheries-sector requirements.
3. Conduct technical scoping visits with potential agro-industrial and fisheries partners to identify waste streams, occupational risks, competence needs and feasible learner activities.
4. Confirm the municipalities and organisations capable of hosting the first internship cohort and determine the number of placements available.
5. Define learner-selection criteria, placement duration, supervision arrangements, learning outcomes, assessment methods and certification procedures.
6. Prepare the necessary **occupational safety and safeguarding protocols**, including mandatory personal protective equipment and workplace orientation.
7. Develop standard learner logbooks, workplace-assessment forms and employer-satisfaction questionnaires.
8. Prepare MoUs or institutional partnership agreements defining partner roles, resources, focal points, monitoring arrangements and conditions for renewal.

9. Pilot the internship programme with a manageable first cohort and conduct a joint evaluation before expanding it.
10. Use the results of the pilot and competence review to design validated **sector-specific short courses or technical services**.
11. Present the proposed partnership arrangements during the **T4.4 Public–Private Partnerships Workshop** and secure the necessary institutional endorsements.

The submitted roadmap envisages the launch of the competence-review mechanism in September 2026, the start of internships in October 2026 and trainer capacity-building sessions from November 2026. These dates should be reconfirmed with the implementing organisations.

The Action Plan represents a **preliminary institutional commitment**, while definitive implementation depends on the signature of MoUs and the confirmation of responsibilities and resources. Through this formalisation process, CFPSTP can establish a sustainable portfolio connecting vocational training with municipal waste management, agro-industrial activities, fisheries, green employment and circular entrepreneurship.

7. NAMIBIA – ADDED VALUE SERVICES PORTFOLIO

7.1. VET PROVIDERS AND NATIONAL CONTEXT

The Namibian Added Value Services Portfolio was developed under the coordination of **Swakopmund Municipality (SWA)**, in cooperation with the **Okakarara Vocational Training Centre (OVTC)** and relevant market actors from the waste-management, recycling, environmental education and corporate sectors. Swakopmund Municipality acts as the principal **public-sector coordinator and partnership facilitator**, while OVTC is the main VET provider responsible for curriculum development, pedagogical delivery, learner assessment and certification. Although D4.1 also identifies **COSDEF** as a relevant VET institution in Namibia, the submitted T4.3 Action Plan is operationally centred on OVTC. COSDEF may participate in future replication or expansion, but no specific role is assigned to it in the current services.

Namibia's transition towards more sustainable waste management is supported by the **National Solid Waste Management Strategy of 2017**, national development planning and environmental compliance requirements. According to D4.1, the national strategy emphasises increased recycling and capacity building among municipal, governmental and private-sector actors. Waste management is also closely connected to the sustainability of tourism, an economically important sector for Namibia and particularly for coastal municipalities such as Swakopmund. The circular waste ecosystem represented in the Action Plan includes:

- **Swakopmund Municipality**, responsible for local coordination, environmental compliance and public-sector engagement.
- **OVTC**, providing technical and vocational education and supporting curriculum adaptation.
- **Plastic Packaging (Pty) Ltd**, involved in mechanical plastic recycling.
- **Rent-A-Drum**, operating in waste collection and management.
- **Frontier Multi Industries**, contributing operational waste-management expertise.
- **Recycle Forum Namibia**, supporting environmental education, awareness and behavioural change.
- **Coca-Cola Namibia**, contributing experience in recycling initiatives and producer responsibility.

The Action Plan indicates that VET provision related to circular economy and green waste management remains **fragmented and insufficiently aligned with industry needs**. Specific content on digital waste tracking, circular design, bio-waste valorisation, environmental compliance and modern recycling technologies is either limited or absent. At the same time, companies report difficulties finding graduates with sufficient practical experience in **waste sorting, collection logistics, operational safety, hazardous-material handling and environmental compliance**. The portfolio therefore seeks to establish a structured relationship between the Municipality, OVTC and industry through recurring services rather than isolated project activities.

7.2. NEEDS IDENTIFIED

The needs were identified through the T4.2 Skills Gap Analysis and subsequently reviewed during the T4.3 co-design sessions held between March and June 2026. Six principal gaps provide the basis for the six proposed services.

Curriculum alignment

OVTC's training provision does not yet fully reflect current and emerging requirements in the circular waste sector. Stakeholders identified a need for content covering:

- Digital waste-tracking and traceability tools.
- Waste classification and processing.
- Circular design and resource efficiency.
- Bio-waste valorisation.
- Environmental compliance.
- Producer responsibility.
- ESG and operational reporting.

A regular mechanism is therefore required to translate industry intelligence into curriculum improvements.

Work-based learning and practical experience

Learners have limited access to structured workplace placements. Competences such as operating sorting equipment, managing collection logistics, applying safety procedures and handling different waste streams can only be fully developed in real operational environments. Formal internships, workplace mentors, practical learning objectives and joint assessment procedures are needed to ensure that work-based learning produces **measurable competence development**.

Continuing professional development

Workers already employed in waste-management and recycling companies require access to short and flexible upskilling opportunities. Priority topics include:

- Digital waste-management tools.
- Updated waste-classification standards.
- Occupational health and safety.
- Environmental Compliance Certificate requirements.
- Circular economy principles and legislation.

Multi-stakeholder coordination

Cooperation between public authorities, VET institutions and companies remains largely informal. There is no permanent mechanism through which these actors can jointly review market developments, anticipate future occupations or coordinate training responses.

Career awareness and sector visibility

Young people and job seekers have limited information about career opportunities in recycling, resource recovery, waste logistics and environmental compliance. Outdated perceptions of the sector make it more difficult to attract learners and develop a future green workforce. This is particularly relevant in a context where D4.1 identifies **high youth unemployment** and the need for more accessible, inclusive and labour-market-oriented vocational pathways.

Policy and regulatory capacity

SMEs, learners and some municipal personnel require stronger capacity to understand evolving waste-management regulations. Particular needs include knowledge of:

- The National Solid Waste Management Policy and Strategy.
- Environmental Compliance Certificate processes.
- Producer responsibility obligations.
- Circular economy-related legislation.
- Relevant national and international standards.

The heatmap prepared under T4.2 classified practical waste processing, environmental compliance and digital traceability as particularly important areas in which **market demand is high but existing VET provision is limited**.

7.3. STAKEHOLDERS CONSULTED

The T4.3 co-design process was conducted between **17 March and 11 June 2026** through roundtables, bilateral working groups and stakeholder dialogues in **Okakarara, Swakopmund and Windhoek**. A total of approximately **15 participants** took part, representing OVTC, the Municipality and relevant market actors. The principal organisations recorded in the Action Plan were:

- **Okakarara Vocational Training Centre**, as the main VET institution and curriculum co-design partner.
- **Plastic Packaging**, providing recycling expertise and information about industry skills requirements.
- **Rent-A-Drum**, contributing waste-management expertise and expressing potential to host workplace learning.
- **Frontier Multi Industries**, contributing operational knowledge and skills input.
- **Recycle Forum Namibia**, supporting environmental education and public awareness.
- **Coca-Cola Namibia**, contributing experience related to recycling and producer responsibility.
- **Swakopmund Municipality**, coordinating the process and contributing regulatory and environmental expertise.

The co-design sessions were facilitated through a participatory consensus process. The T4.2 heatmap was used to examine priority gaps, and the proposed actions were discussed with participants before being incorporated into the Action Plan. The plan also anticipates coordination with the **Ministry of**

Environment, Forestry and Tourism, particularly regarding environmental policy and compliance. However, the Ministry is not presented as a confirmed operational partner in the individual service fiches. The Action Plan contains endorsement pages for the Municipality, OVTC and the principal market actors. Nevertheless, the signature fields in the submitted copy remain incomplete. The consultations therefore demonstrate **co-design and stakeholder interest**, but should not yet be interpreted as final contractual commitment from every organisation.

7.4. PROPOSED ADDED VALUE SERVICES

The Namibian Action Plan contains six co-designed actions. Together, they form an integrated service portfolio connecting **curriculum development, workplace learning, employee training, skills anticipation, career guidance and regulatory capacity building**.

Service 1. Annual Circular Economy Competence Review

Swakopmund Municipality and OVTC will convene an annual review with market actors to assess whether the competences taught by the VET institution remain aligned with industry requirements. OVTC will present its existing curriculum and proposed updates. Companies will provide information about emerging technologies, occupations, operational practices and competence shortages. The Municipality will coordinate the meeting, document the findings and liaise with the relevant public authorities.

The service is expected to produce:

- An annual competence-review report.
- A formal record of agreed curriculum recommendations.
- Updated or adapted training content.
- Stronger institutional cooperation between OVTC and industry.

The Action Plan proposes implementation from **September 2026**, with at least one review each year, a minimum of five industry representatives per session and curriculum updates completed within three months where institutionally feasible.

Service 2. Work-Based Learning and Structured Internship Programme

The Municipality, OVTC and participating companies will establish structured placements of approximately **six to twelve weeks** for OVTC learners. OVTC will define the learning objectives, prepare the learners and establish assessment criteria. Host companies will assign workplace mentors, provide practical tasks and report on learner progress. The Municipality will support learner-company matching, monitor quality and consolidate results. Potential host organisations include **Rent-A-Drum, Frontier Multi Industries, Plastic Packaging and Coca-Cola Namibia**. The programme aims to achieve:

- At least **10 learners placed annually**.
- A joint work-placement handbook.
- At least three formal host-company agreements.

- Improved practical competence and graduate employability.
- Clear progression data covering employment, entrepreneurship or further training.

Implementation requires workplace safety equipment, transport support where necessary, insurance arrangements, learner logbooks, qualified mentors and signed placement agreements. The first cohort was provisionally scheduled for **October 2026**, subject to confirmation of these conditions.

Service 3. Continuing Professional Development for Employed Workers

OVTC and Swakopmund Municipality will co-design modular training for workers already employed in waste-management and recycling organisations. The initial CPD offer is expected to cover:

- Digital waste-tracking tools.
- Waste classification and environmental compliance.
- Environmental Compliance Certificate requirements.
- Occupational health and safety for waste workers.
- Circular economy principles for practitioners.

OVTC will structure, deliver and certify the modules. The Municipality will contribute regulatory content, while employers will identify training needs, support content development and release participating staff. The Action Plan proposes **two to four modules annually**, beginning in November 2026. It aims to develop at least three CPD modules by the end of 2027 and train approximately **30 workers per year**. Quality should be measured through pre- and post-training assessments, certificates issued, employer feedback and, where reliable data are available, changes in occupational incidents or compliance problems.

Service 4. Biannual Skills Anticipation Forum

A recurring **Skills Anticipation Forum** will bring together VET representatives, industry, the Municipality and environmental organisations to identify emerging trends and future occupational requirements. Topics may include:

- Circular economy compliance officers.
- ESG and environmental reporting specialists.
- Bio-waste valorisation technicians.
- Digital waste-traceability functions.
- New recycling technologies.
- Changes in environmental regulation and producer responsibility.

Swakopmund Municipality will convene and document the forum, while OVTC will translate the findings into curriculum and CPD implications. Industry partners will provide market intelligence, and Recycle Forum Namibia will contribute the environmental education perspective. The forum is planned to meet twice each year, initially in **January and July**, beginning in January 2027. Its outputs should include skills-intelligence briefs, an emerging-roles register and recommendations feeding directly into the annual competence review and CPD programme.

Service 5. Circular Economy Career Awareness and Outreach Programme

The Municipality, OVTC, Recycle Forum Namibia and participating companies will implement a joint campaign to increase awareness of circular economy careers among **secondary-school learners, job seekers and local communities**. Proposed activities include:

- Company open days.
- School presentations and career-guidance sessions.
- Career guides describing circular waste occupations.
- Presentations by industry professionals.
- Social-media communication.
- Community-radio campaigns.
- Learner and graduate success stories.

Recycle Forum Namibia will lead the development of educational content. OVTC will provide information about training and enrolment pathways, while companies will host visits and provide speakers. The Action Plan envisages an annual campaign and at least **two school visits per semester**, beginning provisionally in September 2026. Indicators should cover schools and participants reached, materials distributed, communication reach and changes in applications to relevant VET programmes. The submitted Action Plan mistakenly repeats the title of the CPD service in the Action 5 table. Its objective and activities clearly refer to **career awareness and outreach**, and the title should be corrected before the document is formally endorsed.

Service 6. Circular Economy and Green Waste Management Policy Literacy Programme

Swakopmund Municipality and OVTC will provide regulatory training for **SMEs, VET learners and municipal personnel**. The programme will address:

- National waste-management policies and strategies.
- Environmental Compliance Certificate requirements.
- Producer responsibility obligations.
- Circular economy legislation.
- Relevant environmental and operational standards.

The Municipality will develop and deliver the principal regulatory content and liaise with the competent national authorities. OVTC will support pedagogical delivery and integrate relevant content into its training provision. Recycle Forum Namibia may adapt materials for community audiences. Materials should be adapted to different educational levels and made available in **English and relevant local languages where feasible**. The Action Plan proposes at least two workshops and approximately **50 participants per year**, starting provisionally in August 2026. Indicators include participation, pre- and post-training knowledge, satisfaction and the number of participating SMEs achieving or renewing environmental compliance. All six services can be classified as **co-designed**, but not yet fully implementation-ready. Their launch depends on signed agreements, confirmed budgets, designated personnel and resolution of operational issues such as transport, insurance, certification and workplace safety.

7.5. IMPLEMENTATION AND SUSTAINABILITY

Implementation should follow a coordinated sequence in which the services reinforce one another:

1. The **Skills Anticipation Forum** identifies emerging developments.
2. The **Annual Competence Review** translates this intelligence into training recommendations.
3. OVTC adapts its curriculum and develops relevant **CPD modules**.
4. Learners apply their competences through **structured workplace placements**.
5. The outreach programme promotes the resulting training and career opportunities.
6. The policy literacy service strengthens the regulatory capacity of learners, workers and SMEs.

Swakopmund Municipality should appoint a focal point responsible for partnership coordination, while OVTC should designate an academic coordinator for curriculum adaptation, certification, internships and quality assurance. Each host company should appoint a workplace mentor. Implementation resources include:

- Municipal and OVTC staff time.
- Qualified trainers and company mentors.
- Training and meeting venues.
- Workplace personal protective equipment.
- Learner transport and insurance.
- Translation and communication materials.
- Certification and assessment tools.
- Travel support for participants from different regions.
- Secretariat, monitoring and reporting capacity.

A shared monitoring framework should collect information on learner placements, training completion, practical competence, employer satisfaction, curriculum changes, SME participation, career-outreach reach and post-placement progression. Sustainability is supported by the **recurring nature of the services**. Annual reviews, biannual forums, rolling internships and repeated CPD modules can become part of the regular institutional offer rather than remaining one-off project activities. Further sustainability mechanisms should include:

- Integration of new content into OVTC's recognised training provision.
- Municipal budget allocation for regulatory and coordination functions.
- Employer contributions through mentors, facilities and staff time.
- Affordable participation fees for specialised CPD courses.
- Shared financing for learner transport and safety equipment.
- Reuse of CWVA training materials.
- Sponsorship of outreach activities by corporate partners.
- Expansion to other Namibian VET institutions once the model has been tested.

The financial model is not yet fully defined in the Action Plan. Cost-sharing arrangements must therefore be agreed before launch, particularly for **insurance, transport, translation, certification and interregional participation**.

7.6. NEXT STEPS AND PARTNERSHIP FORMALISATION

The immediate next steps should focus on converting the co-designed portfolio into **signed and operational collaboration arrangements**:

1. **Validate the six service descriptions** with OVTC, the Municipality and every named market actor.
2. Correct the Action Plan's template and drafting inconsistencies, including the unidentified responsible person, the incorrect Action 5 title and unrelated references in the disclaimer and copyright notice.
3. Confirm the authorised institutional representatives and complete the endorsement signatures.
4. Decide whether the services will be governed by one **multi-partner framework MoU** or by a general Municipality-OVTC agreement supplemented by bilateral company agreements.
5. Define the governance, membership and terms of reference for the Annual Competence Review and Skills Anticipation Forum.
6. Prepare a work-placement handbook covering learner selection, duration, learning outcomes, mentoring, safety, insurance, safeguarding, assessment and certification.
7. Confirm the number of placements available from Rent-A-Drum, Frontier Multi Industries, Plastic Packaging and Coca-Cola Namibia.
8. Validate the CPD modules directly with employers and define certification, staff-release and cost-sharing arrangements.
9. Confirm the regulatory content of the Policy Literacy Programme with the competent environmental authorities before delivery.
10. Establish updated and realistic implementation dates, budgets and responsible focal points for each service.
11. Introduce inclusion targets to encourage the participation of **women, young people and groups facing barriers to training or employment**.
12. Pilot the first services with manageable participant groups, evaluate the results and revise the model before scaling up.
13. Formalise Actions 1, 2, 3, 4 and 6 through MoUs under T4.4. Action 5 may be referenced in the partnership framework while allowing individual outreach activities to be organised through simpler institutional arrangements.

The MoUs should specify the **purpose, duration, governance, partner responsibilities, resource commitments, safety obligations, data collection, certification, dispute-resolution arrangements and conditions for renewal or termination**.

Through this formalisation process, Namibia can establish an integrated and repeatable service portfolio that connects **vocational education, industry intelligence, workplace learning, employee development, regulatory compliance and green career pathways**.

8. CROSS-COUNTRY ANALYSIS

8.1. COMMON NEEDS AND PRIORITIES

The country portfolios demonstrate that Ghana, Namibia, São Tomé and Príncipe, and Angola operate within different institutional, economic and environmental contexts. Nevertheless, the stakeholder mapping, Skills Gap Analysis, Training of Trainers and national co-design processes reveal a set of shared structural needs across the four countries. The Skills Gap Analysis, covering 24 organisations, identified particularly significant gaps in advanced waste-treatment technologies, financial management, policy implementation and sustainable resource management. It also highlighted limited capacity in data analysis, reporting, project management and evidence-based planning. These findings are reflected, to different degrees, in all four national service portfolios.

The principal common needs are:

- **Stronger alignment between VET and labour-market demand.** Training provision is frequently supply-driven and insufficiently connected to the operational requirements of waste-management companies, municipalities and emerging circular economy activities.
- **Updated circular economy curricula.** Existing programmes need stronger coverage of waste prevention, sorting, recovery, recycling, composting, resource efficiency, circular product design, environmental compliance and green entrepreneurship.
- **Greater access to practical learning.** Learners need structured internships, industry placements, field visits and workplace projects through which they can apply technical knowledge in real operational settings.
- **Stronger VET–industry partnerships.** Cooperation is often based on informal or occasional relationships. The portfolios seek to replace these with recurring services, designated focal points, clear responsibilities and formal partnership agreements.
- **Technical and occupational-safety competences.** All countries require stronger capacity in waste identification, separation, processing, safe handling, use of personal protective equipment and environmental risk prevention.
- **Digital waste-management capacity.** Stakeholders need better skills in data collection, waste-flow monitoring, traceability, digital reporting, logistics coordination and the pedagogical use of digital tools.
- **Entrepreneurship and financial-management skills.** Technical training must be complemented by market analysis, business planning, costing, financial literacy, prototype development and access to mentoring or seed funding.
- **Regular skills anticipation and curriculum review.** VET institutions require mechanisms for identifying changing occupations, technologies, regulations and employer expectations.
- **Improved monitoring of employment outcomes.** Institutions need reliable information on placements, competence acquisition, employer satisfaction, employment, self-employment and further training.
- **Inclusive access to green careers.** Women, vulnerable young people, informal workers and people facing geographical, economic or educational barriers require targeted recruitment and participation support.

- **Sustainable financing and institutional ownership.** Transport, insurance, safety equipment, trainer time, certification, materials and coordination cannot remain permanently dependent on short-term project funding.

These common needs show that isolated training activities will not be sufficient. Sustainable impact requires an integrated skills ecosystem connecting curriculum development, trainer capacity, practical experience, employer participation, entrepreneurship support, regulation and institutional planning.

8.2. COUNTRY-SPECIFIC APPROACHES

While the portfolios address shared needs, each country has selected a different model according to its institutional capacity, economic sectors and stakeholder ecosystem.

TABLE 3 – SYNOPTIC OVERVIEW OF EACH COUNTRY'S SERVICES' APPROACH

Country	Primary approach	Main distinctive features	Current readiness
Ghana	Industry-linked practical learning and circular innovation	Placements, internships, field visits, product innovation, institutional exchange and textile upcycling	Several services are co-designed, but agreements, dates and resources require confirmation
São Tomé and Príncipe	Lean institutional mechanism with sectoral adaptation	Annual competence review and work-based learning adaptable to municipal waste, Agripalma and fisheries	Two services are structured; sector-specific implementation requires further technical validation
Namibia	Integrated circular skills ecosystem	Skills anticipation, curriculum review, internships, CPD, career awareness and policy literacy	Comprehensive portfolio, but operationally complex and dependent on formal commitments and cost-sharing
Angola	Inclusive training, work-based learning and emerging ecosystem coordination	Circular economy course combined with internships, stakeholder platform, course adoption and skills foresight	One structured core service and three preliminary ecosystem services requiring further operational development

Ghana: practical learning and product innovation

Ghana has developed the most directly industry-oriented portfolio. Its services connect RVTI learners with waste-management companies, recycling facilities, other training institutions and garment-sector actors. The portfolio places particular emphasis on:

- Industry placements and internships.

- Field visits to operational waste-management facilities.
- Circular product design and prototype development.
- Textile waste upcycling.
- Trainer exchanges and institutional peer learning.
- Entrepreneurship and market-testing opportunities.

This approach reflects Ghana's need to strengthen the practical relevance of VET while creating clearer pathways from training to employment and self-employment. The involvement of TrashSmart and KCARP provides potential access to real waste-processing environments, while the Circular Product Innovation Hub can transform technical learning into product and business ideas. However, several elements still require attention. Partnership commitments must be formalised, implementation dates updated and employment monitoring improved. The textile service must also be redesigned using reliable information from the proposed partners before it can be considered implementation-ready.

São Tomé and Príncipe: institutional coordination and sectoral adaptation

São Tomé and Príncipe has selected a more concentrated model based on two cross-sectoral services:

1. An Annual Circular Economy Competence Review.
2. A Work-Based Learning and Internship Programme.

This smaller portfolio is appropriate for an island context with limited infrastructure and a relatively compact institutional ecosystem. Rather than creating multiple specialised services immediately, CFPSTP can use the annual review to identify changing needs and progressively adapt its training and placement offer. The model can be applied to municipal waste management while also being adapted to Agripalma and the fisheries sector. These adaptations could provide locally relevant learning environments and address important organic and production-related waste streams. Nevertheless, the sector-specific components remain preliminary. Agripalma and fisheries organisations are not yet documented as confirmed operational partners. Waste streams, health risks, regulatory requirements and feasible valorisation options must therefore be assessed before learner activities or new products are introduced.

Namibia: an integrated skills-development system

Namibia has proposed the most comprehensive and system-oriented portfolio. Its six services create a sequence connecting:

- Skills anticipation.
- Annual curriculum review.
- Continuing professional development.
- Structured internships.
- Career awareness.
- Policy and regulatory literacy.

This approach responds to the need for stronger coordination between OVTC, Swakopmund Municipality, environmental organisations and private companies. It addresses learners, employed workers, SMEs, municipal staff and the wider public, thereby extending the portfolio beyond initial VET

provision. Namibia's model has particularly strong potential for institutional impact because labour-market intelligence can feed directly into curriculum updates and CPD modules. However, it also requires substantial coordination. Transport, insurance, translation, certification, safety equipment and participation from different regions will need an agreed financial model. The portfolio is therefore strategically advanced but still dependent on signed agreements, designated personnel, realistic budgets and confirmed company commitments.

Angola: inclusive training, internships and ecosystem development

Angola has now developed a preliminary national Added Value Services Portfolio coordinated by **VIS Angola** in cooperation with the **Don Bosco Vocational Training Centres**, **INEFOP** and actors from the waste-management, recycling, environmental-education and civil-society sectors. The portfolio is based on one structured core service: an **Inclusive Circular Economy Training and Internship Programme** in Benguela and Cuanza Norte. The programme combines a second edition of the CWVA course with structured workplace placements in waste-management, recycling and circular economy organisations. The service targets at least **40 vulnerable young people**, divided into two provincial cohorts of 20 participants. Each cohort is expected to include 12 women and 8 men, producing a combined target of **24 women and 16 men**. Implementation is provisionally planned from March 2027. Don Bosco will deliver the training, prepare learners and establish agreements with host companies. VIS Angola will coordinate institutional relationships, while INEFOP will be invited to support recognition of the course. Participating companies are expected to provide internship opportunities, workplace mentors and access to practical activities. The intended outcomes include:

- At least 40 learners completing the course and internship.
- Formal agreements between Don Bosco centres and host companies.
- At least five participants obtaining employment contracts.
- Improved technical, workplace and life skills.
- A tested model that can be replicated in other VET centres.

In addition to this core service, the Angolan roadmap identifies three emerging ecosystem services:

1. A **Circular Economy VET–Stakeholder Platform**.
2. A service for **course dissemination and institutional adoption**.
3. A **Circular Economy Skills Foresight and Training Review** mechanism.

These services could strengthen coordination, support curriculum adaptation, identify internship opportunities and facilitate broader use of the CWVA materials. Angola also has a strong multiplier base, as **18 Angolan trainers successfully completed the CWVA Training of Trainers programme**. Nevertheless, the three ecosystem services are not yet described through complete operational fiches. Their governance, target groups, resources, indicators, schedules and responsible institutions still need to be agreed. The Action Plan also contains duplicated action tables and some inconsistencies regarding consultation dates, participant numbers and geographic references. These issues should be corrected before final validation. Angola should therefore be described as having **one structured and potentially pilot-ready core service, supported by three promising ecosystem services that remain under development**.

8.3. CONTRIBUTION TO GREEN SKILLS, EMPLOYMENT AND ENTREPRENEURSHIP

The portfolios contribute to green economic development through three connected pathways: skills development, labour-market transition and circular entrepreneurship.

Green skills development

The services extend the CircuWasteVETAfrica curriculum beyond classroom instruction by enabling learners and workers to apply their knowledge in practical environments. The principal competences supported include:

- Waste identification, separation and classification.
- Collection, storage and operational logistics.
- Recycling, composting and material recovery.
- Resource efficiency and waste prevention.
- Circular product design and upcycling.
- Occupational health and safety.
- Environmental compliance and policy literacy.
- Digital monitoring, traceability and reporting.
- Community awareness and behavioural change.
- Business planning, financial management and market analysis.
- Communication, teamwork, problem solving and innovation.

The project's Training of Trainers model provides an important foundation for this process. Fifty trainers from Ghana, São Tomé and Angola completed the programme, with a reported completion rate of 97%. These trainers can act as institutional multipliers, adapting the materials and transferring the competences to successive learner cohorts. Angola provides a particularly concrete example of this multiplier potential. Its 18 certified trainers can support the second edition of the CWVA course, transfer the methodology to other Don Bosco and INEFOP centres and contribute to the institutional adoption of the training.

Employment and work-based learning

The portfolios strengthen employment pathways by creating direct interaction between learners and potential employers. The Ghanaian services provide placements, internships and industry visits with waste-management and recycling organisations. São Tomé proposes regular placements with municipalities, environmental organisations and private operators. Namibia combines internships with career guidance, employer participation and continuing professional development. Angola's core service also establishes a direct transition from training to work-based learning. Learners in Benguela and Cuanza Norte will complete the circular economy course before undertaking structured internships with local organisations. The Action Plan establishes an initial objective of at least **five employment contracts**, making Angola the country portfolio with the most explicit quantified employment target. These activities can contribute to employment by:

- Providing verified practical experience.
- Allowing employers to observe learners' performance.
- Improving learners' understanding of workplace expectations.
- Creating stronger talent pipelines for participating companies.
- Supporting the assessment and certification of practical competences.
- Increasing awareness of emerging green occupations.
- Facilitating progression into employment, self-employment or further training.

However, the contribution to employment should not be measured only through participation or contract numbers. Each country should track:

- Placement completion.
- Duration and quality of workplace experience.
- Competences achieved.
- Employer satisfaction.
- Employment obtained after training.
- Relevance and duration of employment.
- Progression into further education.
- Enterprises or income-generating activities established.
- Employment outcomes disaggregated by gender and vulnerability profile.

At this stage, most services represent employment-enabling mechanisms rather than confirmed employment outcomes. Angola's target of five contracts is an expected result that must be verified during post-training monitoring.

Green entrepreneurship

Entrepreneurship is incorporated at different levels across the four portfolios. Ghana provides the most explicit product-development pathway through the Circular Product Innovation Hub and the proposed textile upcycling partnership. These services can support learners in identifying waste streams, designing products, producing prototypes, testing market demand and exploring student-led enterprises. São Tomé can use its competence-review mechanism to identify business opportunities connected with municipal, agro-industrial and fisheries waste. Namibia's CPD, policy literacy and skills-anticipation services can improve the capacity of SMEs and future entrepreneurs to operate within environmental and regulatory requirements. In Angola, the combined course and internship programme can help vulnerable young people identify circular business opportunities while gaining practical understanding of collection, sorting, recycling and material recovery. The proposed stakeholder platform could subsequently connect learners and informal waste workers with companies, municipalities, formal buyers and entrepreneurship-support actors. The Angolan needs analysis also identifies potential for supporting informal waste workers through technical training, safer working practices, business skills and the development of associations or cooperatives. However, this remains a possible future extension rather than a fully structured service. To convert entrepreneurship training into viable economic activity, additional support will be required, including:

- Business mentoring.
- Market and customer validation.

- Product-quality assessment.
- Costing and pricing support.
- Access to equipment and materials.
- Seed funding or small grants.
- Cooperative and microenterprise models.
- Regulatory and registration guidance.
- Links with buyers, municipalities and supply-chain actors.
- Follow-up during the first stages of enterprise development.

The strongest results will be achieved when entrepreneurship is linked to identified market demand and technically validated waste streams, rather than treated only as a theoretical training subject.

8.4. INCLUSION AND GENDER CONSIDERATIONS

Gender and social inclusion are central commitments of CircuWasteVETAfrica. The original project design established the objective that women should represent at least **50% of trainers and learners**, while vulnerable young people and participants from underserved communities should be actively encouraged to enrol. This commitment responds to documented structural inequalities. Across the participating countries, technical VET programmes remain affected by gender stereotypes. Women are often directed towards tailoring, caregiving or food-related occupations, while mechanical, technical and industrial activities are perceived as male domains. In Angola, D4.1 reports that approximately **99% of the waste-sector workforce is male**, demonstrating the scale of the gender imbalance.

The Angolan Action Plan introduces a concrete response to this inequality. Its core training and internship programme proposes that women represent **24 of the 40 participants, or 60% of the total cohort**. This exceeds the project-wide minimum target and could provide an important pilot for increasing women's participation in technical waste-management and circular economy occupations. However, achieving numerical participation will not be sufficient. Women must also receive equal access to technical tasks, workplace mentoring, personal protective equipment, employment opportunities and entrepreneurship support. The added value services across the four countries should therefore incorporate the following measures:

- Establish minimum participation targets for women in training, placements, forums, workshops and entrepreneurship activities.
- Collect sex-disaggregated data at recruitment, participation, completion and employment stages.
- Conduct targeted outreach through women's associations, community organisations and female professional networks.
- Use women working in technical, environmental and entrepreneurial roles as mentors and speakers.
- Ensure that selection criteria do not unintentionally exclude applicants with non-traditional educational or employment histories.
- Provide safe learning and workplace environments, including safeguarding procedures and mechanisms for reporting harassment.
- Ensure the availability of correctly sized personal protective equipment for all participants.

- Consider transport, scheduling, childcare and household responsibilities when planning training and placements.
- Provide materials in accessible formats and relevant languages.
- Promote women's participation in technical operations, recycling, digital monitoring and management—not only in traditionally female activities.
- Facilitate access to mentoring, finance and markets for women-led green enterprises.
- Include vulnerable youth, informal workers, people with disabilities and participants from low-income or geographically isolated communities where institutionally feasible.

Gender mainstreaming should also challenge occupational segregation. For example, the Ghana textile upcycling service should not automatically be presented as a women-only pathway. It should be open to all learners, while women should simultaneously be encouraged to participate in waste processing, technical innovation, digital monitoring and operational management. Similarly, Angola's female participants should be actively placed in technical and operational roles and not limited to awareness, administrative or traditionally gendered activities. Inclusion must be assessed through the quality of participation and resulting opportunities, not only through attendance. The monitoring framework should examine whether women and vulnerable learners complete the activities, acquire recognised competences, enter employment, access entrepreneurship support and progress into decision-making or supervisory roles.

8.5. SUSTAINABILITY AND REPLICATION POTENTIAL

The portfolios have strong sustainability potential because they are designed as recurring institutional services rather than isolated training events. Annual competence reviews, repeated placements, regular CPD modules, stakeholder platforms, skills forums and innovation challenges can continue after the end of EU funding if they are integrated into institutional planning. The principal sustainability mechanisms are:

Institutional integration

The services should be incorporated into VET curricula, academic calendars, annual work plans and staff responsibilities. Designated coordinators and standardised procedures will reduce dependence on individual project personnel. In Angola, the CWVA course could become part of the regular Don Bosco training offer and potentially be recognised or adopted more broadly through INEFOP. The planned pilot in Benguela and Cuanza Norte could provide the evidence needed for subsequent replication in other Don Bosco and public VET centres.

Trainer multiplier capacity

The ToT model enables certified trainers to reuse and adapt the curriculum for successive learner cohorts. Internal peer training can also transfer knowledge to colleagues who did not participate in the original programme. Angola's 18 certified trainers constitute a significant sustainability asset. They can support new learner cohorts, adapt the materials to Angolan waste streams and contribute to the development of short courses for workers, companies, municipalities and informal collectors.

Formal partnerships

MoUs and workplace agreements should establish the duration, partner responsibilities, resource commitments, supervision, safety, monitoring, certification and renewal conditions of each service. The original project objective of establishing at least **two public-private collaborations and two added value services for each participating VET institution** provides a clear sustainability benchmark. Ghana, São Tomé and Namibia have identified several potential services and partnerships. Angola has now identified one structured core service and three preliminary ecosystem services. However, the Angolan portfolio still needs complete service fiches, confirmed host companies and signed agreements before it can demonstrate comparable operational progress.

Shared financing

Sustainability will require a mixed-resource model combining:

- VET institutional contributions.
- Municipal or public-sector support.
- Company facilities, materials, mentors and staff time.
- Participation fees for specialised professional training.
- Sponsorship of innovation and outreach activities.
- Revenue from viable learner-developed products.
- Public or donor funding.
- Future national and international projects.

In Angola, particular attention should be given to financing learner transport, insurance, protective equipment, training materials and placement monitoring. These costs are especially important because the proposed service targets vulnerable young people in two different provinces. The financial model should protect inclusive access. Participation fees should not prevent vulnerable learners or informal workers from benefiting from the services.

Open and reusable learning resources

The CWVA curriculum, digital materials and tools can support replication at low marginal cost. Publication as Open Educational Resources and continued availability through digital learning platforms will allow other VET providers to reuse and adapt the content. In Angola, the dissemination and institutional-adoption service could provide a structured mechanism for sharing the course with other Don Bosco and INEFOP centres.

Accreditation and recognition

Institutional or national recognition of the training can increase its credibility, improve learner motivation and support wider replication. Accreditation processes should therefore continue where feasible, while avoiding delays to practical pilot activities. In Angola, the involvement of INEFOP is particularly important for determining whether the course can receive formal recognition and become part of wider national VET provision.

Monitoring and evidence of impact

Evidence on competence acquisition, employment, entrepreneurship, employer satisfaction and environmental results will be essential for securing future support. The project's impact-assessment process should document both quantitative outcomes and institutional changes. The Angolan pilot should monitor not only whether 40 learners participate and five obtain employment contracts, but also:

- Internship completion.
- Competences acquired.
- Employer satisfaction.
- Employment retention.
- Self-employment and income-generating activities.
- Women's progression into technical roles.
- Continuation of the partnerships after the pilot.
- Replication of the course in other centres.

Context-sensitive replication

Replication should preserve the core methodology while adapting delivery to local conditions. The transferable core includes:

- Stakeholder mapping.
- Skills-gap assessment.
- Participatory service co-design.
- Trainer capacity building.
- Workplace learning.
- Formal partnership development.
- Monitoring and periodic review.

The specific waste streams, companies, regulations, languages, technologies and business opportunities must be selected locally. Ghana's product-innovation model, for example, may inspire other countries, but it should not be copied without confirming materials, market demand, equipment and technical feasibility. Similarly, Angola's combined training and internship model could be replicated elsewhere if the pilot confirms that vulnerable learners can be effectively matched with companies and supported throughout the workplace-learning process. Several risks could weaken sustainability, including limited budgets, staff turnover, informal partner commitments, inadequate employment data, transport and insurance costs, low participation and dependence on external funding. These risks should be addressed through realistic pilots, clear agreements, diversified financing and annual review mechanisms. Overall, Angola can no longer be described as lacking a national service portfolio. It now has a **structured training and internship service with defined participants, gender targets and expected employment results**, together with three ecosystem services that could support longer-term institutionalisation. Its principal challenge is to transform these proposals into signed, financed and operational partnerships.

9. CONCLUSIONS

The CircuWasteVETAfrica Added Value Services process demonstrates that VET institutions can play a role extending well beyond conventional classroom training. They can operate as intermediaries connecting **learners, companies, municipalities, environmental organisations, regulators and entrepreneurship-support actors**.

The cross-country analysis identifies a common need to improve curriculum relevance, practical learning, digital capacity, occupational safety, entrepreneurship, policy literacy and cooperation with employers. At the same time, it confirms that **effective responses must be adapted to each national and institutional context**.

Ghana has prioritised a practical and innovation-oriented portfolio based on placements, internships, field visits, institutional exchange, circular product development and textile upcycling. São Tomé and Príncipe has adopted a concentrated model centred on annual competence review and work-based learning, with potential adaptation to Agripalma and the fisheries sector. Namibia has proposed an integrated system connecting skills anticipation, curriculum review, continuing professional development, internships, career awareness and regulatory training. Angola has developed an inclusive model combining circular economy training with structured internships for vulnerable young people, supported by three emerging ecosystem services focused on stakeholder coordination, institutional adoption of the course and skills foresight.

Across the four country portfolios, the proposed services are best described as **co-designed but not yet fully operational**. Stakeholder participation demonstrates relevance and institutional interest, but implementation still depends on signed agreements, confirmed resources, designated focal points, realistic schedules and agreed monitoring procedures.

Angola represents an important advance in this process. Its core service establishes targets for **40 learners, including 24 women**, and aims to support at least five participants in obtaining employment contracts. The country also benefits from a multiplier base of 18 certified trainers. Nevertheless, host companies, financing arrangements, recognition procedures and workplace-learning agreements must still be confirmed. Its three ecosystem services also require complete operational descriptions before they can be considered implementation-ready.

The next step of this process will be the organisation of the Public-Private Partnerships Workshop in Angola (Milestone M22). It will provide the main platform for moving from co-designed services towards formalised cooperation with private-sector and other relevant partners. In particular, the workshop will support the formalisation of Memoranda of Understanding (MoUs) between the Don Bosco Vocational Training Centres and private-sector stakeholders, establishing the basis for training, internships, workplace-based learning and employability opportunities.

The workshop will also provide an opportunity to briefly present the Added Value Services and partnership developments from the other African partner countries — Ghana, Namibia and São Tomé and Príncipe — in an online format. This will allow stakeholders in Angola to gain visibility of the different approaches developed across the project and facilitate the exchange of experiences and potential collaboration opportunities between African institutions.

The workshop therefore represents an important bridge between the results presented in this deliverable and the subsequent implementation and formalisation of the proposed services. By M22, the objective is to have the relevant Angolan partnerships sufficiently advanced to enable the formalisation of MoUs with selected private partners, while using the workshop to communicate the wider project results and strengthen visibility of the emerging VET–labour market partnerships.

A final step will be to disseminate and increase the visibility of the partnerships and results achieved, including through the project communication and dissemination activities. A dedicated project webpage has been developed (available in the following URL: <https://circuwastevet africa.eu/vet-added-value-services/>) and provides an additional channel to showcase the proposed added-value services of each partner (both in English and Portuguese) as well as to promote this deliverable. Visibility materials, including flyers and other communication outputs, will also be used to highlight the partnerships established and support the achievement of the project's communication and dissemination KPIs.

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