UNIDO OFFICE FOR INDEPENDENT EVALUATION

Independent Final Evaluation

Creating employment opportunities and ensuring effective E-waste management in Cambodia

UNIDO project Nos. TF/CMB/12/001, TF/CMB/12/003 - SAP 120011

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INDUSTRIAL DEVELOPMENT ORGANIZATION

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Independent final evaluation

"Creating employment opportunities and ensuring effective E-waste management in Cambodia"

Evaluation Report

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Final Report, 15 May 2015

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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Table of contents

Acronyms

3R	Reduce, Reuse and Recycle
COMPED	Cambodian Education and Waste Management Organization
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DSA	Daily Subsistence Allowance
EEE	Electrical and Electronic Equipment (or e-products)
EMPA	Swiss Federal Laboratories for Materials Science and Technology
GNI	Gross National Income
HA	Household Appliances
HHP	Handheld Phone (mobile phone)
HUO	Head of UNIDO Operations
KOICA	Korea International Cooperation Agency
LDC	Least Developed Country
MoE	Ministry of Environment
MoLVT	Ministry of Labour and Vocational Training
MSMEs	Micro, Small and Medium Enterprises
NCPO	National Cleaner Production Office
NGO	Non-Government Organization
NPC	National Project Coordinator
NTTI	National Technical Training Institute
PM	Project Manager
PMU	Project Management Unit
PPP	Public-Private-Partnership
PSC	Project Steering Committee
RTC	Regional Training Centre
TOT	Training of Trainers
UEEE	Used Electrical and Electronic Equipment
UNIDO	United Nations Industrial Development Organization
WEEE	Waste Electrical and Electronic Equipment (or e-waste)
WRF	World Resource Forum

Glossary of evaluation terms

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the objectives of a development intervention were or are expected to be achieved.
Efficiency	A measure of how economically inputs (through activities) are converted into outputs.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Intervention	An external action to assist a national effort to achieve specific development goals.
Lessons learned	Generalizations based on evaluation experiences that abstract from specific to broader circumstances.
Logframe (logical framework approach)	Management tool used to guide the planning, implementation and evaluation of an intervention. System based on MBO (management by objectives) also called RBM (results based management) principles.
Outcome	The achieved or likely effects of an intervention's outputs.
Outputs	The products in terms of physical and human capacities that result from an intervention.
Relevance	The extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed
Target group	The specific individuals or organizations for whose benefit an intervention is undertaken.

Executive summary

Introduction

Subject and scope: The subject of the evaluation is the project 'Creating opportunities and ensuring effective E-waste management in Cambodia' (UNIDO SAP ID: 120011). The evaluation covers the timespan August 2012 to March 2015.

Purpose: The purpose of the evaluation is to enable the Royal Government of Cambodia, KOICA, Samsung Electronics and UNIDO to take informed decisions with respect to a possible second phase.

Objective: The objective of the evaluation is to assess the relevance, effectiveness, impact, prospect of sustainability, efficiency in implementation, project management & coordination and the cross-cutting dimension of gender.

Data collection: The evaluation is the result of a country mission to Cambodia (20-29 March 2015), interviews with 44 stakeholders (including all members of the Project Steering Committee), the observation of an entrepreneurship training in Siem Reap, visits to two shops of trainees in Phnom Penh, a visit to the Samsung Customer Service Centre in Phnom Penh, and a review of 28 documents, in particular progress reports and studies commissioned by the project.

Analysis methods: Data was collected, analysed and processed based on the evaluation framework (Annex 1). The main data analysis method used was qualitative, in particular content analysis of documents and interview notes. For assessing effectiveness and impact - especially on the environment - a theory of change analysis was conducted (Chapter III.B, Table 15 below).

Limitations: The data collected by the project with regard to 'the employment situation after the training' could only be triangulated to a very limited extent. The evaluation team visited Phnom Penh and only one province out of four targeted by the project.

The evaluation was conducted by Mr. Urs Zollinger, International Evaluation Consultant and team leader, and Mr. Somith Sok, National Evaluation Consultant.

Findings and overall rating

Evaluation criteria	Key findings	Evaluators' rating
Relevance and ownership	The project is relevant to the national development priorities of youth employment and sustainable waste management and it is strongly owned by the Royal Government of Cambodia. The project is also pertinent to the needs of the direct and ultimate beneficiaries	Highly satisfactory

	The public-private partnership is seen as relevant by all partners involved in particular to have access and exposure to latest technology and expertise from the private sector (public sector interest) and to improve customer services as well as the image as responsible corporate citizen (private sector interest). The project is in-line with UNIDO priorities, in particular with regard to participation of women and youth in productive activities, reducing industrial waste and supporting LDCs.	
Effectiveness and impact	The project has delivered most of the planned outputs with good quality. The studies commissioned by the project address the lack of data on e-waste and the project has trained more trainees than what was originally planned. Some outputs are behind schedule. At the outcome level, the project has created awareness and built capacity on e-waste management at the national (central Government level) and sub-national level in four provinces and one city. While the training programme has successfully transferred knowledge and skills on installation and repair services (non-waste) as well as entrepreneurship, the knowledge and skills transfer related to e-waste management in the narrow sense - dismantling, recycling, disposal - has been moderate. At the impact level, the project has improved the employment and/or income situation of many trainees that benefitted from the project. As of now, the impact on the environment is moderate.	Satisfactory
Sustainability	The finding regarding the sustainability of project benefits is mixed. While some factors contribute to sustainability - Government ownership and awareness, capacities built, sub-decree if approved/enforced - other factors are likely to impede the sustainability – lack of integration into NTTI curriculum, limited availability of equipment/tools, uncertain continuation of public-private partnership, limited financial resources.	Moderately satisfactory
Efficiency	Most of inputs and services were adequate and provided in a timely manner. In addition, the project is advanced in terms of delivery rate. However, several issues emerged which impede the overall project efficiency, like the currently rather low	Moderately satisfactory

	ratio trainer/trainee or the rather high cost per trainee.	
Project coordination and management	Overall, the project has been coordinated and managed efficiently and effectively. Key components are the Project Steering Committee and the Project Management Unit. The 'marketing' of the project in order to increase visibility and the coordination with other UNIDO activities are areas for improvement.	Highly satisfactory
Cross-cutting issues, with a focus on gender	The gender dimension did not receive much attention during the planning phase. During implementation though, the project made serious attempts to mobilize women for the training on installation and repair services, obtain data on women participation during the inception phase as well as entrepreneurship development. The number of female trainees, however, is very limited (7% on average) due to the strong traditional mind-set that the electronic industry is a primarily male industry.	Unsatis-factory
Overall rating		Satisfactory
	Rating scale: Highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory	

Conclusions

This is a good project. It has picked two important subjects – e-waste management and youth employment. Both are relevant to the country and its people. It is innovative to address both issues at the same time. The approach chosen has delivered early results. Although some outputs are behind schedule, all partners have demonstrated strong commitment and have made important contributions to the project. The public-private partnership is a key component of the success of the project.

The project has expanded the knowledge base and awareness on e-waste in Cambodia. Thereby, the project has contributed indirectly to the development of a sub-decree on e-waste management in Cambodia. The approval – and enforcement - of the sub-decree will provide an additional important push to e-waste management in Cambodia.

The trainings on installation and repair services have trained more persons than planned and 50% of the youth being trained were employed or improved their existing business at the time of the follow-up interviews. This is a success. Nevertheless, the approximately 100 youth having benefitted from the project is small in a country in which the working age population is growing by about 300,000 persons per year.

The impact of the project on the environment is - as of now - moderate. Some important activities are behind schedule like the facilitation of the establishment of a pilot manual dismantling facility.

The evaluation team is of the view that after only three years, the full potential of the project has not yet unfolded and there should therefore be a second phase. A possible second phase should give priority to:

- the establishment of a pilot manual dismantling facility;
- the involvement of all important producers of electronic and electric products in Cambodia (and/or their representatives) in order to establish a functioning e-waste management system;
- the preparation of technical guidelines to implement the sub-decree on e-waste management
- scaling up the trainings and capacity building activities *within* and *beyond* Phnom Penh and the four provinces selected for the project;
- testing different approaches and partnerships in order to increase participation of women in project activities;

While the country has embarked on a journey to handle e-waste in an economically and environmentally sustainable manner, it still has some way to go. There is a window of opportunity. As the GNI per capita is still comparatively low, e-waste has still value and there is a market for spare parts and used electronic equipment. This may change in future and the volume of e-waste to be disposed or recycled is bound to grow rapidly. By then, the country should be ready to dismantle and recycle e-waste professionally meeting international standards regarding protecting the environment, human health and safety.

Key Recommendations		**Addressee**
	General recommendations	
1.	The project has made an excellent start-up investment. However, e-waste management in Cambodia is still in its infancy. Therefore, **a second phase** should be envisaged to further nurture the process. This would allow moving from awareness and capacity building to the implementation of a sustainable road map for effective e-waste management. It would also allow scaling up the outreach to other provinces.	UNIDO, MoE, MoLVT
2.	Based on the first recommendation, **donors should consider funding** a second phase of the project. After three years, the project has laid an excellent base on which the next phase can build. There is a significant potential for harvesting much bigger results, especially at the environment level.	KOICA, Samsung

	Recommendations for the ongoing project phase	
3.	While not a direct component of the project, the approval of the **sub-decree** on e-waste management in Cambodia must have priority, including its enforcement. In parallel, the preparation of the **technical guidelines** should be initiated with the support of UNIDO.	MoE, UNIDO
4.	Initial work for establishing a **pilot manual dismantling facility** in Phnom Penh should be implemented. The roadmap – prepared by the project in 2014 - for implementing e-waste management system should be adhered to and a **multi-stakeholder platform** established which can be a strong indication of support to the implementation of sub-decree on e-waste management.[1] The business plan should be carefully formulated and be finalized prior to completion of the project.	MoE, UNIDO
5.	NTTI should integrate the training on installation and repair services into the regular **curriculum.** Give sufficient attention to e-waste management in the narrow sense (collection, dismantling, recycling and disposal).	NTTI

[1] Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, David Rochat, Sofies SA, Mathias Schluep, World Resources Forum (WRF), October 2014, p.13/14.

I. Evaluation objectives, methodology and process

A. Evaluation subject, purpose and objectives

The subject of the evaluation is the project 'Creating opportunities and ensuring effective E-waste m anagement in Cambodia' (UNIDO SAP ID: 120011).

The purpose of this terminal project evaluation is to enable the Royal Government of Cambodia through the project counterparts, the donors (KOICA and Samsung Electronics), UNIDO and other stakeholders to take informed decisions with respect to different approaches, strategies and business models developed for possible replication to other locations and for a possible second phase of the project.

The specific objectives of the assessment are:

a) to re-examine the relevance of the objectives and other elements of project design;

b) to assess project implementation according to the standard evaluation criteria (relevance, ownership, efficiency), including verification of project effectiveness, prospect of impact and sustainability, analysis of the attainment of the main objective and the two specific objectives of the project with a specific reference to delivery and completion of project outputs/activities, and outcomes/impacts based on selected indicators, project coordination and gender as a cross-cutting issue.

The evaluation covers the timespan August 2012 to March 2015.

B. Key evaluation issues

This project is about both e-waste and non-waste of the electronic industry in Cambodia. 'Waste' is understood as waste electrical and electronic equipment (WEEE or e-waste). This business is about waste material and management of waste. 'Non-waste' is understood as new or used electrical and electronic equipment (EEE/UEEE). This business is about repair and refurbishment of EEE.[2]

The project aims to address the key development issues of unemployment in general including youth unemployment, limited support for micro, small and medium enterprises (MSMEs) in electronic industry (e-waste and non-waste) and reduction of impact of e-waste in Cambodia.

The two key evaluation questions are:

1) To what extent has the project contributed to strengthening the capacities of MSMEs, and the special focus of the project youth in Cambodia to ultimately increase employment and in creating business opportunities in the e-waste/non-waste

[2] Mission results & project recommendations - Field mission 22 – 30 April 2013 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, Mathias Schluep, Swiss Federal Laboratories for Materials Science and Technology (Empa), August 2013, p.14.

sector?

2) To what extent has the project improved non-waste and waste management skills, knowledge and practices of MSMEs, partner institutions, and government to ultimately contribute to reducing the environmental impact of e-waste?

C. Evaluation methodology

The evaluation was conducted by two evaluators, i.e. Mr. Urs Zollinger, international evaluation consultant who acted as team leader and Mr. Somith Sok, national evaluation consultant. Work plan and the division of labour is shown in Annex 2.

The analytical framework of the evaluation was driven by the following key evaluation criteria:

- Relevance and ownership
- Effectiveness and impact
- Sustainability
- Efficiency
- Project management and coordination
- Cross-cutting issues, with a focus on gender.

The detailed evaluation questions are presented in the evaluation framework in Annex 1. The summary evaluation framework is presented below (Table 1). It shows main sources of information and data collection methods for the different evaluation criteria. Data was collected, analysed and processed based on the evaluation framework.

Table 1: Summary evaluation framework

Evaluation criteria	**Source of information/data collection methods**									
	Document analysis				**Stakeholder interviews**					**Direct obser-vations**
	Project docum.	Progress reports	Studies commis-sioned	PPP eval.	Benefi-ciaries*	National counter-parts	Donors KOICA & Samsung	UNIDO PM,HUO, NPC	UNIDO experts	
1. Relevance	☑	☑	☑	☑	☑	☑	☑	☑	☑	
2. Effectiveness and impact	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
3. Sustainability	☑			☑	☑	☑	☑	☑	☑	☑
4. Efficiency	☑	☑			☑	☑	☑	☑		☑
5. Project management	☑	☑		☑	☑	☑	☑	☑		
6. Gender	☑	☑	☑		☑	☑		☑	☑	☑

* Beneficiaries include: trained youth, trained entrepreneurs, trained trainers, workshop participants, participants in study tours.

Table: Evaluation team, based on elaborated evaluation framework (Annex 1).

Documents represent a main source of information (Annex 6). Key documents include the project document, project progress reports, studies commissioned by the project and the

Independent Thematic Evaluation of UNIDO's Public Private Partnerships (2014) which included the UNIDO partnership with Samsung in Cambodia.

Interviews with stakeholders were central. For that, a country mission to Cambodia took place (20-29 March 2015). Table 2 below presents an overview of interviews conducted. A full list of interviewees is provided in Annex 5. Interview guidelines for the different stakeholder groups were used (Annex 4).

The country mission was also an opportunity for *observations*. For example, during the mission, an entrepreneurship training took place in Siem Reap (24-25 March 2015) which the evaluation team had an opportunity to observe. Also, two e-shops of trainees (youth and entrepreneurs) were visited in Phnom Penh in order to see the repair and sales business in action. In addition, an e-shop in Siem Reap was visited - not related to the project – in order to better understand the context. Finally, the evaluation team had an opportunity to visit the Samsung Customer Service Centre in Phnom Penh.

Given time limitations, it was not possible to visit all provinces. In consultation with the PMU, it was decided to focus on Phnom Penh and Siem Reap. Siem Reap was selected because of above mentioned training event.

Table 2: Overview stakeholder interviews

Stakeholder interviews	**Number**	**Location/ modality**
1) Beneficiaries (trained youth, trained entrepreneurs, trained trainers, workshop participants, participants in study tours)	19	Phnom Penh/ Siem Reap
2) National counterparts	7	Phnom Penh/Siem Reap
3) Donors (KOICA & Samsung)	5	Phnom Penh
4) UNIDO (PM, HUO, NPC)	6	Phnom Penh/Vienna
5) UNIDO experts (national and international)	6	Phnom Penh / Skype
6) Development partners not involved in project	1	Phnom Penh
Total:	44	
Table: Evaluation team		

The main data analysis method used was qualitative, in particular content analysis of documents and interview notes. Some quantitative analysis was conducted (related to the number of trainees, cost per trainees, etc.).

For analysing and assessing effectiveness and impact the evaluation team conducted a theory of change analysis (see Table 15 below).

At the end of the mission in Cambodia, a short debriefing with the HUO and the PMU took place presenting early findings. This was a first opportunity to validate early findings.

The mission to Cambodia was followed by an in-depth analysis of all data collected in order to identify main patterns regarding the evaluation criteria. This was also the moment to triangulate data.

The evaluation team prepared a zero draft evaluation report with preliminary findings, conclusions and recommendations which was presented to stakeholders at UNIDO headquarters in Vienna on 14 April 2015. Taking into consideration comments received, the report was revised and the first draft report was circulated to the other key stakeholders, i.e. members of the Project Steering Committee. This was another opportunity for validation. Based on comments received, the evaluation team finalized the evaluation report.

D. Limitations

Primary data collection: The evaluation team relied on the primary data collection with regard to 'the employment situation after the training' which was compiled by the Project Management Unit in Cambodia. The data could only be triangulated to a very limited extent (in interviews with six trainees).

While the PMU measured the impact of the project on the employment situation, no similar efforts were undertaken to measure the project's impact – or future impact - on the environment.[3] We have addressed this limitation by using the theory of change analysis which cannot fully compensate for actual data.

Scope: While the project covers four provinces and Phnom Penh, the evaluation team only visited one province (Siem Reap) and Phnom Penh due to time constraints. This is a considerable limitation. However, the evaluation team could mitigate limitations to a good degree by documented data available for all provinces and interviews with several stakeholders who have a good overview of the entire project.

Stakeholders: In order to assess the relevance of the project, it would also have been desirable to interview more actors not directly related to the project, e.g. CSO representatives or other development partners. Only one interview could be conducted in this regard.

In spite of above limitations, the evaluation team believes that its findings, conclusions and recommendations are based on a sufficiently robust data set.

[3] The project progress reports reflect results achieved in the area of environment at the output and outcome levels, i.e. improved data, institutional capacity building, strengthened awareness.

II. Country and project background

A. Country context

Growth, income, population and employment

Cambodia's economic growth has held up well despite domestic uncertainty and instability in neighbouring countries. Driven by the garment, construction and service sectors. Bolstered by a strengthening of the global economy and with the expectation of renewed confidence and the return of political stability in July 2014 after a year-long political deadlock, Cambodia's real economic growth rate for 2015 is expected to reach 7.5% (above the forecast of 6.7% growth in the East Asia & Pacific region).[4]

With the country growing steadily above 7% each year for the past five years, it can be expected that the quality of life of its citizens will improve in the near future, thereby increasing the access of the population to new products all across the country, beyond their basic needs, including electrical and electronic equipment.

According to the World Bank, Cambodia had a population of more than 15.1 million in 2014, with a mean age of 27 years, one of the youngest in Southeast Asia. It is anticipated that the Cambodian population will continue growing, reaching nearly 17 million by 2020.[5] This provides good opportunities for economic development, given the large base of young people and a skilled population.

Although the majority of Cambodians live in rural areas, economic development and improving employment opportunities in the largest cities are anticipated to sustain the urbanization process in the future. Rapid growth in disposable incomes and urbanization strongly pushed consumer demand for consumer goods over 2009-2013. Growth was driven primarily by the emerging middle class, which could afford more sophisticated or premium products. As a result, Phnom Penh, Siem Reap and Sihanoukville emerged as hot spots for Cambodian retailers, with new supermarkets and shopping malls sprawling in these cities. The outlook for the retail trade remains positive, as the share of middle and high income workers is projected to reach 32% of the working population by 2017, up from 16% in 2008. Due to the growing base of middle class consumers, and increasing consumer sophistication, demand for imported goods is expected to increase over 2013-2018.

MSMEs account for 73% of employment.[6] Cambodian economic growth has been dominated by MSMEs. The number of persons employed in these establishments was 1,676,263; comprising 650,179 males, accounting for 38.8 percent and 1,026,084 females, accounting for 61.2 percent. Employment of women outnumbers employment of men in all business establishments. Their average revenues and profit, however, are lower compared to men's (Economic Census 2011). The majority of women's businesses are microenterprises: 51% engage only 1 person, and 96% engage 4 or fewer persons. Women's businesses are

[4] http://www.worldbank.org/en/country/cambodia/overview (Information updated as of October 2014).
[5] http://www.euromonitor.com/markets-of-the-future-in-cambodia/report (June 2014).
[6] Cambodia Economic Census, National Institute of Statistics, Ministry of Planning, 2011.

concentrated in a smaller number of industrial sectors than men's: among women, the largest four sectors—wholesale and retail trade and services, accommodation and food, manufacturing, and other services—account for 97% of all businesses. Within these sectors, women's businesses are concentrated further into: (i) weaving of textiles, and manufacturing of weaving apparel; (ii) small stalls of food, beverage and tobacco, textiles and clothing; and (iii) restaurants, mobile food and beverage services.

There is a very high number of labour force entrants each year: the working age population (15-64 years) is growing by about 300,000 persons per year (CIPS 2013). This demographic dividend provides an opportunity for steady economic growth, but the creation of decent work for women and men is a key development challenge as the working conditions are critical in some industries.

E-waste in Cambodia

Despite increasing electrification over the past 20 years, Cambodia's electrification rate remains low. It is one of the lowest in Asia, with only 17.2 percent of the population connected to a power supply. Most electrification is concentrated in Phnom Penh and a few cities; outside provincial towns power supply is scarce. Only about 6 percent of Cambodia's rural households have access to the electricity grid, while another 3 percent own some type of individual power generating unit. In rural areas, most of the energy supply is supported by small-scale private diesel generators, at a high cost.[7]

As in many other countries, an exponential expansion has occurred in the telecommunication sector. While in 1998, only 0.74 percent of the population owned a telephone, in 2010 the figure had increased to 87 percent. The expansion can be attributed to an exponential growth of mobile telephone usage in rural areas.[8]

Cambodia's economic performance over the past decade has been impressive, and poverty has been reduced remarkably. The increase in income and access to electricity has resulted in increased demand for EEE. However, the tendency of consumption of used electronic and electric equipment remains relatively high due to its lower cost in particular in urban areas where most of population cannot afford to buy brand-new o EEE. Thus, both EEE and UEEE are allowed to be imported into the country. The scale of urban consumption and waste generation and the negative impacts associated with them varies dramatically from city to city, depending in large part on a city's wealth and size. The greatest environmental threat facing the ever growing urban agglomeration in the country today is the poor collection, transportation and disposal of both municipal and industrial wastes. There is mix-disposal of all waste in open dumpsites across the country susceptible to spontaneous burning and release of unintended persistent organic pollutants. [9]

[7] Report - Comprehensive Assessment on E-waste Management in Cambodia, MoE's Technical Working Group, October 2013, p.6.
[8] Ibid, p.6.
[9] Ibid, p.12.

There is currently a high level of trans-boundary, often illegal, movement of e-waste into Cambodia for dismantle of e-products. After the dismantling, the material is exported again to China, Thailand or Vietnam, because the further processing requires sophisticated technology not (yet) available in Cambodia. As one of the countries importing both new and used electrical and electronic equipment, Cambodia is facing serious e-waste problems resulting from both growing domestic generation and foreign imports.

In Cambodia the e-waste trade value chain consists of stakeholders who use different processes during e-waste management. These processes are carried out in an environmentally unsound manner, which need to be addressed both at national and city level. Most of e-waste recycling activities in Cambodia are carried out by the informal sector. The businesses are largely unregulated and the process of recovering valuable materials takes place in small workshops using simple recycling methods. The main components of interest for recyclers are materials containing copper (wires and cables, CRT yokes), steel (internal computer frames, power supply housings, printer parts), plastics (housings of computers, printers, faxes, phones, monitors), aluminium (printer parts), printer toners and printed circuit boards.[10]

In the EEE value chain, different types of business activities chain can be distinguished: [11]

- Retail businesses: New EEE represent two-thirds of all EEE retail sales. Mobile phones is the most sold category of both new EEE and UEEE. While new products come mainly from wholesalers (97.4% of retail businesses), UEEE are mostly supplied by households, which are also the main customers for both new EEE and UEEE.
- Repair businesses: Most of the staff at repair businesses are males (86.3% of the average number of staff). Households are the main customers for repair services (88.2% of the customers) and mobile phones and televisions are the most commonly repaired items. Repair businesses generate an average of 25.9kg of e-waste monthly (median: 1kg monthly), which is either sold, disposed of in municipal dumpsites (32.2% of the businesses choose this way), or burned (16.8% of the businesses). Businesses in the EEE repair sector observed an increase in their activity (42.9% of the respondents) and expect their work to increase even more in the future (49.5%), which shows the recent popularity of EEE repair services in Cambodia.
- Collection businesses: Waste-pickers constitute the primary and most informal part of the e-waste collection system in Cambodia. 95% of them never received any training. They collect all kinds of e-waste (televisions being the most collected among the six project items category), mainly from households (84.5% of the e-waste collected), and sell to dismantlers (81.6% of the e-waste is sold to scrap yards). They have observed a decrease in the amount of e-waste being collected

[10] Ibid., p.13.
[11] Baseline Survey: Support to access to information and strengthening small businesses through data collection "Transforming e-waste into job and business opportunities", Angkor Research and Consulting Ltd, July 2013, p. 3, 4.

monthly, primarily because of increased competition.

- Dismantling businesses: Dismantlers get e-waste primarily from collectors (68.7% of their supplies) and re-sell the recyclable parts to larger scrap yards (78.2% of the dismantled parts), which export them abroad. Dismantling generates e-waste residue, which is primarily disposed of in municipal dumpsites (89%) or burned. In correlation with the decreasing e-waste volumes observed by waste-pickers, dismantlers also observe a decrease in their activities.

When electric and electronic equipment becomes obsolete, responsible reuse and recycling solutions must be in place to ensure the proper and safe handling as these products at the end of their lifetime create negative consequences to the environment and present a potential threat to human health. Similarly to most developing countries, Cambodia lacks the infrastructure, know-how and regulatory frameworks for sound reuse and recycling of hazardous waste. With adequate technology, training as well as regulatory frameworks and support, e-waste recycling can positively contribute to the conservation of natural resources, energy saving, reduction of emissions including greenhouse gases and also the development of green technologies. In addition, e-waste recycling offers the potential for job creation, which is strongly in line with the priority of the Royal Government of Cambodia for poverty alleviation, especially among youth.

Most of the Cambodians involved in repair of electronic and electric equipment have low technical abilities as well as lack of knowledge and thus perform the service with inappropriate tools and techniques without due consideration of environmental and health hazards. Likewise, there is generally limited institutional capacity for e-waste management at the national and regional/local levels in the country.

B. Project Summary

In addressing the above needs and the country's priorities for youth employment and improved environmental performance in general and e-waste management in particular as set out in several strategic documents (the National Strategic Development Plan, the National Youth Policy, the 3R (Reduce, Reuse and Recycle) National Strategy and the National Green Growth Roadmap, UNIDO initiated in 2012 the three year project ''Creating employment opportunities and effective e-waste management in Cambodia'', funded by the Korean International Cooperation Agency (KOICA) and Samsung Electronics. The three partners joined know-how and resources to strengthen capacities for increased business opportunities in electronic industry and create e-waste management skills and knowledge in five pilot areas in Cambodia - Battambang, Banteay Meanchey, Siem Reap, Kampong Cham Province and Phnom Penh (Table 3).

The project interventions targeted beneficiaries that can be divided in two groups: direct beneficiaries**,** such as the Ministry of Environment, Ministry of Labour and Vocational Training and other relevant line ministries, departments including provincial and local governments, local training institutions and vocational institutes as part of the

strengthening the institutional and organizational structures and also policy level interventions; and ultimate beneficiaries**,** which is the youth sector in target project areas (local level), small local enterprises, informal sector operators and local communities in general for both economic and environment related outcomes of the project.

Table 3: Project focus provinces

Table: Evaluation team, based on UNIDO document, map from internet.

The development goals/impact as stated in the project document, read as follows:

> **The electronic industry in Cambodia is supportive and effective in promoting economic and environmental sustainability.**

For the purpose of the evaluation, *economic* sustainability refers to the increased employment including youth employment and business opportunities in the electronic industry (non-waste and waste) and *environmental* sustainability refers to reduced environmental impact of e-waste.

The project document states two immediate objectives:

a) Strengthened capacities of youth sector to support the increase in employment and business opportunities in the electronic industry; and

b) E-waste management skills, knowledge and practices are improved.

To achieve the two expected outcomes, the project implemented capacity building interventions at the institutional and local levels for both public and private sectors, which include: training of national experts; TOT (Training the Trainers); technical exposures; "learning by doing" methodology; facilitating entrepreneurship development, business

planning & management trainings; formulation of local strategies; review or formulation of policies; policy advocacy; data collection and analysis, establishment of Technology Access Centres (as social enterprises to promote the new skills for the target ultimate beneficiaries); demonstration & application of environmentally sound technologies; promotion of public-private partnerships, promotion of effective e-waste management in the country etc.

The planned outputs, outcomes and impact can be found in Table 9 and 10 (next chapter).

Project implementation was launched in August 2012 and is envisaged to be operationally closed in August 2015.

The project had an inception phase from August 2012 to December 2013. The inception phase was used to define the appropriate approach and strategies for the implementation of the project. The inception phase was summarized in an Inception Report.[12]

The overall budget and spending of the project is presented hereafter (Tables 4 to 6):

Table 4: Project Budget (2012-2015, USD)

Contributions	**Amount**
Total Contribution KOICA	1,000,000.00
Total Contribution Samsung Electronics	300,000.00
Total Donor Contribution	**1,300,000.00**
Support cost	149,557.52
Total PAD from Donors	**1,150,442.48**
UNIDO Contribution	50,000.00
Table: From the evaluation Terms of Reference, as of February 2015.	

Table 5: Actual expenditures by output (2012-2015, USD)

Implementation					
Description	**2012**	**2013**	**2014**	**2015**	**Total**
KOICA					
OP1	4,676.81	74,288.36	92,896.36	81,782.17	253,643.70
OP2	-	10,321.70	61,463.61	10,153.18	81,938.49
OP3	-	33,019.41	8,500.00	-	41,519.41
OP4	-	32,000.00	68,973.00	19,641.65	120,614.65
OP5	58,395.01	62,075.87	114,383.89	14,668.32	249,523.09
Evaluation	-	-	-	24,228.28	24,228.28
KOICA TOTAL	63,071.82	211,705.34	346,216.86	150,473.60	771,467.62
Samsung					-
OP1	47,555.24	67,356.27	75,109.03	146.43	190,166.97
Total(KOICA+Samsung)	110,627.06	279,061.61	421,325.89	150,620.03	961,634.59
All figures are in USD					

Table: Project Management, April 2015.

[12] Inception Phase Report, UNIDO, 31 December 2013.

Table 6: Expenditure by category (2012-2015, USD)

Description	USD
Staff	199,112.12
Subcontract	399,306.97
Travel	96,566.52
Training, meeting	152,016.72
Premises	2,711.19
Equipment	85,164.34
Miscellaneous	26,756.73
Total	961,634.59

Table: Project Management, April 2015.

III. Project assessment

A. Relevance and ownership

Finding: The project is relevant to the national development priorities of youth employment and sustainable waste management and it is strongly owned by the Royal Government of Cambodia. The project is also pertinent to the needs of the direct and ultimate beneficiaries.

Interviews with direct and indirect beneficiaries reveal that both priorities of the project, creating employment opportunities and ensuring effective e-waste management, are important issues in Cambodia. Particularly relevant is vocational training and skills development for youth. As the Cambodian economy is growing[13], the demand for skilled labourers is increasing. In addition, Cambodia is a very young nation.[14] As shown above, the working age population (15-64 years) is growing by about 300,000 persons per year.

With the growing economy, the electricity supply is also growing and reaching also more and more rural areas. Growth and electrification increase the use of electronic and electrical products. The improvement of the e-waste management in Cambodia is timely, as the volume of waste electrical and electronic equipment is still relatively low.[15] This is also related to the fact that most of the broken electronic and electrical products have still some economic value and are being traded with waste collectors. Also, sellers and repairers of electrical and electronic equipment keep broken equipment as a source of spare parts. This could be observed during visits to small shops selling electronic products.

[13] Real growth for 2014 is estimated to reach 7.2%.
[14] The mean age is estimated at 27 years.
[15] Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, October 2014, p.5.

Nevertheless it is expected that e-waste is increasing in the short-term[16] and the professional handling of e-waste will gain importance. This is also supported by the fact that the Ministry of Environment (MoE) has developed a sub-decree on e-waste management which is expected to be approved during 2015. The development of the sub-decree on e-waste management constitutes solid evidence that the Royal Government of Cambodia is committed to improving the e-waste management in the country.

More broadly speaking, the project is in line with the National Green Growth Road Map which established five priorities. The fourth priority - 'sustainability of waste management' - explicitly includes 'electronic waste (E-Waste)'.[17] Moreover, the project supports the 3R (Reduce, Reuse and Recycle) National Strategy of the Government of Cambodia[18] and contributes to the implementation of goal no. 7 of the Cambodia MDGs and the Rectangular Strategy, Phase III of the 5th Legislature.

Interviews with Government representatives reveal a strong ownership of the project. Strong ownership is also underlined by the fact that it was the Ministry of Labour and Vocational Training that originally approached the Head of UNIDO Office in Cambodia requesting assistance to address the issue of youth employment[19], thereby demonstrating a genuine interest (an important dimension of ownership). The development of vocational skills training is one of five priorities of the strategic plan 2014-2018 of the Ministry of Labour and Vocational Training.

The national counterpart organizations have been closely involved throughout the project, not only as members of the Steering Committee but also as implementing partners of several project components.

Interviews with trained trainers and trained trainees show that the project is also relevant to the direct beneficiaries (i.e. staff of the Department of Environment in Siem Reap, trainers of NTTI and Regional Polytechnic Institute) and to ultimate beneficiaries (i.e. shop owners, entrepreneurs, repairers). Beneficiaries stressed the need to acquire new skills related to the installation and repair of new products.

There is one caveat: The project faced difficulties in mobilizing youth for the training programmes, and project staff had to go from shop to shop to promote the training and to convince potential candidates. During the evaluation, it was not possible to establish the reasons for the hesitations on the participants' side. It may well not be a lack of relevance of the training, but other personal reasons (e.g. pressure to keep businesses open and not lose sales during the training). This could probably have been know ex-ante.

[16] Ibid, p.5.
[17] National Green Growth Roadmap, Ministry of Environment, Royal Government of Cambodia, December 2009, p.29.
[18] Project document, 2012, p.5. (Reference is also made to the 4R strategy; the 4th R stands for Repair).
[19] Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014, p. 16.

Finding: The public-private partnership is seen as relevant by all partners involved in particular to have access and exposure to latest technology and expertise from the private sector (public sector interest) and to improve customer services as well as the image as responsible corporate citizen (private sector interest).

Interviews with partners confirmed that the public-private partnership is appreciated by all partners, in particular the Ministry of Environment, NTTI, KOICA, Samsung Electronics and UNIDO. The project was initiated by the Government and shows strong national ownership. Not only did the Government initiate the project, it has also been a driving force throughout. The Cambodian request was brought to the attention of UNIDO's Regional Office in Bangkok in coordination with relevant two technical branches (Business, Investments and Technology Services and the Environment technical branch) at the UNIDO Headquarters, which in its turn initiated discussions with the Korean Government (KOICA) on how this request could fit into ongoing discussions to develop interventions in the area of environmental sustainability and poverty reduction. The proposals submitted to KOICA was in relation to the electronics industry and working through a private partnership modality. It was KOICA who got Samsung on board to bring in the necessary expertise on installation and repair of e-products. There is a high level of relevance to the Royal Government of Cambodia and a very consultative process contributed to this with the Government and the national counterpart organization having been closely involved throughout the process.[20]

The project is also relevant for Samsung for a number of reasons (Table 7).

Table 7: Project relevance for Samsung Electronics

'For Samsung, as a major player in the Cambodian electronics industry, the development of strong local supply chains is of strategic importance. Hence, investing in capacity building supports the business' customer services and growth in sales. Furthermore, adopting a closed-loop approach for its supply chain management is an integral part of its CSR strategy, further strengthening Samsung's image as a responsible corporate citizen in the region.'
Source: UNIDO-Samsung Fact Sheet, Transforming e-waste into job and business opportunities, 2013.

Finding: The project is in-line with UNIDO priorities, in particular with regard to participation of women and youth in productive activities, reducing industrial waste and supporting LDCs.

The project is in line with UNIDO's renewed mandate on Inclusive, Sustainable Industrial development (ISID) that focuses on partnerships, inclusiveness, sustainability and with the objectives as defined in the Programme Budget 2012-2013. The project is in line with three programme components and their objectives, in particular with regard to youth participation in productive activities, reduction of industrial waste and support to Least

[20] Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014, p. 16, 17.

Developed Countries (Table 8). The project constitutes one of the few UNIDO public-private partnerships in a least developed country (LDC).[21]

Table 8: Project alignment with UNIDO priorities (Programme and Budgets 2012-2013)

Programme and Budgets 2012-2013		**Project 'Creating employment opportunities and ensuring effective e-waste management in Cambodia'**
Programme Component	**Objective**	**Development goals and immediate objectives**
C.1.4: Women and Youth in Productive Activities	To promote pro-poor industrial development through the participation of women and youth in productive activities.	Strengthened capacities of youth sector to support the increase in employment and business opportunities in the electronic industry. (immediate objective 1)
C.3.2: Resource-efficient and Low-carbon Industrial Production	To support reduced consumption of natural resources, greenhouse gas and other emissions and industrial wastes in industrial processes.	E-waste management skills, knowledge and practices are improved. (immediate objective 2)
C.4.2: Support to the Least Developed Countries	To provide strategies and services for the sustainable development of LDCs.	The electronic industry in Cambodia is supportive and effective in promoting economic and environmental sustainability. (development goal)
Table: Evaluation team, based on Programme and Budgets 2012-2013, Industrial Development Board, UNIDO, IDB.39/13/Rev.1, 2 June 2011; and the project document 2012.		

Finding: The project is designed based on a logical framework. While the original design did not meet all criteria of results-based management, some of the weaknesses have been removed over time.

The project document provides an intervention logic outlining the different results levels (impact, outcomes, and outputs) and planned activities. The expected results are supplemented by indicators in order to verify their achievement (Table 9). At a general level, the intervention logic is quite clear: the project aims at making the electronic industry in Cambodia more economically and environmentally sustainable. This through strengthening the employment opportunities of youth and improving e-waste management skills, knowledge and practices.

However, the intervention logic is formulated in a rather general manner like for example the *development goal* (impact). First, the goal is about the 'electronic industry'. This goes beyond e-waste/e-repair. Second, the promotion of economic and environmental sustainability is also very broad.

Similarly, the indicators at the impact level are very general. The first indicator about employment is set at the overall electronic industry level. The second indicator, the no. of partnerships, is unclear in the sense that it is not clear what is meant by 'partnerships'.

In general, the development goal is not specific enough and progress is not measurable as

[21] Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014, p. 18.

there are no baselines and targets.

The *immediate objectives* (outcomes) are also formulated rather vaguely. What exactly does it mean 'strengthening capacities of youth sector to support the increase in employment and business opportunities in the electronic industry'? Looking at the related indicator, it seems to be about youth employment in the e-waste and e-repair sector.

Also the second *immediate objective* is not quite clear: 'e-waste management skills, knowledge and practices are improved'? It is for example not clear whose skills, knowledge and practices should be improved: Youth? MSMEs? Government? The indicator 'local strategies' is also stated in rather general terms.

Table 9: Impact and outcomes (according to project document)

	Intervention logic	**Objectively verifiable indicators**
Development goal/impact	The electronic industry in Cambodia is supportive and effective in promoting economic and environmental sustainability	Average percentage increase of employment and business opportunities in electronic industry Increased no. of partnerships through efforts in reducing unfavourable environmental impact of e- waste products
Outcome(s)/ immediate objective(s)	1) Strengthened capacities of youth sector to support the increase in employment and business opportunities in the electronic industry 2) E-waste management skills, knowledge and practices are improved	Percentage increase in number of youth sector who are self-employed or employed in repair services or recycling/refurbishing industry/ e-business related Available local strategies supporting e- waste management
Table: Extract from logical framework, project document 2012.		

At the *output level*, the project document is more specific. In particular the revised project document for the partnership with Samsung sets measurable targets for the indicators relevant to the Samsung component (Table 10).[22] For example, it sets a clear target to train at least 30 experts/trainers and at least 130 youth.

However, some indicators are not adequate for measuring outputs. For example, the indicator 'no. of youth … *employed* after the trainings' goes beyond the output and is an indicator for outcome or impact as it clearly goes beyond the control of the project. Similarly, 'increase in *demands'* is an indicator at the behaviour level and therefore at the outcome or impact level and not at the output level.

As the project evolved, output targets and success indicators were further refined, in particular based on a revalidation after the first year. Annual progress reports (2012, 2013, 2014) include work plans with specific 'output targets' and 'success indicators'. As will be shown in the chapter on effectiveness, using these targets and the target in the revised

[22] There were two project documents: one for KOICA and one for Samsung Electronics.

project document allowed the project to provide a systematic reporting with regard to the number of trained beneficiaries and their employment status.

The project document does not include a theory of change. The evaluation team reconstructed a project theory of change together with the project team. The theory of change is analysed in the chapter on effectiveness (also see Table 15 below).

Table 10: Outputs (according to project documents)

	Main project document of KOICA-UNIDO Cooperation		**Project revision document: partnership with Samsung Electronics**
	Intervention logic	**Objectively verifiable indicators**	**Objectively verifiable indicators**
Outputs	Developed/improved knowledge and skills of youth sector in electronic products repair services and e-waste related businesses	No. of youth trained and employed after the trainings	No. of youth trained and employed after the trainings -At least 30 experts/trainers trained (at least 20 experts trained by Samsung for repair services during the implementation of the project) - At least 130 youth trained during implementation of the project (90 youths for repair service)
	Improved access to information of market for e- products repair services and e-waste related businesses	Increase in demands for, and in establishment of, e-repair services and e-waste related businesses	Increase in demands for, and in establishment of, e-repair services and e-waste related businesses At least 15% increase in demands for, and in establishment of, e-repair services and e-waste business (base: Demand of Samsung will increase by 50%. M/S of Samsung is 30% in the market. So 15% can be reached at least.)
	Strengthened small businesses including e-products repair services, e-waste business, e-business	No. of small enterprises with increased capacities	No. of small enterprises with increased capacities
	Effective e-waste management promoted through capacity & knowledge building and policy advocacy activities	Number of targeted beneficiaries from both public and private sectors capacitated Pilot manual dismantling facility established No of partnerships with international OEMs and downstream partners Policies reviewed or formulated	Number of targeted beneficiaries from both public and private sectors capacitated
	Sustained and replicated results through effective project management, monitoring and evaluation	Number of local businesses/business associations, local institutions, national government organizations, NGOs replicating and sustaining the project	Number of local businesses/business associations, local institutions, national government organizations, NGOs replicating and sustaining the project

Table: Extract from logical framework, project documents 2012.

B. Effectiveness and impact - theory of change analysis

Finding: The project has delivered most of the planned outputs at good quality. The studies commissioned by the project address the lack of data on e-waste and the project has trained more trainees than originally planned. Most of the outputs are the result of public and private partners working together. Some outputs are behind schedule.

The project has delivered 6 studies/papers, 17 trainings, 5 workshops and two study tours (Table 11). In addition, it produced a number of promotion materials (i.e. fact sheets, newsletters, a video).

Table 11: Outputs delivered by the project

Outputs (summary)	**Outputs in detail**	**Main public-private partners**
6 studies/papers	– 1 project inception phase report (2013); – 1 baseline survey conducted 'Support to access to information and strengthening small businesses through data collection' (Angkor, 2013); – 1 comprehensive assessment of e-waste in Cambodia, conducted by the Ministry of Environment in collaboration with UNIDO (MoE, 2013); – 1 scoping mission report for entrepreneurship creation and development, (UNIDO, 2014); – 2 mission reports by implementing partners with project recommendations (EMPA, 2013; Sofies/WRF, 2014).	MoE, UNIDO, KOICA
Project progress reports, fact sheets and video	– 3 annual project progress reports – 4 project fact sheets/newsletters – 1 project video	UNIDO
17 trainings	(Table 12 below)	Samsung, NTTI, KOICA, KOICA
5 workshops	(Table 13 below)	MoE, NTTI, KOICA, UNIDO
2 study tours/ technical exposure visits	– 1 study tour to the Republic of Korea for eight Cambodian government officials (9-15 November 2013) – 1 technical exposure visit to Samsung facilities in Thailand: 11 participants (trainees of ToT and project counterparts) (4 days in 2014)	MoE, NTTI, Samsung, KOICA, UNIDO

Table: Evaluation team, based on progress reports and 'List of trainees', UNIDO, March 2015 (excel summary of all trainings and workshops).

Studies/papers

The lack of data on e-waste management landscape in Cambodia was a serious constraint in

the past. To address the lack of data was one of the key objectives of this project. This has been addressed by the studies/papers produced in the context of the project. They are perceived to be very useful by stakeholders. As such, one of the key expected results of the project has been achieved. The evaluation team reviewed the studies. The six studies listed in Table 11 above contain a wealth of data on e-waste in Cambodia, including definitions, concepts and stakeholder mappings. For example the baseline survey conducted by Angkor Research provides a highly illustrative and informative figure showing monthly e-product flows with the EEE sector.[23] Also, the comprehensive assessment on e-waste management in Cambodia conducted by the Ministry of Environment in collaboration with UNIDO provides for example an estimation of reusable/recyclable materials and residues generating from repairing process.[24]

Trainings

Under the Samsung funded component, the project had a target to train at least 30 trainers and 130 youth on installation and repair services.[25] By March 2015, the project had trained 60 trainers and 191 youth on installation and repair services of five electronic and electric products - mobile phones, air conditioners, TV sets, washing machines and refrigerators (Table 12 below). Moreover the project trained 25 trainers on the impact of e-waste on social economy, human health and safety and environment. In addition, the project has trained 35 trainers/counsellors and 40 trainees as part of the entrepreneurship development programme. There was no target for the entrepreneurship training in the original project documents.

Training of entrepreneurs on basic enterprise management skills, Siem Reap (Photo: Evaluation Team, 25 March 2015)

The project gave a prime emphasis on training trainers. In total, the project trained 356 persons of which 125 were trainer/counsellors and 231 were trainees (Table 12 below).

Trained trainers and trainees provided an overall positive feedback on the quality and usefulness of the training in terms of skills upgrading. The visits to Samsung Service Centre was also appreciated by participants.

The evaluation team identified a few issues affecting to some extent the usefulness of the trainings:

[23] Baseline Survey: Support to access to information and strengthening small businesses through data collection "Transforming e-waste into job and business opportunities", Angkor Research and Consulting Ltd, July 2013, p. 64, 65.
[24] Report - Comprehensive Assessment on E-waste Management in Cambodia, MoE's Technical Working Group, October 2013, p.65.
[25] Project revision document: partnership with Samsung Electronics, 2012.

- The fact that the training on installation and repair of electronic products focused on Samsung products is seen as a limitation by some participants, although it was agreed that most skills acquired can be used for products of other brands too.
- The Samsung experts made their deliberations in Thai. However, it was not viewed as a major constraint as translation worked smoothly.
- It was stated that some trainers lack the practical experience of running an installation and repair shop. The comment was made related to both types of training (installation and repair services and entrepreneurship training)
- The duration of the training is an issue that affects its usefulness. As originally planned, the training during the 1st roll out training was 5 days. This was considered too short. After the inception phase, the trainings during the 2nd roll out was extended to 10 days. The required duration depends to a large extent on participants' skills. For participants without basic skills, also 10 days are seen as too short. For more experienced participants, a 5 day skills upgrading on one or two products can be sufficient. This issues has been recognized by the PMU. It is envisaged to improving the needs assessment in future.

Table 12: Trainings – overview (status 31 March 2015)

Training	Location	Total # of participants	# of female participants	Date
Installation and repair service of electronic products				
1st Training of Trainers, Installation and Repair Service (HHP, AV and HA)	National Technical Training Institute	30	2	Dec 13-29, 2012
2st Training of Trainers, Installation and Repair Service (HHP, AV and HA)	National Technical Training Institute	30	3	Feb 17-22, 2014 March 17-22, 2014
Sub-total		60	5	
1st Roll Out Training, Installation and Repair Service	Kampong Cham PTC	15	-	June 03-07, 2013
	Battambang Institute of Technology	15	1	June 10-14, 2013
	Siem Reap PTC	15	-	June 17-21, 2013
	Banteay Meanchey PTC	15	-	June 23-27, 2013
	National Technical Training Institute	20	2	August 12-16, 2013
	Siem Reap PTC	30	1	August 26- September 02, 2013
2nd Roll Out Training, Installation and Repair Service	Kampong Cham	15	1	June 3-13, 2014
	Siem Reap PTC	15	-	June 16-27, 2014
	Banteay Meanchey PTC	15	-	July 7-18, 2014
	Battambang Institute of Technology	15	4	July 21-31, 2014
	National Technical Training Institute	21	1	Aug 18-28, 2014
Sub-total		191	10	
Entrepreneurship development programme[a)]				

Training of Trainers on Entrepreneurship Development	National Technical Training Institute	20	4	Nov 24-29, 2014
Training of Counsellors	National Technical Training Institute	15	3	Feb 11-14, 2015
Sub-total		35	7	
Training of entrepreneurs	National Technical Training Institute	16	2	Feb. 26-27, 2015
	Siem Reap PTC	24	2	March 24-25 and 30-31, 2015
Sub-total		40	4	
Impact of e-waste on social economy, human health and safety and environment				
Training of Trainers on the impact of e-waste on social economy, human health and safety and environment	Kampong Cham	30	4	25-27 February 2015
Total		356	26	

[a)] The trainees partially overlap with the trainees of the training on installation and repair service.
Table: Evaluation team, based on project data.

Workshops

In the context of the project, five workshops were organised (Table 13). For example, an orientation workshop on UNIDO's e-waste approach was conducted for senior staff of the Ministry of Environment. In total, 227 persons participated in all five workshops. Based on interviews with some participants, the workshops were appreciated. At the same time, it was mentioned that there is a diminishing return of awareness creation workshops and that the emphasis should shift from awareness building to implementation and action by Government and private sector.

Table 13: Workshops – overview (status 31 March 2015)

Workshop	Location	Total # of participants	# of female participants	Date
National workshop on electronic industry	Sunway hotel, Phnom Penh	40	6	Nov. 1, 2012
Orientation on e-waste management	Phnom Penh hotel, Phnom Penh	43	11	Feb 6-7, 2014
UNIDO's Entrepreneurship development/ Programme for productive work for Youth	InterContinental hotel, Phnom Penh (with participants from provinces)	50	12	July 17, 2014
Orientation on collection efficiency, dismantling techniques	Sunway hotel, Phnom Penh (with participants from provinces)	35	6	Aug. 1, 2014
National consultation workshop on awareness raising on e-waste management in Cambodia	Phnom Penh hotel, Phnom Penh	59	16	Jan. 23, 2015
Total		227	51	

Table: Evaluation team, based on project data.

Study tours

The project organized two technical study tours. A technical exposure visit (9-15 November 2013) to the Republic of Korea was organized for eight Cambodian governmental officials who were exposed to current e-waste management practices and technologies. A second study tour was organized to visit Samsung facilities in Thailand (December 2014). Eleven participants including eight former trainees of the Samsung-led TOT participated in the four-day exposure visit to the production chain of Samsung and the management of e-waste generated by the repair services. Interviewees praised the study tours.

Public-private partnership

The public-private partnership between the Royal Government of Cambodia, KOICA, Samsung Electronics and UNIDO has enabled most of the outputs. For almost all outputs, several partners made a contribution in one way or another (i.e. expertise, in-kind or financial contributions) (Table 11 above). The public-private partnership was particularly relevant for the skills and knowledge transfer as well as the capacity building at the institutional level through the training of the trainers and the exposure visits to the Samsung facilities in South Korea and Thailand.

Challenges in project implementation

The project is behind schedule with some planned outputs:

- The project intended to facilitate the establishment of a pilot manual dismantling facility for e-products. The facility is not yet established and it appears to be unlikely to happen before the end of the project due to priorities of the government and this initiative needs further discussion with the government However, work has been initiated, international experts delivered a report[26] and COMPED, a local NGO, is currently conducting a baseline study (March/April 2015) that would support the formulation of the business plan. Once the business plan is formulated and the stakeholder platform is initiated these are considered milestones in establishing the manual dismantling facility. Due to the project's duration and budget, the establishment of the facility is seen as a very ambitious objective. Thus, only initial work can be undertaken during the project period.
- While NTTI has played a key role in conducting the pilot training on installation and repair, the permanent curriculum on 'installation and repair services' - planned for 2014 – is not yet developed by NTTI.[27] The timing for the curriculum development was re-adjusted to 2015 due to NTTI's priorities and required further discussion with donor

[26] Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, October 2014.
[27] Progress Report 2013, p. 19.

Samsung and UNIDO.

- The second phase of the comprehensive assessment of the e-waste landscape hasn't been completed as planned. The Ministry of Environment proposed to UNIDO to implement the second phase at a later stage. The activity was initially planned for 1st half of 2014 but is expected to be implemented during the 2nd half 2015. [28]
- An overall awareness raising and capacity building strategy – proposed by UNIDO to the Ministry of Environment – is not in place. The strategy is important as this will guide the future integrated activities in building capacities as well as advocating the issues related to e-waste. Wider outreach is important for the overall impact of the interventions. [29]
- The development of the technical guidelines on e-waste by the Ministry of Environment – with UNIDO support - has been postponed. UNIDO and MoE agreed to postpone the activity until the endorsement of the sub-decree so as to align the development of technical guideline with the new regulation. The sub-decree is expected to be signed in 2015.[30]

Finding: At the outcome level, the project has created awareness and built capacity on e-waste management at the national (central Government level) and at sub-national level in four provinces and one city. While the training programme has successfully transferred knowledge and skills on *installation* and *repair* services (non-waste) as well as entrepreneurship, the knowledge and skills transfer related to e-waste management in the narrow sense - *dismantling*, *recycling*, *disposal* - has been moderate.

The project has created awareness and built capacities on e-waste management among Government officials at central and province level through the reports/studies, trainings, workshops and study tours. The high awareness and interest in e-waste management was demonstrated during the interviews with Government officials conducted during this evaluation. In addition, the fact that the Government is working towards a sub-decree on e-waste management is an indicator that the Government is committed to addressing the issue of e-waste. While the project did not directly support the development of the sub-decree (the main supports to the development of the sub-decree is provided by the Government of Japan) it is fair to suggest that the projected activities also significantly contributed to the increased awareness of e-waste in the Government and thereby to advancing the sub-decree. The evaluation team also found significant awareness in the Department of Environment in Siem Reap that was visited during the evaluation.

The training programmes have successfully transferred knowledge and skills on installation and repair services as well as entrepreneurship. This is evident from the project progress reports and was confirmed during interviews with trainees and trainers. Knowledge and skills transfer related to e-waste management in the narrow sense - dismantling, recycling

[28] Ibid, p. 19.
[29] Ibid, p. 19.
[30] Ibid, p.19.

and disposal - was moderate. The training on installation and repair addresses e-waste management to some extent, but the focus was on installation and repair (non-waste). It can be argued that repairing electronic products contributes to a reduction of e-waste. Interviews with trainers and trainees reveal that in the entrepreneurship training, the issue of e-waste management was largely absent. Moreover, there was a rather weak link between the training on installation and repair and the training on entrepreneurship. Only 9 out of the 24 participants in the observed entrepreneurship training participated in the repair training. Some participants are apparently more in the business of selling electrical and electronic products (including SIM cards) than in the business of repairing the same.

In general, there are indications that not all modules are equally attractive to participants. Youth were not interested in applying for the module on installation and repair of household appliances (refrigerators and washing machines and to some extent air conditioners).[31] PMU suggests that one of the main reasons is the limited usage of these household appliances in Cambodia, specifically in rural areas. This is a project design weakness and should have been know at the outset. NTTI and UNIDO agreed to review the number of modules to be taught during the 3rd roll-out training and are considering cutting the module on washing machines and refrigerators. The focus will be placed on mobile phones, TV sets and air conditioners.

Finding: At the impact level, the project has improved the employment and/or income situation of many trainees that benefitted from the project. As of now, the impact on the environment is moderate.

Impact on employment and income

The Project Management Unit has made an extra effort to keep track of the roll-out trainees on installation and repair services and their employment status (Table 14). Based on this record, one finds that the training programme has improved the employment situation of many participants.

Shop owner and trainee on installation and repair services in his shop, Phnom Penh (Photo: Evaluation Team, 27 March 2015)

The data shows (Figure 1) that by February 2015, among 191 persons trained, 15% (30) own a repair shops, 40% (76) got employed, 17% (32) are pursuing study for higher degree, and 6% (11) are unemployed while 22% (42) do not have a status as they could not be contacted. If only those participants are considered for which information is available (149), 20% (30) own a repair shop, 51% (76) got employed, 22% (32) are pursuing study for higher degree, and 7% (11) are unemployed (Figure 2). Data was compared with data established prior to the training (baseline).

[31] Ibid, p.31.

Interviews with trainees on the installation and repair services confirm that the training was beneficial to them. Not only did the training contribute to an improved employment situation, it also improved their income. For example, a trainee in Seam Reap stated: *"After the training I got more customers as they are now confident in my capabilities. My income increased from USD 150 to more than USD 350 per month."*[32] Another trainee interviewed during the evaluation mission (photo) has employed two persons and several interns who are now being trained.

Table 14: Employment status of the roll-out trainees on Installation and Repair Services (status February 2015)

The employment status of the participants of the roll-out training on installation and repair services is presented in Figure 1. As of February 2015, among 191 youths trained, 15% (30) own a repair shops, 40% (76) got employed, 17% (32) is pursuing study for higher degree, and 6% (11) is unemployed while 22% (42) do not have status as they could not be contacted. Among the 40% that got employed, 22% (41) used trained skills as primary function in their respective work while 18% (35) used trained skills as secondary/additional functions which were important for them in landing the jobs.

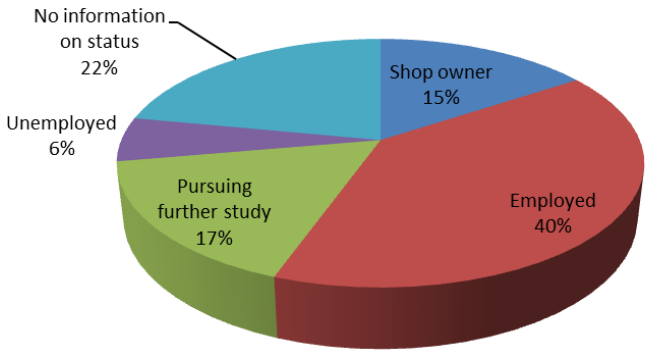


Figure 1: Employment status of the roll-out trainees

The percentage of the trainees who either own repair shops or got employed increase if we consider only those with the status as illustrated in Figure 2.

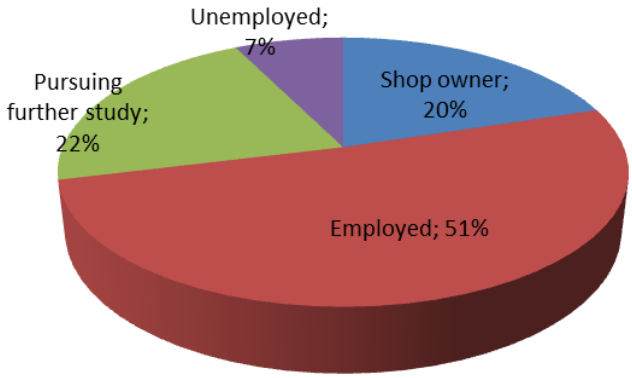


Figure 2: Employment status of the roll-out trainee (consider only participant with status information)

Table: Employment status of the roll-out trainees on Installation and Repair Services - as of February 2015, Project Management Unit.

[32] Transforming e-waste into job and business opportunities in Cambodia, Newsletter, Issue 2, UNIDO, 2014, p. 2. The same trainee confirmed the increased income during the interview with the evaluation team.

Impact on the environment

While the PMU measured the impact of the project on the employment situation, no such data is available with regard to the project's impact on the environment. We have addressed this by using a *theory of change analysis*. A theory of change analysis can provide some indication of the project making a difference at the impact level. We have reconstructed a theory of change based on the project document and the logical framework and based on discussions with the project team (Table 15 below). The wording in the theory of change is to some extent different to the wording in the original project document and logical framework, as the project has evolved over time and the interventions have to some extent been reshaped after revalidation during the first year.

The arrows show the *pathway of change*. Activities lead to outputs, outputs lead to outcomes and ultimately impact. Some of the *activities* and *outputs* contribute to both project *outcomes*. We have included *assumptions* (hypotheses) which are behind the intervention logic. Only if the assumptions are accurate, project outcomes can lead to long-term *development goal*s (impact).

Based on our analysis, the finding is that as of now the impact on the environment is moderate because the progress at the outcome 2 level is moderate and two out of three assumptions behind the intervention logic leading to environmental impact are uncertain. The detailed analysis and assessment looks as follows:

Outputs	Findings	Assess-ment
(1) Youth trained in repair and installation of e-products as well as entrepreneurship	The project trained 60 trainers and 191 trainees. The number of youth trained above target. Curriculum on 'installation and repair services' is not yet developed.	+ + + +
(2) Improved access to information on e-repair services and e-waste related business	The project has delivered five workshops and several studies/papers. The second phase of the comprehensive assessment of the e-waste landscape is not completed yet.	+ + + +
(3) Strengthened MSMEs in e- repair services, e-waste business and entrepreneurship	Scoping mission report for entrepreneurship creation and development. The project has trained 35 trainers and 40 trainees on entrepreneurship.	+ + +
(4) Effective e-waste management promoted through capacity & knowledge building and policy advocacy activities	Two study tours conducted. Pilot manual dismantling facility for e-products not yet established. Overall awareness raising and capacity building strategy lacking.	+ +

(public & private sector)	Development of the technical guidelines on e-waste postponed.	
Outcomes	**Findings**	
(1) Strengthened institutional and local capacities including youth in e-waste management and fostered entrepreneurship	While the training programme has successfully transferred knowledge and skills on installation and repair services (non-waste) as well as entrepreneurship, the knowledge and skills transfer related to e-waste management in the narrow sense - dismantling, recycling, disposal - has been moderate.	+ + + +
(2) Improved e-waste management and business plan developed	The project has created awareness and built capacity on e-waste management at the central Government level and in four provinces. However, several outputs that would contribute to outcome 2 are behind schedule (output 4). In the trainings, the knowledge and skills transfer related to e-waste management in the narrow sense - dismantling, recycling, disposal - has been moderate.	+ + +
Assumptions	**Findings**	
(a) Potential for job creation for low skilled & low income population incl. youth in the e-waste/non-waste sectors	There is a significant potential for job creation for low skilled and low income population incl. youth in the e-waste/non-waste sector. Note (I): The potential for youth with basic skills in urban or sub-urban areas is higher than for unskilled youth in rural areas. Note (II): The potential for women is theoretically high, in reality however rather limited.	☑
(b) Sufficient economic incentives to work in the e-waste/non-waste sector	The assumption is confirmed. E-waste has a value in Cambodia. There is a large marked for UEEEs and there is demand for the repair business. Note I: it appears that only repair business may not generate sufficient income and that the repair business in combination with selling new EEE and/or UEEE is required (incl. for example the selling of SIM cards). Note II: not all EEE/UEEE provide sufficient economic incentives for small shop owners. While the mobile phone market appears to provide sufficient incentives, the evidence for other EEE is less evident.	☑
(c) Policy/legislative framework supports e-waste sector	This assumption is uncertain. The sub-decree on e-waste management is not yet approved. Once approved, enforcement will be critical.	?
(d) MSMEs in e-waste/ non-waste sector contribute to reduction of environmental impact	The assumption is confirmed. There are many MSMEs involved in the repair, refurbishing and recycling business.	☑
(e) Business model defined for efficient e-waste	This assumption is uncertain. A business plan for a pilot manual dismantling facility does not yet exist.	?

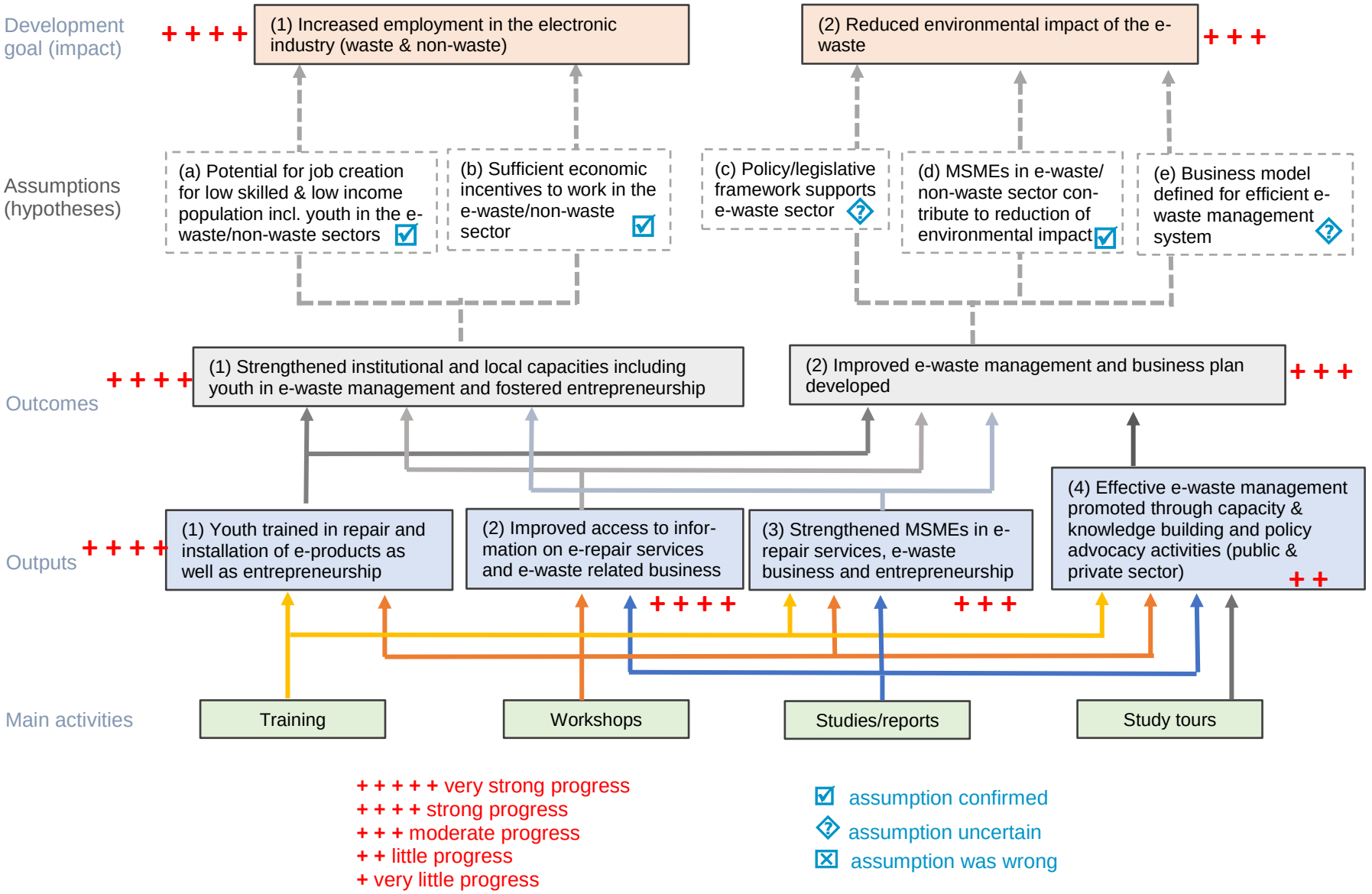
management system

Development goal	Findings	
(1) Increased employment in the electronic industry (waste & non-waste)	The project has improved the employment and/or income situation of many trainees that benefitted from the project.	+ + + +
(2) Reduced environmental impact of the e-waste	As of now, the impact on the environment is moderate, because progress at the outcome 2 level is moderate and two of the three assumptions behind the theory of change leading from outcome to environmental impact are uncertain.	+ + +

+ + + + + very strong progress
+ + + + strong progress
+ + + moderate progress
+ + little progress
+ very little progress

☑ assumption confirmed
? assumption uncertain
☒ assumption was wrong

Table 15: Theory of change analysis



C. Sustainability

Finding: The finding regarding the sustainability of project benefits is mixed. While some factors contribute to sustainability - Government ownership and awareness, capacities built, sub-decree if approved and enforced - other factors are likely to impede the sustainability – lack of integration into NTTI curriculum, limited availability of equipment/tools, uncertain continuation of public-private partnership, limited financial resources.

The project document has dedicated a chapter on sustainability.[33] In the respective chapter, different dimensions of sustainability are addressed. First, the project intends to increase *institutional sustainability* through institutional capacity building for both public and private sector. This has happened. As shown in the chapter on effectiveness above, the project has built capacity at the central level (Ministry on Environment) and NTTI, as well as in the Departments on Environment and the Regional Training Centres in four provinces. The awareness and capacity built will stay on and influence Government behaviour beyond the project. The UNIDO PPP evaluation found that "*A factor which may work in favour of sustainability is the fact that a number of national governments or institutions are involved and show a keen interest in the continuation of the activities".* [34] As seen in the chapter on relevance above, the Government has a strong ownership of the project activities – a key ingredient for the sustainability of the project's benefits.

In addition, the training of the trainers (TOT) is an approach that will have a lasting effect and the trained youth and entrepreneurs will use acquired knowledge and skills beyond the project duration. Moreover, the trainees themselves contribute to some replication effects: some trainees interviewed for this evaluation reported that they have passed on skills acquired during the training to employees or interns.

However, when it comes to the training, we also found several constraints which can affect the sustainability of project benefits. First, the training on installation and repair services has not yet been integrated into the curricula of NTTI which was planned for 2014[35] and which would guarantee a continuation after the project. The integration may still happen if there is sufficient demand for the training.

Second, the training on installation and repair services requires equipment, i.e. on the one hand *equipment* to be installed or repaired and on the other hand *tools* for installation and repair works. For example, the tools purchased by the project to demonstrate repairing mobile phones include 43 items (Table 16). After a training course, equipment and tools used during the training are returned to NTTI in Phnom Penh leaving the Regional Training Centres with little which will limit the training possibilities in future.

A similar limitation affects the trainees – the ultimate beneficiaries. While the trainees of the install and repair service training are likely to continue using the acquired skills, a lack

[33] Project Document 2012, p. 31.
[34] Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014, p. 36.
[35] Progress Report 2013, p. 19.

of tools will to some extent constrain these possibilities. Tools are either expensive or not easy to find on the market (e.g. the pump to extract the gas from the fridge and the air con).

Table 16: Tools to repair mobile phones

HHP box (purchased by the project)			
Clip Amp digital meter	Vacume pump 1.5A	Pressure Gauge (Mainfold gauge) R134a, R600	Tool Box
Analog Multimeter	Folding wrench	Pressure Gauge (Mainfold gauge) R22, R410	Tube Bender
Pressure Gauge (mainfold gauge) R134a, R600	Pipe expander	Charged Driver (Drill)	Copper pipe1/2 inch roll 15M (0.72)
Pressure Gauge (mainfold gauge) R22, R410	Ladder 3 step	Double ended spanner	Acetylene Set
Professional Tool Box	Vice grip pliers	Socket Wrench set	Airflow meter
Charged Driver (Drill)	Go Through socket Wrench (10mm)	Vacuum pump 1.5A	Tube bending springs
Long nose	Recovery Valve	Folding wrench	Screwdriver set (+)
Nipper (cutting tool)	Digital Scal	Pipe expander/cutter set	Screwdriver set (-)
Double ended spanner	Tool Box	Vice grip pliers	Monkey spanner (250mm)
Cutter (big)	Tibe Bender	Go Through socket Wrench (10mm)	Monkey spanner (300mm)
Socket Wrench set	Climp Amp digital meter	Recovery Valve	
Table: Based on list of equipment and tools for HHP, AV & HA training, PMU, 30 May 2014.			

The second dimension addressed in the original project document relates to the *policy level stainability*. The development of a sub-decree on e-waste management is a positive development in this regard. If and when approved, it can have a long-lasting effect on e-waste management in Cambodia given sub-decree is also enforced.

The third dimension addressed in the project document is related to the *environmental sustainability*. The environmental dimension is obviously a key dimension of this project and the first two dimensions of sustainability should ultimately contribute to the environmental sustainability. A long lasting positive effect of the project on the environment will depend on many aspects and it is too early to arrive at a conclusive finding (see also above chapter on impact).

There are other dimensions of sustainability. The partnership between NTTI and Samsung is currently planned for the duration of the project. Whether or not the partnership will continue beyond the current project phase is uncertain.

Finally, there is the funding issue. Currently, most activities are funded through the project, in particular also the training courses. No fees are charged. Discussions with various stakeholders and beneficiaries show that charging fees for the training might be difficult or only at a very low level which could not sustain the cost of the training (e.g. trainers receive 60 USD per day from the project).

According to the Ministry of Environment, starting in 2015 the Royal Government of Cambodia provides USD 5 million annually on integrated solid waste management for the 25 provinces and cities. It is expected that e-waste management will also benefit.

D. Efficiency

Finding: Most of inputs and services were adequate and provided in a timely manner. In addition, the project is advanced in terms of delivery rate. However, several issues emerged which impede on the overall project efficiency, like the currently rather low ratio trainer/trainee or the rather high cost per trainee.

By and large, the inputs provided by the project partners, i.e. KOICA, Samsung, MoE, NTTI and UNIDO have been provided in a timely manner, are adequate and of good quality. No major complaints were raised during interviews. The Samsung experts were appreciated by trainers and trainees. The UNIDO international experts were well selected.[36]

Moreover, the project is advanced in terms of delivery rate. In 2014, the delivery rate was 102%. As of April 2015, the project had expenditure of USD 961,634.59 of the total available USD 1,150,442.49. As such, by April 2015 83.6% has been implemented (Table 4 and 5 above).

Nevertheless, during project implementation, several issues emerged which impede on the overall project efficiency as follows:

Issues	Findings
Identification and selection of youth to participate in trainings	The efforts required to identify youth to participate in training was labour intensive. As the project faced difficulties in mobilizing youth for the training programmes, project staff had to go from business to business to promote the training. One PMU staff stated having visited over 400 shops. It was also mentioned that the selection of participants was at time done by PMU and NTTI staff without full consultation with the local PTCs.
Deployment of trainers	It was noted that at times trainers from NTTI were deployed to trainings in the provinces thereby reducing the use of the trained local trainers.

[36] The international experts on e-waste management are from Switzerland, a country which is a pioneer and leader in e-waste management. In addition, the experts have over 10 years e-waste management experience in developing countries.

Ratio trainers/ trainees	The ratio of trainers/trainees appears not to be favourable. Until now, 60 trainers and 191 trainees have been trained in installation and repair services (Table 12 above). According to the work plan for 2015, a 3rd roll out training on installation and repair services for at least 30 youth in pilot provinces is planned.[37] By the end of the project in August 2015, approx. 220 youth will be trained. On average, each trainer will have trained about 3.7 trainees. While this is a rather crude calculation, it is not a favourable ratio. However, if the trainers continue providing the training beyond the project duration, the ratio will obviously improve.
Cost per trainee	The cost per trainee appears to be rather high. The total expenditure for output 1 is USD 371,018. 24 (February 2015, Table 5 above). These are broadly the costs for the training of 60 trainers and 191 trainees (youth) on installation and repair services including the required equipment. Using a crude calculation, this results in an average training cost per person of USD 1,478 per person (USD 371,018.24/251). As a comparable training at a skills training institution in Cambodia would not exceed USD 500, this seems high. However, if the trainers continue providing the training beyond the project duration, the cost per trainee will decrease.
DSA for trainees	The project pays USD 20 to 25 per trainee per day to cover expenses. Given the daily income of a repairer estimated at USD 10 to 15 per day, this may create a *financial* incentive to participate in the training which would not be the right incentive.
Government processes	It was mentioned during interviews that government processes can be time consuming at times, delaying activities.
Delays in 2013[38]	– the second TOT on installation and repair service – the phase II of the comprehensive assessment of the e-waste landscape – implementation of local capacity building and awareness raising activities
Delays in 2014[39]	– the establishment of a pilot manual dismantling facility – the development of a curriculum on 'installation and repair services' – the phase II of the comprehensive assessment of the e-waste landscape – awareness raising and capacity building – the technical guidelines on e-waste by the Ministry of Environment

[37] Progress Report 2014, p. 32.
[38] Progress Report 2013, p. 15, 16.
[39] Progress Report 2014, 30.

Delay in fund transfer	Some delay in fund transfer to implementing partner (NTTI) was recorded in 2014.
Submission of activity reports	It was stated that the submission of reports from few local partners were delayed which affected the overall reporting of the project to the donors.
UNIDO procurement services	At times there is a conflict between UNIDO rules on the one hand and supplier rules on the other hand. UNIDO rules require payment of equipment only after receipt of equipment. Some suppliers, however, insist on advance payment. It was mentioned that the limited local authority to source and procure internationally can lead to delays as procurement has to go through UNIDO Bangkok or Vienna. The PMU has full authorization to procure up to Euro 2,000. Beyond that amount, the procurement has to go through headquarters because the project manager is based in Vienna who has to sign/approach procurements. Also the PMU is not fully acclimated with the SAP processes.
Subcontracting to Government entities	The list of subcontracts (Annex 8) shows that the Royal Government of Cambodia is also implementing partner of some of the project activities. As the Government is also in the Steering Committee of the project this can potentially create some conflicts of interest in terms of oversight (however, non has been reported to the evaluation team).

E. Project coordination and management

Finding: Overall, the project has been coordinated and managed efficiently and effectively. Key components are the Project Steering Committee and the Project Management Unit. The 'marketing' of the project in order to increase visibility and the coordination with other UNIDO activities are areas for improvement.

Interviews with stakeholders show that overall there is satisfaction with the coordination and management of the project. UNIDO's country presence and knowledge as well as good connections to government and national institutions are seen as key factors. Also, UNIDO's competence in project design, implementation and management are valued.[40]

At the strategic level, the project is guided by the Project Steering Committee. All key stakeholders are represented in the Project Steering Committee (Table 17). Interviews with stakeholders show a high satisfaction with the value and functioning of the Project Steering Committee. For example, it was stated that UNIDO facilitated the communication between the Government and the donors very well.

[40] Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014, p. 26-28.

Table 17: Project Steering Committee (PSC)

The Project Steering Committee (PSC) is set up as an institutional mechanism to oversee the overall implementation of the project, provide advisory and monitoring functions and take decision regarding the direction of the project and its way forward. The PSC meets on a bi annual basis (in June and December) to enact the above functions and is co-chaired by the Ministry of Labor and Vocational Training and the Ministry of Environment as well as UNIDO. The representatives of KOICA and Samsung Electronics are invited to monitor the project at the local level and participate in the regular PSC meetings. In particular, the PSC meetings serve a threefold objective: : (i) review the progress of the project made during the past six months; (ii) approve the workplan for the next six months prepared by the PMU; (3) discuss and approve the challenges and additional activities deemed necessary for the successful implementation of the project. Five PSC meetings took place until now - in December 2012, June 2013, December 2013, June 2014 and December 2014.
Source: Inception Phase Report, UNIDO, 31 December 2013, p. 4.

In 2012, the Project Management Unit (PMU), headed by the National Project Coordinator (NPC) was established with the task to support the implementation and coordination of project activities at the country level (Table 18). Feedback from stakeholders show a high satisfaction with the functioning of the PMU. Also the progress reports reflect the many activities conducted by the PMU. [41] One of the key tasks of the PMU in terms of reporting is to keep a record of all participants in trainings and workshops.[42] Moreover, the PMU drafts the document 'employment status of the roll-out trainees on installation and repair services'.[43] The evaluation team could observe the PMU in action when organizing the evaluation mission. The PMU was operating professionally, i.e. timely and delivering the required support.

It was highlighted that the project management demonstrated high flexibility. For example, the project responded well to the high demand of training on mobile phones and expanded this training component accordingly.

It was suggested during interviews that the PMU could be further strengthened by providing it with increased delegation of authority. However, as stated in the Terms of Reference of the NPC there are limitations specifically on decisions about resources.

Finally, although the project management produced several newsletters and a video about the project, key stakeholders suggested that the 'marketing' (promotion) of the project could be further strengthened in order to give the project more visibility.

Table 18: Project Management Unit (PMU)

With the primary task to support the overall implementation and coordination of the project in the field, the Project Management Unit (PMU) was established in October 2012 within the National Technical Training Institute (NTTI) as an in-kind contribution from the Ministry of

[41] For example in Progress Report covering 1 January– 31 December 2014, 19 January 2015, p. 24.
[42] List of trainees, Project Management Unit, February 2015 (excel summary of all trainings and workshops).
[43] Employment status of the roll-out trainees on Installation and Repair Services, Project Management Unit, February 2015.

Labor and Vocational Training. The PMU is managed by a local staff recruited by UNIDO. The National Project Coordinator (NPC) was selected by a strict assessment process and assumed position on 1 November 2012 thus allowing the PMU to be fully operational shortly after its creation. For the speedy introduction into the day-to-day work, the NPC received a comprehensive briefing by the UNIDO Project Manager, with the support of the UNIDO Head of Operations in Cambodia. Field administrative support and logistics assistants were recruited to assist with the project implementation. Under the direct supervision of the UNIDO Project Manager, the PMU's role is to coordinate and facilitate the overall implementation of the project in close consultation/collaboration with the government counterparts and the Head of UNIDO Operations and ensure the timely delivery of the project outputs.
Source: Inception Phase Report, UNIDO, 31 December 2013, p. 5.

Quality assurance of the project and efficient use of the resources is the responsibility of the UNIDO Project Manager, initially based in the UNIDO office in Bangkok and later transferred to UNIDO headquarters in Vienna. The Project Manager is also responsible for the annual project progress reports. The evaluation team reviewed progress reports for the years 2012, 2013 and 2014 and found them to be of good quality as they provide a balanced account of activities conducted, results achieved and problems encountered.[44] They also include work plans for the upcoming years.

There appears to be limited synergies with other UNIDO projects in Cambodia. For example, there is very little interaction with the National Cleaner Production Office in Cambodia, an initiative which is also based in Phnom Penh and supported by UNIDO.[45] According to UNIDO staff, the National Cleaner Production Office is more involved in energy related issues and nothing directly on e-waste.[46] However, both areas are part of the overall UNIDO cleaner production priority.

F. Cross-cutting issues, with a focus on gender

Finding: The gender dimension did not receive much attention during the planning phase. During implementation though, the project made serious attempts to mobilize women for the training on installation and repair services, obtain data on women participation during the inception phase as well as entrepreneurship development. The number of female trainees, however, is very limited (7% on average) due to the strong traditional mind-set that the electronic industry is a primarily male industry.

In the project document, there are only few references to the gender dimension. For example when relating the project to the UNIDO technical assistance, the documents states "*the essential elements in this Programme are to create a business environment that encourage the initiatives of rural, young and women entrepreneurs…*".[47]Also the analytical

[44] For example problems encountered in Progress Report covering 1 January– 31 December 2013, 31 January 2014, p. 15.
[45] http://www.cambodian-cpc.org.
[46] Staff of the National Cleaner Production Office was not met during the evaluation.
[47] Project Document, 2012, p.7.

part of the project document includes very few gender disaggregated data.[48] In addition, the logical framework lacks gender related objectives, indicators and targets. Feedback from Steering Committee members confirms that the gender dimension did not receive much attention during the planning phase.

The Inception Report developed in 2013 does also not give much prominence to the gender dimension either. Only one gender reference could be found: "*Most of the staff at repair businesses are males (86.3% of the average number of staff)*".[49]

However, some studies commissioned by the project give considerable attention to the gender dimension. For example the baseline survey conducted by Angkor Research provides data on the female staff in the repair business, collection and dismantling business.[50] And the comprehensive assessment on e-waste management in Cambodia conducted by the Ministry of Environment shows for example that "*most of e-waste collector or recyclers are male and children, and all the collectors interviewed were single of which 80 % come from rural areas.*"[51]

Female mobile phone shop owner in Phnom Penh and participant in entrepreneurship training (Photo: Evaluation Team, 27 March 2015)

During the implementation of the project, the Project Management Unit made serious attempts to reach out to women when identifying female candidates for the training programmes. This was confirmed by several interviewees. Apparently, even some of the selection criteria were suspended.

However, results are sobering as only few women benefitted from the trainings. Around 7% women (26 out of 356) participated on average in all the trainings provided (trainers and trainees, Table 12 above). Of the 65 trained trainers on installation and repair service of electronic products, 9 were female (14%). Of the 191 trainees on installation and repair service, only 10 were female (5%) (Table 12 above).

Similar results were found for the entrepreneurship development programme. Of the 35 trained trainers/counsellors, 7 were female (20%). Of the 40 trainees, only 4 were female (10%). One of which is shown on the photo. The *training of entrepreneurs on basic enterprise management skills*, which was observed during the evaluation mission to Siem Reap (25 March 2015) had 24 participants of which only two were women.

[48] Siem Reap Provincial Profile 2011. „Gender is also balanced in the province, with 50.92% of the population being female…", Project Document, 2012, p. 41.
[49] Inception Phase Report, UNIDO, 31 December 2013, p.9.
[50] Baseline Survey: Support to access to information and strengthening small businesses through data collection "Transforming e-waste into job and business opportunities", Angkor Research and Consulting Ltd, July 2013, Tables 10, 14 and 17.
[51] Report - Comprehensive Assessment on E-waste Management in Cambodia, MoE's Technical Working Group, October 2013, p.89.

The share of female participants in the five *workshops* organized by the project is slightly higher. Of the total 227 participants, 51 were women (22%) (Table 13 above).

Credit can be given the Project Management Unit for recording above data. At the same time, the data regarding 'employment status' do not show figures for women.

The project management is aware of the challenge to increase the share of female participants. In the progress report on the year 2014, the issue is addressed. The report also offers possible explanations to the low participation of women: "*worldwide the sector of installation and repair service of electronic products is male predominant. … One of the reasons might be socio-cultural in addition to the dominant mind-set that women cannot perform technical activities."*[52] During discussions with stakeholders, the limited number of female role models was also mentioned as a possible explanation. Finally, the point was made that it was also difficult to address gender dimensions because they did not receive much attention during the planning phase.

IV. Conclusions, recommendations and lessons learnt

A. Overall ratings and conclusions

Based on the findings, the evaluation team has rated the key evaluation criteria (Table 19).

Table 19: Overall rating

Criteria	Findings	Evaluators' rating
Relevance and ownership	The project is relevant to the national development priorities of youth employment and sustainable waste management and it is strongly owned by the Royal Government of Cambodia. The project is also pertinent to the needs of the direct and ultimate beneficiaries The public-private partnership is seen as relevant by all partners involved in particular to have access and exposure to latest technology and expertise from the private sector (public sector interest) and to improve customer services as well as the image as responsible corporate citizen (private sector interest). The project is in-line with UNIDO priorities, in particular with regard to participation of women and youth in productive activities, reducing industrial waste and supporting LDCs.	Highly satisfactory
Effectiveness and impact	The project has delivered most of the planned outputs with good quality. The studies commissioned by the project address the lack of data on e-waste and the project has trained more trainees than what was originally planned. Some outputs are behind schedule.	Satisfactory

[52] Progress Report covering 01 January– 31 December 2014, 19 January 2015.

	At the outcome level, the project has created awareness and built capacity on e-waste management at the national (central Government level) and at sub-national level in four provinces and one city. While the training programme has successfully transferred knowledge and skills on installation and repair services (non-waste) as well as entrepreneurship, the knowledge and skills transfer related to e-waste management in the narrow sense - dismantling, recycling, disposal - has been moderate. At the impact level, the project has improved the employment and/or income situation of many trainees that benefitted from the project. As of now, the impact on the environment is moderate.	
Sustainability	The finding regarding the sustainability of project benefits is mixed. While some factors contribute to sustainability - Government ownership and awareness, capacities built, sub-decree if approved/enforced - other factors are likely to impede the sustainability – lack of integration into NTTI curriculum, limited availability of equipment/tools, uncertain continuation of public-private partnership, limited financial resources.	Moderately satisfactory
Efficiency	Most of inputs and services were adequate and provided in a timely manner. In addition, the project is advanced in terms of delivery. However, several issues emerged which impede the overall project efficiency, like the currently rather low ratio trainer/trainee or the rather high cost per trainee.	Moderately satisfactory
Project coordination and management	Overall, the project has been coordinated and managed efficiently and effectively. Key components are the Project Steering Committee and the Project Management Unit. The 'marketing' of the project in order to increase visibility and the coordination with other UNIDO activities are areas for improvement.	Highly satisfactory
Cross-cutting issues, with a focus on gender	The gender dimension did not receive much attention during the planning phase. During implementation though, the project made serious attempts to mobilize women for the training on installation and repair services, obtain data on women participation during the inception phase as well as entrepreneurship development. The number of female trainees, however, is very limited (7% on average) due to the strong traditional mind-set that the electronic industry is a primarily male industry.	Unsatisfactory
Overall rating		**Satisfactory**
Rating scale: Highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory		
Table: Evaluation team.		

Conclusions

This is a good project. It has picked two important subjects – e-waste management and youth employment. Both are relevant to the country and its people. It is innovative to address both issues at the same time. The approach chosen – research, capacity building and awareness creation - has delivered early results at the output, outcome and even some at the impact levels. The public-private partnership is a key component of the success of the project. Collaboration between partners is remarkable. Although some outputs are behind schedule, all partners have demonstrated strong commitment and have made important contributions to the project.

However, the evaluation team is of the view that this is only the beginning. Having witnessed the economic dynamics in Phnom Penh and Siem Reap, the electronic industry is bound to expand rapidly. After only three years, the full potential of the project has not yet unfolded. While the trainings have trained more persons than planned, the average of 3.7 trainees per trainer suggests, that there is a much bigger potential. Also, the cost per trainee points to a conclusion that the project has made a significant upfront investment and the full return on the investment is yet to come. At the employment level, over 50% of the youth being trained were employed or improved their existing business at the time of the follow-up interviews. This is a success. Nevertheless, the approximately 100 youth having found employment thanks to the UNIDO project is small in a country in which the working age population (15-64 years) is growing by about 300,000 persons per year.

A possible next phase will have to consider how to scale up the activities *within* and *beyond* Phnom Penh and the four provinces selected for the project. Reaching out to rural areas will be an additional challenge.

The focus on training on installation and repair of electronic equipment (non-waste) on the one hand and entrepreneurship on the other hand is reasonable as it provides employment opportunities for youth. At the same time, e-waste management in the more narrow sense – dismantling, recycling and disposal – has received comparatively less attention in the trainings. This should change in future as the volume of e-waste is growing.

Reaching out to women is a challenge. This is not because of lack of efforts of the part of the project team. However, the project must give it another chance and test different approaches to increase participation of women in project activities. New partnerships might be considered.

The focus on Samsung products in the trainings was reasonable to start the project. The time has come, however, to consider other companies in order to widen the product range. Moreover, a functioning e-waste management system in Cambodia requires the involvement of the most important producers of electronic and electric products (and/or their representatives).

In this regard, the use and volume of e-products must be closely monitored. The project must carefully consider which products to focus on. What happens for example to used

energy-saving lamps?[53] As seen in the findings section, the right selection of the products is also important for the training programmes.

The project has contributed to expanding the knowledge base and awareness on e-waste in Cambodia – through workshops, research, and study tours. Thereby, the project has arguably also contributed to the development of a sub-decree on e-waste management in Cambodia. The approval - and enforcement - of the sub-decree will be will provide an additional important push to e-waste management in Cambodia. The preparation of technical guidelines to implement the sub-decree on e-waste management will become urgent.

At the same time, important activities are behind schedule. The establishment of a pilot manual dismantling facility should have priority. This requires a multi-stakeholder approach as outlined by the international experts on e-waste.[54] While it is the task of the private sector and not of the Government to build and run such a facility, the Government and UNIDO can play a key role in bringing together the formal and informal sector thereby facilitating the establishment of a dismantling facility, as envisaged in the project.

As the theory of change analysis has shown, the impact of the project on the environment is - as of now - moderate. While the PMU measured the impact of the project on the employment situation, no such data is available with regard to the project's impact on the environment. This should be addressed. For example, during the survey on the employment status, data related to the environment could also be collected.[55] Other data might be available for example once a dismantling facility is operational.

In short, while the country has embarked on a journey to handle e-waste in an economically and environmentally sustainable manner, it still has some way to go. However, there is a window of opportunity. As the GNI per capita is still comparatively low, e-waste has still value and there is a market for spare parts and used electronic equipment. This may change in future and the volume of e-waste to be disposed or recycled is bound to grow rapidly. By then, the country should be ready to dismantle and recycle e-waste professionally meeting international standards regarding protecting the environment, human health and safety.

[53] While energy-saving lamps (i.e. lightbulbs) make a positive contribution on the energy consumption, they should not be disposed of in household waste as they contain a small amount of mercury.
[54] Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, David Rochat, Sofies SA, Mathias Schluep, World Resources Forum (WRF), October 2014, p.13/14.
[55] Shop keepers could for example be asked to show examples of improved e-waste management.

B. Recommendations

No.	Recommendations	Addressee
	General recommendations	
1.	The project has made an excellent start-up investment. However, e-waste management in Cambodia is still in its infancy. Therefore, **a second phase** should be envisaged to further nurture the process. This would allow moving from awareness and capacity building to the implementation of a sustainable road map for effective e-waste management. It would also allow scaling up the outreach to other provinces.	UNIDO, MoE, MoLVT
2.	Based on the first recommendation, **donors should consider funding** a second phase of the project. After three years, the project has laid an excellent base on which the next phase can build. There is a significant potential for harvesting much bigger results, especially at the environment level.	KOICA, Samsung
	Recommendations for the ongoing project phase	
3.	While not a direct component of the project, the approval of the **sub-decree** on e-waste management in Cambodia must have priority, including its enforcement. In parallel, the preparation of the **technical guidelines** should be initiated with the support of UNIDO.	MoE, UNIDO
4.	Initial work for establishing a **pilot manual dismantling facility** in Phnom Penh should be implemented. The roadmap – prepared by the project in 2014 - for implementing e-waste management system should be adhered to and a **multi-stakeholder platform** established which can be a strong indication of support to the implementation of sub-decree on e-waste management.[56] The business plan should be carefully formulated and be finalized prior to completion of the project.	MoE, UNIDO
5.	NTTI should integrate the training on installation and repair services into the regular **curriculum.** Give sufficient attention to e-waste management in the narrow sense (collection, dismantling, recycling	NTTI

[56] Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, David Rochat, Sofies SA, Mathias Schluep, World Resources Forum (WRF), October 2014, p.13/14.

	and disposal).	
6.	Consider providing – as an incentive - **repair tools** to trainees instead of DSA.	NTTI, KOICA, SAMSUNG, UNIDO
	Recommendations for a possible second phase of the project	
7.	Consider expanding the partnership to **other companies** in the EEE industry in order to widen the product base. Also, for a functioning e-waste management system, it is vital to involve all key producers of EEE (and/or their representatives) in Cambodia. In this regard, continue monitoring the use and volumes of e-products and regularly **revalidate priority e-products** in terms of risks to the environment.	MoE, NTTI, UNIDO
8.	In order to scale up the training, to make the training more cost-effective and reach rural areas, a second phase should consider **working also with NGOs**[57], **business associations** and/or **private sector training centres** in addition to government training centres.	NTTI, UNIDO
9.	While the training on installation and repair of e-products (non-waste) as well as the training on entrepreneurship should continue, the trainings should give **equal attention to the e-waste component** (collection, dismantling, recycling, disposal).	UNIDO
10.	Although not easy, begin **measuring the project's impact on the environment** at different levels: at the level of the trainees (shop owners), the future dismantling facility, etc.	MoE, NTTI, UNIDO
11.	Consider consulting (or partnering) with the Ministry of Women's Affairs (MoWA) and/or the Cambodia National Council for Women (CNCW) in order to better reach out to women engaged in e-waste and non-waste.	MoE, NTTI, UNIDO

[57] E.g. Don Bosco Foundation of Cambodia (http://donboscokhmer.org)

C. Lessons Learned

I. Employment generation and the protection of the environment are no contradictions. As this project shows, job creation does not have to be at the cost of the environment. On the contrary: Environmental challenges generate job opportunities.

II. To advance job opportunities for women in traditionally male dominated sectors is very challenging. There are no easy solutions.

III. The private and the public sector can work together and generate synergies if they have overlapping objectives. An international agency like UNIDO can help facilitate such partnerships.

Annex 1: Evaluation Framework

Evaluation criteria	Key evaluation questions	Sub-questions	Sources of Information	Data Collection /Analysis Methods
1. Relevance, ownership	**1. How relevant is the project to national development needs and UNIDO/UN priorities?**	1.1. To what extent was the project relevant to the national development and environmental priorities, recipient country needs and commitments?	Studies commissioned by the project Project document	Content analysis
		1.2. To what extent were the project objectives, outcomes and outputs pertinent to the needs of the direct and ultimate beneficiaries?	Beneficiaries[58] Studies commissioned by the project Project document	Interviews Content analysis
		1.3. In retrospect, to what extent was the project in line with UNIDO's mandate, objectives and outcomes defined in the Programme & Budget and core competencies and was consistent with donors' priorities and strategies?	UNIDO (MP, HUO, NPC) UNIDO strategies/policies Project document	Interviews Content analysis
		1.4. To what extent was a participatory project formulation applied including all main stakeholders which was instrumental in selecting problem areas and national counterparts?	National counterparts Donor representatives (KOICA and Samsung)	Interviews
		1.5. To what extent had the project a clear thematically based development objective and immediate outcome, the attainment of which can be determined by a set of verifiable indicators?	Project document Logical framework	Content analysis
		1.6. To what extent was the project formulated based on the logical framework approach and was designed to include appropriate output and outcome indicators within a realistic timeframe?	Project document Logical framework	Content analysis
		1.7. Being a public-private partnership project, how was the partnership designed? What was the relevance of the partnership for the recipient country, for the business partner Samsung and for UNIDO?	Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC) PPP Evaluation (2014)	Interviews Content analysis
2. Effectiveness and Impact	**2. Which results have been achieved?**	2.1. To what extent have outputs and outcomes been achieved and how do the stakeholders perceive their quality and beneficiaries use these?	Progress reports Beneficiaries National counterparts Donor representatives (KOICA and Samsung)	Content analysis Interviews
		2.2. To what extent were the direct and ultimate beneficiaries actually reached? How useful were the trainings to the trainees?	Progress reports Beneficiaries	Content analysis Interviews Observations
		2.3. To what extent does the project contribute to inclusive and sustainable industrial development? 2.3.1. To what extent has the project contributed to increased employment in the electronic industry (waste & non-waste) Assumptions (ToC): (a) Potential for job creation for low skilled & low income population incl. youth in the e-waste/non-waste sectors	Progress reports Studies commissioned by the project Beneficiaries National counterparts UNIDO (MP, HUO, NPC) UNIDO experts	Content analysis Interviews Theory of change analysis

[58] Beneficiaries: trained youth, trained entrepreneurs, trained trainers.

		(b) Sufficient economic incentives to work in the e-waste/non-waste sector		
		2.3.2. To what extent has the project contributed to (or is likely to contribute to) reducing the environmental impact of e-waste? Assumptions (ToC): (c) Policy/legislative framework supports e-waste sector (d) MSMEs in e-waste/ non-waste sector con-tribute to reduction of environmental impact (e) Business model defined for efficient e-waste management system	Progress reports Studies commissioned by the project Beneficiaries National counterparts UNIDO (MP, HUO, NPC) UNIDO experts	Content analysis Interviews Theory of change analysis
		2.4. With respect to the public-private partnership: how effective was the partnership in achieving the established objectives?	Progress reports Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC) PPP Evaluation (2014)	Content analysis Interviews
3. Sustainability	**3. How sustainable are the results achieved?**	3.1. What is the likelihood that the benefits from the project will be maintained for a reasonably long period?	Beneficiaries National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC) UNIDO experts	Interviews Observations
		3.2. Are there any catalytic or replication effects of the project?	National counterparts Donor representatives (KOICA and Samsung) National Project Coordinator UNIDO (MP, HUO, NPC)	Interviews
		3.3. Was any sustainability strategy formulated and when?	Project document UNIDO (MP, HUO, NPC)	Content analysis Interviews
		3.4. What is the prospect for technical, organizational and financial sustainability?	National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Interviews
		3.5. What can be said about the sustainability of the public-private partnership?	National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC) PPP Evaluation (2014)	Interviews
4. Efficiency	**4. Were all inputs and services provided in an efficient manner?**	4.1. To what extent have UNIDO, KOICA and Samsung as well as counterpart inputs been provided in a timely manner?	Progress reports National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews
		4.2. Were the inputs and services provided by UNIDO and Samsung (expertise, training, methodologies, etc.) adequate and of good quality?	Progress reports Beneficiaries National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews Observation
		4.3. Have the UNIDO procurement services been provided as planned and were adequate in terms of timing, value, processes issues,	Progress reports UNIDO (MP, HUO, NPC)	Content analysis Interviews

		responsibilities, etc.?		
5. Project coordination and management	**5. How efficient and effective was project coordination and management?**	5.1. To what extent have the national management and overall coordination mechanisms involving the different partners (public and private) of the project been efficient and effective?	Progress reports National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews
		5.2. To what extent have the UNIDO management, coordination and quality control been efficient and effective?	Progress reports National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews
		5.3. To what extent was monitoring and self-evaluation carried out with indicators for outputs, outcomes and objectives and to what extent was the information used for adaptive management?	Progress reports National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews
		5.4. To what extent can synergistic relationships be identified and beneficial connections established in relation to other UNIDO activities in the country or elsewhere?	Progress reports National counterparts Donor representatives (KOICA and Samsung) UNIDO (MP, HUO, NPC)	Content analysis Interviews
6. Cross-cutting issues, with a focus on gender	**6. To what extent is gender equality addressed in the project?**	6.1. To what extent is gender equality addressed in the design and implementation of the project?	Project document National counterparts UNIDO (MP, HUO, NPC)	Content analysis Interviews Observation
		6.2. To what extent is gender equality reflected in the project results?	Progress reports Beneficiaries National counterparts UNIDO (MP, HUO, NPC)	Content analysis Interviews Observation

Table: Evaluation team, based on TOR.

Annex 2: Work plan

Tasks	**Schedule**	**Evaluation Team Responsibilities in work days**	
		International Evaluation Consultant (team leader)	National Evaluation Consultant
Initial desk review	February 2015	4	2
Inception report, interview guidelines, analysis templates	February 2015	3	--
Skype interviews (home based)	March/April 2015	2	--
Planning and organizing the evaluation field mission	before 20 March 2015	1	3
Mission to Cambodia (incl. travel)	20-29 March 2015	10	7
Additional in country data collection (e.g. interviews)	March/April 2015	--	3
Overall analysis and drafting of evaluation report	April 2015	7	6
Validation: presentation of preliminary findings at UNIDO HQ (incl. travel)	April 2015	1	--
Review feedback and finalisation of evaluation report	April 2015	2	1
Total number of work days		**30**	**22**
Table: Evaluation team			

Annex 3: Evaluation Terms of Reference (separate document)

Annex 4: Interview guidelines

A. Questions to trainees (training beneficiaries e.g. entrepreneurs, to-be entrepreneurs, youth; trained by local trainers or by trainers for EDP)

[The numbers in brackets link the questions to the evaluation questions in the evaluation framework.]

(1) How important was training to you? [EQ 1.2]

(2) How do you rate the quality of the training? (trainers, organisation, logistics) [EQ 2.1] [EQ 4.2] [EQ 6.2]

(3) How useful was the training to you? [EQ 2.2] [EQ 4.2] [EQ 6.2]

(4) Did the training help you to find employment or advance your business (if self-employed)? [EQ2.3.1)]

(5) From your perspective, is there sufficient economic incentives to work in the e-waste/non-waste sector? [Assumption (b)]

(6) Has the training help you to do your work in a more environmentally-friendly and safe-health way? [EQ2.3.2.]

(7) Is what you have learned in the training also useful to you in future? [EQ 3.1]

(8) Would you like to add anything? Any recommendations for 2nd phase?

B. Questions to trained trainers (beneficiaries; trained by Samsung or trained by UNIDO MSME)

(1) How important was the training to you? [EQ 1.2]

(2) How do you rate the quality of the training? (trainers, organisation, logistics, duration) [EQ 2.1] [EQ 4.2] [EQ 6.2]

(3) How useful was the training to you? [EQ 2.2] [EQ 4.2] [EQ 6.2]

(4) Did the training help you to train others? How? [EQ2.3]

(5) From your perspective, is there sufficient economic incentives to work in the e-waste/non-waste sector? [Assumption (b)]

(6) How supportive is the policy/legislative framework for e-waste management [Assumption (d)]

(7) Who are the main actors in e-waste/non-waste sectors? Large companies, MSMEs, etc.? [Assumption (d)]

(8) Is a business model defined for efficient e-waste management system? [Assumption (e)]

(9) How do you assess the potential for job creation for low skilled population incl. youth in the e-waste/non-waste sectors? [Assumption (a)]

(10) Is what you have learned in the training also useful to you in future? [EQ 3.1]

(11) Would you like to add anything? Any recommendations for 2nd phase?

C. Questions to national counterparts

(1) To what extent was a participatory project formulation applied including all main stakeholders which was instrumental in selecting problem areas and national counterparts? [EQ 1.4]

(2) To what extent have outputs and outcomes been achieved and how do the stakeholders perceive their quality and beneficiaries use these? [EQ 2.1]

(3) To what extent has the project contributed to increased employment in the electronic industry (waste & non-waste) [EQ 2.3.1]

Assumptions (ToC):

(a) Potential for job creation for low skilled & low income population incl. youth in the e-waste/non-waste sectors

(b) Sufficient economic incentives to work in the e-waste/non-waste sector

(4) To what extent has the project contributed to (or is likely to contribute to) reducing the environmental impact of e-waste?) [EQ 2.3.2]

Assumptions (ToC):

(c) Policy/legislative framework supports e-waste sector

(d) MSMEs in e-waste/ non-waste sector contribute to reduction of environmental impact

(e) Business model defined for efficient e-waste management system

(5) What is the likelihood that the benefits from the project will be maintained for a reasonably long period? [EQ 3.1]

(6) Are there any catalytic or replication effects of the project? [EQ 3.2]

(7) Was any sustainability strategy formulated and when? [EQ 3.3]

(8) What is the prospect for technical, organizational and financial sustainability? [EQ 3.4]

(9) To what extent have UNIDO, KOICA and Samsung as well as counterpart inputs been provided in a timely manner? [EQ 4.1]

(10) Were the inputs and services provided by UNIDO and Samsung (expertise, training, methodologies, etc.) adequate and of good quality? [EQ 4.2]

(11) To what extent have the national management and overall coordination mechanisms involving the different partners (public and private) of the project been efficient and effective? [EQ 5.1]

(12) To what extent have the UNIDO management, coordination and quality control been efficient and effective? [EQ 5.2]

(13) To what extent was monitoring and self-evaluation carried out with indicators for outputs, outcomes and objectives and to what extent was the information used for adaptive management? [EQ 5.3]

(14) To what extent can synergistic relationships be identified and beneficial connections established in relation to other UNIDO activities in the country or elsewhere? [EQ 5.4]

(15) To what extent is gender equality addressed in the design and implementation of the project? [EQ 6.1]

(16) To what extent is gender equality reflected in the project results? [EQ 6.2]

(17) Any recommendations for 2nd phase?

D. Questions to donors (KOICA and Samsung)

(1) To what extent was a participatory project formulation applied including all main stakeholders which was instrumental in selecting problem areas and national counterparts? [EQ 1.4]

(2) Being a public-private partnership project, how was the partnership designed? What was the relevance of the partnership for the recipient country, for the business partner Samsung, KOICA and for UNIDO? [EQ 1.7]

(3) To what extent have outputs and outcomes been achieved and how do donors perceive their quality and beneficiaries use these? [EQ 2.1]

(4) With respect to the public-private partnership: how effective was the partnership in achieving the established partnership objectives? [EQ 2.4]

(5) What is the likelihood that the benefits from the project will be maintained for a reasonably long period? [EQ 3.1]

(6) Are there any catalytic or replication effects of the project? [EQ 3.2]

(7) What is the prospect for technical, organizational and financial sustainability? [EQ 3.4]

(8) What can be said about the sustainability of the public-private partnership? [EQ 3.5]

(9) To what extent have UNIDO, KOICA and Samsung as well as counterpart inputs been provided in a timely manner? [EQ 4.1]

(10) Were the inputs and services provided by UNIDO and Samsung (expertise, training, methodologies, etc.) adequate and of good quality? [EQ 4.2]

(11) To what extent have the national management and overall coordination mechanisms involving the different partners (public and private) of the project been efficient and effective? [EQ 5.1]

(12) To what extent have the UNIDO management, coordination and quality control been efficient and effective? [EQ 5.2]

(13) To what extent was monitoring and self-evaluation carried out with indicators for outputs, outcomes and objectives and to what extent was the information used for adaptive management? [EQ 5.3]

(14) To what extent can synergistic relationships be identified and beneficial connections established in relation to other UNIDO activities in the country or elsewhere? [EQ 5.4]

(15) Any recommendations for 2nd phase?

E. Questions to UNIDO (PMU, HUO, NPC)

(1) In retrospect, to what extent was the project in line with UNIDO's mandate, objectives and outcomes defined in the Programme & Budget and core competencies and was consistent with donors' priorities and strategies? [EQ 1.3]

(2) To what extent was a participatory project formulation applied including all main stakeholders which was instrumental in selecting problem areas and national counterparts? [EQ 1.4]

(3) Being a public-private partnership project, how was the partnership designed? What was the relevance of the partnership for the recipient country, for the business partner Samsung and for UNIDO? [EQ 1.7]

(4) To what extent has the project contributed to increased employment in the electronic industry (waste & non-waste) [EQ 2.3.1]

Assumptions (ToC):

(a) Potential for job creation for low skilled & low income population incl. youth in the e-waste/non-waste sectors

(b) Sufficient economic incentives to work in the e-waste/non-waste sector

(5) To what extent has the project contributed to (or is likely to contribute to) reducing the environmental impact of e-waste?) [EQ 2.3.2]

Assumptions (ToC):

(c) Policy/legislative framework supports e-waste sector

(d) MSMEs in e-waste/ non-waste sector contribute to reduction of environmental impact

(e) Business model defined for efficient e-waste management system

(6) With respect to the public-private partnership: how effective was the partnership in achieving the established partnership objectives? [EQ 2.4]

(7) What is the likelihood that the benefits from the project will be maintained for a reasonably long period? [EQ 3.1]

(8) Are there any catalytic or replication effects of the project? [EQ 3.2]

(9) Was any sustainability strategy formulated and when? [EQ 3.3]

(10) What is the prospect for technical, organizational and financial sustainability? [EQ 3.4]

(11) What can be said about the sustainability of the public-private partnership? [EQ 3.5]

(12) To what extent have UNIDO, KOICA and Samsung as well as counterpart inputs been provided in a timely manner? [EQ 4.1]

(13) Were the inputs and services provided by UNIDO and Samsung (expertise, training, methodologies, etc.) adequate and of good quality? [EQ 4.2]

(14) Have the UNIDO procurement services been provided as planned and were adequate in terms of timing, value, processes issues, responsibilities, etc.? [EQ 4.3]

(15) To what extent have the national management and overall coordination mechanisms involving the different partners (public and private) of the project been efficient and effective? [EQ 5.1]

(16) To what extent have the UNIDO management, coordination and quality control been efficient and

effective? [EQ 5.2]

(17) To what extent was monitoring and self-evaluation carried out with indicators for outputs, outcomes and objectives and to what extent was the information used for adaptive management? [EQ 5.3]

(18) To what extent can synergistic relationships be identified and beneficial connections established in relation to other UNIDO activities in the country or elsewhere? [EQ 5.4]

(19) To what extent is gender equality addressed in the design and implementation of the project? [EQ 6.1]

(20) To what extent is gender equality reflected in the project results? [EQ 6.2]

(21) Any recommendations for 2nd phase?

F. Questions to UNIDO experts (national and international)

(1) To what extent was the project relevant to the national development and environmental priorities, recipient country needs and commitments? [EQ 1.1]

(2) To what extent has the project contributed to increased employment in the electronic industry (waste & non-waste) [EQ 2.3.1]

Assumptions (ToC):

(a) Potential for job creation for low skilled & low income population incl. youth in the e-waste/non-waste sectors

(b) Sufficient economic incentives to work in the e-waste/non-waste sector

(3) To what extent has the project contributed to (or is likely to contribute to) reducing the environmental impact of e-waste?) [EQ 2.3.2]

Assumptions (ToC):

(c) Policy/legislative framework supports e-waste sector

(d) MSMEs in e-waste/ non-waste sector contribute to reduction of environmental impact

(e) Business model defined for efficient e-waste management system

(4) What is the likelihood that the benefits from the project will be maintained for a reasonably long period? [EQ 3.1]

(5) Any recommendations for 2nd phase?

Annex 5: List of interviewees

No	Name and Surname	Position	Institution	Contact Details	Stakeholder group
1	Mr. Sok Narin	Head of UNIDO Operations	UNIDO	c/o UNDP, St. Pasteur, Boeung Keng Kang I, Phnom Penh Email: n.sok@undp.org Tel: +885 12757327	UNIDO
2	Mr. Hak Sok Chea	National Project Coordinator	UNIDO	UNIDO Project Office National Technical Training Institute (NTTI), Russian Blvd, Phnom Penh Tel: 017 705 590 S.HAK@unido.org	UNIDO
3	H.E Khieu Muth	Secretary of State	Ministry of Environment (MoE)	H# 48, Str. Samdech Preah Sihanouk, Tonle Bassac, chamkamon, Phnom Penh Tel:+855 23219 287 Email: moe@online.com.kh	National counterpart
4	Dr. Chrin Sokha	Deputy Director General			
5	Mr. Chin Suthun	Vice-chief Office			
6	Ms. Meas Sokun	Officer			
7	Mr. Uon Sokunthea	Officer			
8	Mr Benjamin Lamberet	Data Manager	Angkor Research	St. 404, Toul Tompoung II, Chamamon, Phnom Penh Tel: +855 97 88 456 60 Email: Benjamin.lamberet@angkor-research.com	Expert (sub-contracted for baseline survey)
9	H.E Dr. Yok Sothy	Director	National Technical Training Institute (NTTI)	Russian Blvd, Phnom Penh Tel: +855 23883 039 +855 12 667 753 Email: yok.sothy@ntti.edu.kh	National counterpart
10	Mr. Chrea Sesokunthearith	Deputy Head of Human Resource and International Relations			
11	Mr. Khoeun Sokunviseth	Deputy Director	Department of Environment	Siem Reap Road 6, Sangkat Ampil (old Apsara building) Tel: +855 12 934 984 Email: k.sokunviseth@gmail.com	Beneficiaries (ToT)
12	Mr. In Sokha	Officer			
13	Mr. Than Monomoyrith	Officer			
14	Sophal Dyakanal	Officer			
15	Ms. Phang Puthy	Director	Regional Polytechnic Institute Techo Sen Siem Reap, Ministry of Labour and	Banteay Chas village, Sangkat Slorkram, Siem Reap City Tel: +855-12 918 167 +855-63 964 041 Email: phangputhy@yahoo.com	Beneficiaries (ToT)
16	Mr. Chhem Rath	Trainer			
17	Mr. Seng Sourng	Trainer			
18	Mr. Phann	Trainer			

	Sophat		Vocational Training		
19	Mr. Ren Sarith	Trainer			
20	Mr. Pheap Phan	Trainee			Beneficiary
21	Mr. Hip Viech	Trainee			Beneficiary
22	Mr. Pen Chantra	Trainee			Beneficiary
23	Mr. Pen Makara	Trainee			Beneficiary
24	Ms. Pak Ravy	ED Trainer	National Technical Training Institute (NTTI)	Russian Blvd, Phnom Penh Tel: +855-017 879 101 +855-012 695 646	Beneficiaries (ToT)
25	Mr. Leng Naron	ED Trainer			
26	Mr. Am Samol	National Technical Assistant	UNIDO	UNIDO Project Office National Technical Training Institute (NTTI), Russian Blvd, Phnom Penh	UNIDO
27	Mr. Teng Sopheap	Trainer	National Technical Training Institute (NTTI)	Russian Blvd, Phnom Penh Tel: +855-017 879 101 +855-012 695 646	Beneficiary (ToT)
28	Mr. Rithy Uch	Director	Cambodian Education and Waste Management Organization (COMPED)	H#36AE1, St.350, Boeung Keng Kang II, Khan Chamkar Mon, Phnom Penh	Experts (Sub-contracted for research on dismantling feasibility
29	Mr. Sam Phalla	Vice Director and Composing Project Manager			
30	Ms. Baek, Sookhee	Representative	Korea International Cooperation Agency (Koica) Cambodia Office	Phnom Penh Tower, 12 Floor, #445, Monivong Blvd, Corner St.232, Boeng Prolet, 7 Makara, Phnom Penh Tel: +855 78 709 672 sinavro@koica.go.kr	Donor
31	Ms. Kim Song Joo	Deputy Representative			
32	Mr. Sao Dona	Program Officer			
33	Dr. Youngjin Suh	Director/ Team Leader	Samsung Electronics	Environment Strategy Team CS Environment Center Seoul, Republic of South Korea Tel. 82-31-200-1779 youngjin.suh@samsung.com	Donor
34	Mr. Chet Setha	Assistant Manager		Service Network Management 21st Floor, Phnom Penh Tower, #445, Monivong Blvd, Corner St.232, Boeng Prolet, 7 Makara, Phnom Penh Tel: +855 23 980 808 chet.setha@samsung.com	
35	Mr. Hiep Sakun	Executive Officer	CINTRI Cambodia Ltd.	#442D, Monivong Blvd, Phnom Penh Tel: +855 23 726 162 seng@cintri.com.kh	Beneficiary
36	Mr. Mar Sophea	Senior Social Sector	Asian Development	#29 Suramarit Blvd. (St.268), Sangkat Chaktomuk, Khan Daun	Other development

		Officer	Bank (ADB) Cambodia Resident Mission	Penh, Phnom Penh Tel: +855 23 215 805 +855 15 871 817 Email: smar@adb.org	partner
37	Mr. Born Lucky	Trainee, Co-owner	Theara Media Phone Shop	National Road 4, Kambol, Kandal province	Beneficiary
38	Ms. Chhoeurn Sreyhuor	Trainee, Owner	Sok Visal Phone Shop	#426, National Road 5, Krol Kor (Km6), Russei Keo, Phnom Penh	Beneficiary
39	Mr. Arupjyoti Rai Baruah	Senior Enterprise Development Specialist	Consultancy	New Delhi, India A.BARUAH@unido.org	Expert (on Micro, Small and Medium Enterprises)
40	Mr. David Rochat	Director Business Develop-ment, Partner	Sofies SA	SOFIES SA, Rue du Vuache 1, CP 2091, 1211 Genève 1, Switzerland david.rochat@sofiesonline.com	Expert (on e-waste management)
41	Mr. Mathias Schluep	Program Director	World Resource Forum	mathias.schluep@worldresourcesforum.org	Expert (on e-waste management)
42	Ms. Gloria M. Adapon,	Project Manager & Industrial Develop-ment Officer	UNIDO	Regional Programmes & Field Representation Branch, UNIDO, Vienna G.ADAPON@unido.org	UNIDO
43	Ms. Tsvetelina Miliovska	Internatio-nal Consultant	UNIDO	Regional Programmes & Field Representation Branch, UNIDO, Vienna T.MILIOVSKA@unido.org	UNIDO
44	Mr. Javier Guarnizo	Senior Evaluation Officer	UNIDO	UNDO Office for Independent Evaluation, UNIDO, Vienna J.GUARNIZO@unido.org	UNIDO

Annex 6: List of documents reviewed

2009

Situation Analysis of Youth in Cambodia, United Nations, 2009.

National Green Growth Roadmap, Ministry of Environment, Royal Government of Cambodia, December 2009.

2010

National Strategic Development Plan, Update 2009-2013, Royal Government of Cambodia, 30 June 2010.

2011

Programme and Budgets 2012-2013, Industrial Development Board, UNIDO, IDB.39/13/Rev.1, 2 June 2011.

Cambodia's National Policy on Youth Development, 2011, https://www.youtube.com/watch?v=2zGnVWJxSjQ

Cambodia Economic Census, National Institute of Statistics, Ministry of Planning, 2011.

2012

Project document - Creating employment opportunities and ensuring effective e-waste management in Cambodia, SAP ID120011, UNIDO, July 2012.

Project Launch Event: "Creating Employment Opportunities and Ensuring Effective E-waste Management in Cambodia", Overview of the Project, UNIDO, August 2012. (slide presentation)

Trust Fund Agreement between the United Nations Industrial Development Organization and Samsung Electronics, UNIDO, August 2012.

Creating Employment Opportunities and Ensuring Effective E-waste Management in Cambodia, UNIDO, 2012 (one page project summary).

2013

Progress Report covering 01 January– 31 December 2012, Project "Creating employment opportunities and ensuring effective e-waste management in Cambodia" Project number: SAP ID120011, UNIDO, 28 January 2013. (Donor: KOICA)

Progress Report covering 01 January– 31 December 2012, Project "Creating employment opportunities and ensuring effective e-waste management in Cambodia" Project number: SAP ID120011, UNIDO, 29 January 2013. (Donor: Samsung Electronics)

Baseline Survey: Support to access to information and strengthening small businesses through data collection "Transforming e-waste into job and business opportunities", Angkor Research and Consulting Ltd, July 2013.

Mission results & project recommendations - Field mission 22 – 30 April 2013 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, Mathias Schluep, Swiss Federal Laboratories for Materials Science and Technology (Empa), August 2013.

Report - Comprehensive Assessment on E-waste Management in Cambodia, MoE's Technical Working Group, October 2013.

Inception Phase Report, UNIDO, 31 December 2013.

UNIDO-Samsung - Transforming e-waste into job and business opportunities, UNIDO, 2013. (fact sheet)

Creating Employment Opportunities and Ensuring Effective E-Waste Management in Cambodia UNIDO, 2013 (one-page project summary).

2014

Progress Report covering 01 January– 31 December 2013, Project "Creating employment opportunities and ensuring effective e-waste management in Cambodia" Project number: SAP ID120011, UNIDO, 31 January 2014. (Donor: KOICA)

Progress Report covering 01 January– 31 December 2013, Project "Creating employment opportunities and ensuring effective e-waste management in Cambodia" Project number: SAP ID120011, UNIDO, 31 January 2014. (Donor: Samsung Electronics)

Transforming e-waste into job and business opportunities in Cambodia, Newsletter, 1st edition, UNIDO, February 2014.

Mission results & project recommendations - Field mission 27 July – 2 August 2014 for the project: "Transforming e-waste into job and business opportunities in Cambodia" - Final Report, David Rochat, Sofies SA, Mathias Schluep, World Resources Forum (WRF), October 2014.

Transforming e-waste into job and business opportunities in Cambodia, Newsletter, Issue 2, UNIDO, 2014.

Scoping mission report on e-waste project Cambodia to assess the counterparts and beneficiaries, provide training and map suitable local partners for entrepreneurship creation and development, Arupjyoti Rai Baruah, UNIDO, 2014.

Independent Thematic Evaluation - UNIDO's Public Private Partnerships, UNIDO, Evaluation Group, 2014.

2015

Progress Report covering 01 January– 31 December 2014, Project "Creating employment opportunities and ensuring effective e-waste management in Cambodia" Project number: SAP ID120011, UNIDO, 19 January 2015. (Donor: KOICA and Samsung Electronics)

List of trainees, Project Management Unit, February 2015. (excel summary of all trainings and workshops)

Employment status of the roll-out trainees on Installation and Repair Services, Project Management Unit, February 2015.

Annex 7: Mission schedule, 21-29 March 2015

	Activities	Person to meet	Location/Address	Remark
Saturday, 21-March-2015				
14:50	Phnom Penh Arrival/pick up by UNIDO driver - To check in hotel	Mr. Huot Sokvin (driver) 012 801 030	Khmer Surin Hotel Boeung Keng Kang 1, PhnomPenh	
Sunday, 22-March-2015				
9:00 - 13:30	Working with National Consultant/NPC	Mr. Sok Somith Mr. Hak Sok Chea, NPC 017 705 590	Khmer Surin Hotel Boeung Keng Kang 1, PhnomPenh	
Monday, 23-March-2015				
8:30	Pick up from hotel	Mr. Huot Sokvin (driver) 012 801 030		
8:45 - 9:45	Meeting with UNIDO Desk, Cambodia	Mr. Sok Narin, Head of UNIDO Operations Mr. Hak Sok Chea, NPC 017 705 590	c/o UNDP, st.Pasteur, Boeung Keng Kang 1, Phnom Penh	Confirmed
10:00 - 11:30	Meeting with Ministry of Environment, *Project counterpart*	H.E. Khieu Muth, Secretary of State Dr. Chrin Sokha, Deputy Director General Ms. Meas Sokun, Officer Mr. Chin Suthunthea, Vice-Chief Office Mr.Chrea Sesokunthearith, Department Head of Human Resource and IR	Ministry of Environment Preah Sihanouk Blvd, Phnom Penh	Confirmed
13:30-14:30	Meeting with Angkor Research *Sub-contractor for baseline research on e-waste in Cambodia in 2013*	Mr. Benjamin Lamberet, Data Manager 097 88 456 60	#7A, St 173, Sangkat Toul Tom Poun II , Chamkamorn, Phnom Penh, 023 222 501	Confirmed
15:30-16:30	Meeting with National Technical Training Institute *Project counterpart*	H.E. Yok Sothy, Director Mr. Chrea Sesokunthearith , Project focal point 092 900 666	National Technical Training Institute (NTTI), Russian Blvd, Phnom Penh	Confirmed
16:30	Depart to the airport	Mr. Huot Sokvin (driver) 012 801 030		

20:00-20-45	Flight to Siem Reap from Phnom Penh International airport by Cambodia Angkor Air		Accommodation in Siem Reap : La Niche D'angkor Boutique Hotel Address: St 27, Wat Bo Village, Salakomroeuk, Siem Reap Tel : 012 870 857	Hotel pick up included
Tuesday, 24-March-2015				
8:00 – 9:00	Working with national consultant	Mr. Sok Somith 012 946 425		
9:30-10:30	Meeting with Siem Reap Provincial Department of Environment *Participant in collection efficiency workshop (Aug 01, 2014) and ToT on awareness raising (Feb, 2015)*	Mr. Phourng Lina, Acting director Mr. Sophal Dyakanal, staff 011 999 910	Department of Environment Siem Reap, NR6, Sangkat Ampil, Siem Reap	Confirmed
14:00-15:00	Meeting with RTC Siem Reap team *Partner in conducting roll out training on installation and repair service on industry product* *Partner and venue for EDP in Siem Reap*	Ms. Phang Puthy (director) 012 918 167	Regional Polytechnic Institute Techo Sen Siemreap (RPITSSR), NR6, Siem Reap	Confirmed
15:15-16:15	Meeting with trained trainers on Installation and Repair service (selected for training roll out trainees).	Mr. Chhem Rath (078 332 344) Mr. Seng Sourng (088 898 0083) Mr. Phann Sophat (088 55 880 88) Mr. Ren Sarith (017 797 383)	Regional Polytechnic Institute Techo Sen Siemreap (RPITSSR), NR6, Banteay Chas, Slor Kram, Siem Reap	Confirmed
17:15 – 18:15	Meeting with roll out trainees at ToE venue	Mr. Pheap Phan (095 513 141) Mr. Hip Viech (098 633 176) Mr. Pen Chantra (092 654 372) Mr. Pen Makara (099 73 88 99)	Regional Polytechnic Institute Techo Sen Siemreap (RPITSSR), NR6, Banteay Chas, Slor Kram, Siem Reap	Confirmed
Wednesday, 25-March-2015				
8:00-8:30	Depart to Training Venue			
8:30 – 9:30	Meeting with EDP trainers at Siem Reap	Ms. Pak Ravy (017 879 101) Mr. Leng Naron (012 695 646)	Regional Polytechnic Institute Techo Sen Siemreap (RPITSSR), NR6, Banteay Chas, Slor Kram, Siem Reap	Confirmed

79:30 – 11:00	Observe trainees on ToE and Installation at ToE venue	Mr. Am Samol, National Technical Assistant 077 735 000	Regional Polytechnic Institute Techo Sen Siemreap (RPITSSR), NR6, Banteay Chas, Slor Kram, Siem Reap	Confirmed
11:00 – 15:00	Working with National Consultant on initial key findings as appeared from observations from field work	Mr. Sok Somith	Restaurant in Siem Reap	
15:00-15:30	Depart to the airport			
15:30	Flight back to Phnom Penh from Siem Reap airport by Cambodian Angkor Air flight		Accommodation in Phnom Penh : Khmer Surin Boutique Guesthouse, Boeung Keng Kang 1, Phnom Penh	
Thursday, 26-March-2015				
9:00 – 10:00	Meeting with Trained trainers on Installation and Repair service (selected for training roll out trainees)	Mr. Teng Sopheap (077 270 369)	PMU, c/o NTTI, Russian Blvd, Phnom Penh	Confirmed
10:30 – 11:30	Meeting with COMPED *Participant in workshop on e-waste collection efficiency* *Sub-contract for baseline research on e-waste dismantling facility (in process)*	Mr. Sam Phalla, Vice Director Mr. Rithy Uch, Director COMPED	#34BE0, St. 376, Boeung Keng Kang III, Phnom Penh 023 650 833 9	Confirmed
14:00-15:00	Meeting with KOICA Cambodia *Project donor*	Ms. Baek Sook Hae, Representative Ms. Kim Song Joo, Deputy Representative Mr. Sao Dona, Program Officer KOICA Cambodia 078 709 672	12th Floor, Phnom Penh Tower #445, Monivong Blvd, Phnom Penh	Confirmed
15:30-16:30	Meeting with Samsung Cambodia *Project donor*	Mr. Chet Setha, Assistant Manager, Samsung Cambodia 077 797 666	12258, 21st Floor, Phnom Penh Tower, #445, Monivong Blvd, Phnom Penh	Confirmed
16:30-17:00	Visit to Service Center of Samsung Cambodia	Guided by Mr. Chet Setha, Assistant Manager	Monivong Blvd, Phnom Penh	Confirmed

17:20-18:20	Debriefing with UNIDO	Mr. Sok Narin, Head of UNIDO Operations Mr. Hak Sok Chea, NPC and Accountant	c/o UNDP, st.Pasteur, Boeung Keng Kang 1, Phnom Penh Confirmed	Confirmed
Friday, 27-March-2015				
8:30 – 10:00	Meeting with UNIDO Project to clarify on pending questions.	Mr. Hak Sok Chea, NPC	Khmer Surin Hotel, Boeung Keng Kang 1, Phnom Penh	Confirmed
10:30 – 11:30	Meeting with CINTRI Participant in workshop on E-waste collection efficiency in Aug. 2014	Mr. Hiep Sakun, Executive Officer	#442D, Monivong Blvd, Phnom Penh Tel: +855 23 726 162 +855 12 692 348 Email: seng@cintri.com.kh	Confirmed
13:00 – 17:00	Visit trainees on installation and repair service and EDP in Phnom Penh	Mr. Born Lucky (010 30 11 77)	Theara Media Phone Shop, NR4, Kombol, Kandal	Confirmed
		Ms. Chhoeurn Sreyhuor (093 505 555)	Sok Visal Phone Shop, #426, NR5, Krol Kor (Km6), Russei Keo, Phnom Penh	Confirmed
Saturday, 28-March-2015				
9:00-16:00	Working with National consultant/NPC	Mr. Sok Somith	Khmer Surin Hotel Boeung Keng Kang 1, PhnomPenh	
Sunday, 29-March-2015				
10:00	Departure from Phnom Penh international airport	Mr. Huot Sokvin (driver) 012 801 030		

Annex 8: Overview of subcontracts

Following entities were subcontracted from 2012 to March 2015.

Swiss Federal Laboratories for Materials Science and Technology (EMPA):

- To gather information and assess e waste management initiatives, available info on generation of e-wastes, tools, instruments in pilot areas linking to national initiatives in the country and to the project
- To conduct a stakeholder analysis: key players on e-waste management for strategic collaborations/interventions in project's implementation phase and long term sustainability
- To provide strategic guidance and recommend framework to local team for the comprehensive assessment on generation and sources of e-waste in 5 pilot areas: Battambang, Bantay Meachey, Siem Reap, Kampong Cham and Phnom Pehnsources (residential, industrial, commercial, inter-municipalities) in pilot areas
- To revalidate overall framework of interventions for project implementation

National Technical Training Institute (NTTI):

Provide training to

- Strengthen institutional and local capacities providing support services specifically on electronic repair services through skills/hands on training, knowledge transfer
- Broaden understanding of target participants on the importance of providing repair service and its link to reduction of threat to environment, health and opportunities for job creation.
- Build up pool of local trainers to support overall sustainability strategy of project

Angkor Research and Consulting Ltd.:

- Undertake data collection on profile, number of operators and market for e-product repair services and other existing e-waste related business in 5 pilot areas (operators, client/market).
- Obtain information on initiatives and actors relevant e-business/e waste related businesses in pilot areas for potential interventions (e.g support to clusters of operators).
- Identify and assess issues and provide strategic recommendations for small businesses and for potential entrepreneurs.

Ministry of Environment (MOE):

- Provide an overview of the current e-waste landscape, policy and legislation framework, ascertain current and future flows of E-waste, estimate the current volume of e-waste in the country, including updated information on the existing processing practices through the 5 pilot areas
- Map out e waste from various sources in 5 pilot areas and extrapolate data
- Conduct stakeholder & impact analysis
- Determine the support required for the development of sustainable e-waste management in Cambodia which can be covered under the UNIDO project

World Resource Forum (WRF):

- Analyze the business potential for a manual e-waste dismantling facilities in Cambodia (focusing on Phnom Penh).
- Determine capacity building interventions specifically on collection efficiency, dismantling techniques and occupational health & safety (OHS) measures for the potential implementation of a manual e-waste dismantling facility.
- Based on the analysis of the business potential provide technical input for a proposal to establish a business model for a manual e-waste dismantling facility.
- Conduct an orientation workshop focusing on collection efficiency, dismantling techniques and occupational health & safety (OHS) measures related to manual e -waste dismantling businesses.

Korea Environment Corporation

- Strengthen participants' capacities and knowledge through exposure, exchange of info, experiences sharing and learn best practices from expertise institutions in ROK
- Raise participants' awareness of the importance of an effective waste management in accordance to environmental issue and opportunity to generate more employment and business operations in this industry
- Enhance active participation/involvement of project's stakeholders to ensure achievement of project objectives
- Build network/partnership among project's stakeholders

Cambodian Education and Waste Management Organization (COMPED)

- To conduct a study related to the a possible dismantling feasibility