Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of Electrical and Electronic Equipment and associated wastes in China

Mid-Term Review

October 2016

BASIC REPORT INFORMATION

Title of UNDP supported GEF financed project: Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of electrical and electronic equipment and associated wastes in China

GEF project ID#: 4862

Atlas project ID#: 00088552

UNDP PIMS#: 5044

MTR time frame and date of MTR report: 18th September 2016 – 23rd September 2016, 31 October 2016

Region and countries included in the project: China

GEF Operational Focal Area/Strategic Program: POPs

Executing Agencies: Foreign Economic Cooperation Office, Ministry of Environmental Protection of China (FECO/MEP)

Implementing Agencies: United Nations Development Programme (UNDP)

MTR team members: Mr. Federico Magalini & Ms. Li Yanping

ACKNOWLEDGEMENTS

The evaluator would like to acknowledge with gratitude the time and effort expended by all project participants and stakeholders during the course of mid-term evaluation. In particular, the evaluator would like to thank Project Management Office and UNDP China and FECO/MEP for arranging mission meetings and for their warm hospitality. The evaluator would also like to thank all stakeholders met during the side visits in Tianjin and Hubei, local governments and companies for their lively informative and fruitful discussions on their experiences in implementing the project; your insights and perspectives have added value to the evaluation process. We hope that this report will contribute towards further support for the development of e-waste management system being able to reduce emissions from POPs and PTS in China.

TABLE OF CONTENTS

List of Tables

List of Figures

ACRONYMS AND ABBREVIATIONS

APR	Annual Project Report
ARR	Annual Review Report
AWP	Annual Work Plan
BAT	Best Available Techniques
BCRC	Basel Convention Regional Center
BEP	Best Environmental Practices
BFR	Brominated Flame Retardant
CRT	Cathode Ray Tube
DOTCOM Waste (Project)	Development of tools to counter illegal management and trade of waste
EEE	Electrical and Electronic Equipment
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
EPR	Extended Producer Responsibility
FECO	Foreign Economic Cooperation Office
FECO/MEP	Foreign Economic Cooperation Office/Ministry for Environmental Protection
GAC	General Administration of Customs
GEF	Global Environment Facility
IA	Implementing Agencies
IR	Inception Report
IW	Inception Workshop
LCA	Life-cycle Assessment
LCM	Life-cycle Management
LPMO	Local Project Management Office
M&E	Monitoring & Evaluation
MEP	Ministry of Environmental Protection
MIIT	Ministry of Industry and Information Technology
MIS	Management Information System
MOC	Ministry of Commerce
MOF	Ministry of Finance
MTR	Mid-Term Review
NIP	National Implementation Plan
NPT	National Project Team
PBDD/F	Polybrominated dibenzodioxins/dibenzofurans
PBDE	Polybrominated Diphenyl Ethers
PC	Project Coordinator
PCB	Polychlorinated biphenyl
PCB	Printed Circuit Board
PCDD/F	Polychorinated dibenzodioxins/dibenzofurans
PFOS	Perfluorooctanesulfonic sulfonate
PIM	Programme Implementation Manual
PIR	Project Implementation Review
PMO	Project Management Office
POPs	Persistent Organic Pollutants
PTS	Persistent Toxic Substances
RMB	Renminbi, “People’s currency”
RoHS	Restriction of the Use of certain Hazardous Substances
SAICM	Strategic Approach to International Chemicals Management
SCC	Solid Waste and Chemicals Management Center
TCG	Technical Coordination Group
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNDP-GEF	United Nations Development Programme, Global Environment Facility Unit
UNEP	United Nations Environment Programme
USD	United States dollars

WEEE	Waste Electrical and Electronic Equipment
WPCB	Waste Printed Circuit Board

EXECUTIVE SUMMARY

Project title: Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of electrical and electronic equipment and associated wastes in China	
Atlas project ID	00088552
UNDP PIM	5044
Project Duration	4 years (04/2014 – 04/2018)
Executing Agencies	Foreign Economic Cooperation Office, Ministry of Environmental Protection of China (FECO/MEP)
Implementing Agencies	United Nations Development Programme (UNDP)
GEF Project Grant	USD 11,650,000
Co-financing	USD 47,000,000
Total Project budget	USD 58,650,000

Table 1: Key project information.

China is considered the world's largest current processor of e-waste derived from Waste Electrical and Electronic Equipment (WEEE) recycling, accounting for approximately 14,4% [1] of global domestic generation. WEEE production in China has reached 6 million tons in 2014 (out of nearly 42 generated worldwide) and the number is expected to soar as the result of economic growth.

Currently the majority of WEEE and e-waste component has been collected and processed primarily by an informal resource recovery and recycling sector that typically utilizes crude, polluting technologies. This has resulted in the sector being associated with a range of serious environmental and health impacts including significant POPs and PTS release, and further contributes to air, land and water contamination.

The proposed project is designed to help China to fulfil the requirement of the Stockholm Convention and support the input of international experience and best practice into China's aggressive policy efforts to address this significant issue through development and implementation of an Extended Producer Responsibility (EPR) based system for WEEE generally.

Consistent with this objective, the project will address the POPs/PTS release sensitive e-waste stream in the recycling, dismantling, treatment and final disposal processes of WEEE. The overall result of the project will be China having an domestic WEEE management system financed by a robust sustainable EPR mechanism and operating with BAT/BEP that effectively maximizes the resource recovery potential available while eliminating the major environmental releases, particularly POPs releases currently attributed to WEEE processing.

The project as outlined is structured with five components:

- Component 1 covers national WEEE management system development and implementation in terms of scope, administration, business arrangements and promotion with the UNDP-GEF support being focused on introduction of international experience and lessons learned;
- Component 2 covers the development of the required infrastructure and the demonstration of BAT/BEP technologies with the UNDP-GEF support focused on introduction of international technology and capability;

[1] Data from UNU Global e-waste monitor, 2014

- Component 3 addresses the integration of the informal sector into the formal EPR system with UNDP-GEF support focused on demonstration of collection systems and information exchange, training and international cooperation related to illegal imports;
- Component 4 supports the monitoring and evaluation of the project and dissemination of experience, something that is seen as useful for other developing countries dealing with the issue globally; and
- Component 5 strengthens project management capacity to achieve implementation effectiveness and efficiency.

The programme period is 48 months and the total GEF fund is $11,650,000. There are three demonstration provinces/municipalities under the project including Tianjin, Jiangsu and Hubei. TCL Aobo (Tianjin) Environmental Protection Development Co. Ltd. (TCL), Changzhou Xiangyu Recycling Resources Co. Ltd. (Xaingyu), Jingmen Green Eco-Manufacturer Co.Ltd (GEM), Wuhan Bowang Xingyuan Property Service Co. Ltd. (Bowang) and Daye Nonferrous Boyuan Environmental Protection Co. Ltd. (Daye) are the demonstration factories under the project.

Table below provide a summary of the Mid-Term Review (MTR) carried out between 19th and 23rd of September 2016.

Measure	MTR Rating		Achievement Description
Project Strategy		**N/A**	
Progress Towards Results	Outcome 1.1: Operational national EPR system covering priority POPs/PTS release sensitive E-Waste streams	**6 (HS)**	Current system is covering already key products responsible for potential POPs/PTS release and list of products covered by system currently being expanded (9 more products added). Work in progress with positive developments in the setup of WEEE treatment monitoring and reporting system.
	Outcome 1.2: Adopted and implemented national technical standards and operational business documentation governing the management of WEEE in support of the EPR system	**6 (HS)**	Technical standards and guidelines are in preparation and will be later disseminated and exploited. Good potential for replication given the involvement as LPMOs of provincial governing agencies.
	Outcome 1.3: Applied LCA/LCM procedures and labelling for product design and production.	**5 (S)**	Work in early stage but good potential given the involvement of Lenovo (big company).
	Outcome 1.4: Achieved public awareness and stakeholder consensus on the detailed design and implementation of the national EPR system.	**6 (HS)**	Very good communication strategy and impacts with further potential for exploitation during the remaining part of the project.
	Outcome 1.5: Implementation of effective discrimination between second hand product and e-waste imports.	**5 (S)**	Work in progress but good potential given the involvement of key players in the country. Potential good developments through synergies with upcoming initiatives where project partners are involved (f.i. BCRC China involvement in DOTCOM Waste project[2] and training events to be organized in Beijing in 2017).

Table 2: MTR ratings & achievement summary table.

[2] See: http://www.dotcomwaste.eu

	Outcome 2.1: Utilization and upgrading of the existing domestic WEEE collection system to efficiently and cost effectively supply registered/permitted WEEE processing facilities particularly for POPs/PTS sensitive e-waste constituents.	**6 (HS)**	Good progresses, considering the opportunities enabled by the central monitoring system being implemented. Opportunity to fully demonstrate the achievements of the formal system (in terms of POPs/PTS emissions prevention and recycling performances).
	Outcome 2.2: Operation of a comprehensive national network of registered WEEE processing facilities to dismantle and process POPs/PTS release sensitive materials in an environmentally sound manner utilizing demonstrated BAT/BEP technologies.	**6 (HS)**	Good progresses (109 companies registered so far) and potential for exploitation, especially given the size of demonstrator companies involved in the project. Further replication opportunities given LPMOs role in daily implementation of national EPR policy.
	Outcome 3.1: Characterization of overall national scale, scope and impacts associated with the informal WEEE processing inclusive of identification of high priority regions and centers.	**5 (S)**	Work in progress, but good potential, especially considering the lessons and conclusions that can be drawn from monitoring activities in occupational health perspective.
	Outcome 3.2: Provision of policy, regulatory enforcement and awareness support provided through MEP to the local level related to supervision of the informal WEEE sector.	**5 (S)**	Work in progress and good potential. Guidelines are being developed. Important to ensure the informal collection networks are somehow involved to maximise the amount of material going through the formal recyclers.
	Outcome 3.3: Demonstration of collective infrastructure supporting informal WEEE processors and providing environmentally sound dismantling operations related to POPs/PTS sensitive release developed and integrated with the national EPR system recycling network for further processing.	**6 (HS)**	Good progresses and adoption of technologies serving the purposes.
	Outcome 4.1: Effective monitoring and evaluation; knowledge sharing and information dissemination	**6 (HS)**	Good work done, with clear monitoring and reporting strategy: training of LPMOs increased the coordination in monitoring project progresses. Good dissemination of project outcome and results.
	Outcome 4.2: Knowledge sharing implemented and post-project action plan prepared	**6 (HS)**	Good communication strategy implemented targeting local, national and international players.
	Outcome 5.1: Strengthened project management capacities and efficiency	**6 (HS)**	Good work done, with target training organized for LPMOs staff.
Project Implementation & Adaptive Management		**6 (HS)**	Project strategy and involvement of key partners proved so far to be successful and working smoothly.
Sustainability		**4 (L)**	Involvement of key players ensuring "national ownership" and demonstrator companies having economic incentives to exploit further the process results increasing collected and treatment amounts.

The project appears to be on track to deliver the expected outcome and in particular:

1. Design is consistent with the needs of Chinese context and in particular (i) implementing the EPR regulation trough a (ii) formal system of upgraded facilities adopting best-practices and technologies

ensuring high level of environmental protection; (iii) ensuring the waste arising in the country is channelled from existing informal system into the formal one.

2. The implementation strategy appear wise and fruitful, in particular taking into account:
    a. The section of LPMOs: having agencies/entities responsible at provincial level of implementation and enforcement of EPR policy will ensure learning of the project can be part of the learning curve of involved stakeholders;
    b. The section of companies: having good financial capability for co-financing and at the same time the interest of increasing and exploiting the benefits of the project.
3. The amount of material collected and treated after 2 years already exceeded by far the original target defined in the project document and demonstrators have a direct incentive to keep the good pace given the actual disbursement of the Fund.

Overall the project can represent a blueprint of EPR system working in China and, potentially, for other countries as well. The project embraces various component of the EPR system, including the analysis of best practices in project design but, more important, can prove how the informal operators can be integrated in a formal system. Progressive phase-out of informal treatment operators and integration of informal collectors (f.i. Jiangsu province) is one of the current stumbling blocks for development of modern ERP systems not only in China but in many other developing countries in Asia, Africa and Latin America.

A set of recommendations and follow-up actions is summarized in table below; they are clustered at component level, in order to facilitate their implementation and integration into the existing timeline of activities.

Project Component	Recommendation for corrective actions	Actions to follow up to reinforce benefits
1	n.a.	Trace collection and recycling at individual product types (TV, Air-Con, PC, Washing Machines, Fridges). This is enabled by the WEEE treatment information system developed and would increase precision in the calculation of material recovered and input for GEF Tracking tool.
1	n.a.	Proper tracking at individual product level could allow to feed data and experiences to the Fund Managers, particularly taking into account a proper accounting of all flows and the economics of their collection and recycling.
2	Align (progressively) guidelines and standard with international ones (EU WEELABEX/CENELEC) to: • ensure benchmarking with international standards and practices, • leverage on work already done to ensure best practices are adopted. Try applying WEELABEX requirements to demonstration facilities to assess the gap between national and international standards.	Further reinforce the benefits of the project with exploitation of: • training modules developed • awareness raising.
2	Monitoring data of the project by now is coming from a 3-day on-site monitoring in different demonstrations and with some uncertain parameter selection. This project launched the assessment of the pollutant one by one. The dismantling line can contain a variety of contaminants, such as PBDEs and Pb and other pollutants can be present together. Superimposed effect of toxic pollutants is still	n.a.

Project Component	Recommendation for corrective actions	Actions to follow up to reinforce benefits
	unknown, so the enterprises shall still make a good effort to protect the health and safety of staffs.	
2	Find alternative to the Wuhan Bo Wang Xing Yuan as cannot carry out hydro-metallurgical process for PCB treatment on schedule.	n.a.
2	The two different companies who applied to become the demonstrators for CRT recycling of this project came up with two different ideas, particularly in respect of recovery of lead. It will be important to carefully assess the two different options.	n.a.
3	In the majority of demonstration provinces the strategy to divert material from informal processing is to collect as much as possible directly from consumers but might not be enough especially where informal collection is still very effective. It is recommended to further exchange experiences and feedbacks with Jiangsu province who also developed a strategy for the inclusion of informal collection.	n.a.
4	It is recommended to develop a dashboard of indicators to check the planned versus actual status of the budget at (i) activity level, (ii) outcome level, and (iii) component level; this to ensure a quicker and smoother control of the overall project progresses.	n.a.
5	Given the majority of activities and outcome are still running and final results are only expected at the end of the project is suggested to organize virtual/physical bi-annual updates in the remaining 2 years with external experts, to ensure the project keeps working on track.	n.a.

Table 3: Summary of recommendations.

1 INTRODUCTION

1.1 PURPOSE OF THE MTR AND OBJECTIVES

The Mid-Term Review (MTR) will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results.

The MTR will also review the project's strategy and its risks to sustainability considering experiences and lessons learned during the project implementation; this to provide to project partners and stakeholders in general recommendations in order to achieve the targets and develop strategies for the remaining period of the project.

1.2 SCOPE & METHODOLOGY

Phases of MTR are well defined in the ToR for the assignment and in the guidance document from GEF/UNDP. In particular the ToR provided a clear scope of the evaluation approach to be adopted, particularly identifying the four areas in which the project progresses need to be assessed.

1. **Project Strategy**, which includes:
    a. *Project design* and in particular review the problem addressed by the project and the underlying assumptions; review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results; review how the project addresses country priorities and ownership.
    b. *Results Framework/Log-frame* and in particular undertake a critical analysis of the project's log-frame indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary; examine the current and potential room for development effects; ensure broader development and gender aspects of the project are being monitored effectively.
2. **Progress towards Results**, which reviews the log-frame indicators against progress made; this is done adopting the Matrix and framework from Guidance document; in addition the achievements of the project are evaluated using the GEF Tracking Tool; barriers for the achievement of project objectives are also analysed as well as opportunities to expand already achieved benefits.
3. **Project Implementation and Adaptive Management**, which includes:
    a. *Management Arrangements* and in particular review overall effectiveness of project management, role and responsibilities, decision-making process; review the quality of execution of the Executing Agency and Implementing Partners and the quality of support provided by UNDP China, recommending areas for improvement.
    b. *Work Planning*, addressing delays and their causes in project start-up and implementation as well as work-planning processes.
    c. *Finance and co-finance*, considering the financial management of the project, with specific reference to the cost-effectiveness of interventions; review of changes to fund allocations financial controls implemented in the project, reporting and planning mechanisms that allow management to make informed decisions on the budget; co-financing monitoring and its strategic

use to help the objectives of the project, including Project Team meetings with co-financing partners.

d. *Project-level Monitoring and Evaluation Systems* looking at monitoring tools being used and examining financial management of the project monitoring and evaluation budget, including resources allocated for this purpose.
e. *Stakeholder Engagement* and in particular project management and involvement of key stakeholders and establishment of appropriate partnerships; participation and country-driven processes and public awareness, contributing to the progress towards achievement of project objectives.
f. *Reporting*, assessing adaptive management changes and how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.
g. *Communications* with stakeholders, its effectiveness and feedback loops; in particular review of external project communication to express the project progress and intended impacts to the public.

4. **Sustainability**, which aims at validating the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module**,** and the ratings applied; in addition is considering the various sustainability dimensions:
    a. *Financial risks to sustainability* and in particular the likelihood of financial and economic resources not being available once the GEF assistance ends.
    b. *Socio-economic risks to sustainability*, including social or political risks that may jeopardize sustainability of project outcomes and level of stakeholder ownership to ensure long-term sustainability.
    c. *Institutional Framework and Governance risks to sustainability*, considering legal frameworks, policies, governance structures and processes that pose risks that may jeopardize sustenance of project benefits.
    d. *Environmental risks to sustainability*, jeopardizing sustenance of project outcomes.

The adoption of structured and common approach ensures not only a proper assessment of the project itself, but eventually allows UNDP China and/or GEF to benchmark with similar projects in other regions. Considering in particular the four areas where the MTR focuses and the components of the project, the following aspects are of particular importance:

1. **Project strategy**: this is particularly relevant for the first 3 components of the projects considering the technical aspects, while for the last 2 ones in regards of monitoring and dissemination. It's paramount to assess how the project team carried out self-monitoring of the project progresses in the past 2 years and see how self-assessment is in line with external evaluator's opinion.
2. **Progress towards the results**: again the focus will be on technical aspects for the first 3 components and mainly looking at dissemination and exploitations for the last two components. The field mission will be the most relevant element, allowing comparing documents and report and actual implementation.
3. **Project implementation and adaptive management**: will look into the operational implementation of the project but also look into the resilience of the project team towards changes in project landscape, boundary conditions and external elements that are always affecting projects, especially those having a four-years timeframe and a variety of stakeholders involved.

4. **Sustainability**: financial, socio-economic, institutional and environmental are four key dimensions to look at. The MTR will allow checking how the project is on track on those aspects considering the checklist already proposed in the guidance document.

The overall MTR methodology is based on four-step approach:

I. Analysis of project information package and desk research/review;
II. Preparation of MRT inception report;
III. Field mission;
IV. Preparation of MTR report (including commenting and feedback loops with stakeholders).

Steps I and II – analysis of project documents and MTR inception report

For each of the four areas, once the "project information package" has been provided, has been analysed (i) project proposal documents and (ii) current status of implementation.

Considering the log-frame of the project as well as the indicators proposed in the PIF it is possible already prior the mission to create the baseline for the project implementation and analyse the likelihood of achieving the proposed results.

Such baseline, based on the analysis of the project information package, eventually complemented with desk research, is the basis for the definition of the inception report, in order to prepare at best the field mission and the interviews with stakeholders; clarifying and anticipating (i) objectives of the review and (ii) how the assessment will be done are two fundamental elements to allow the project team to prepare at best.

This has been done in strong interaction with the MTR team members and will be kept as guiding principle also in the preparation of post-mission reports, including the feedback loops foreseen during the preparation of the final MTR report.

Step III – Field mission

The field mission has been prepared in strong interaction with the MTR team and UNDP, particularly ensuring interviews and site visits allow complementing the knowledge gained from project documents and understand the current progresses made. At the same time the filed visits and interviews will allow providing direct suggestions and recommendations based also on the direct experience of the MTR team.

All those findings are part of the mission wrap-up meeting.

Step IV – MTR final report

The MTR final report is prepared in strong coordination between MTR team and UNDP, as Commissioning Unit, and with the project team to ensure the best coverage of facts, figures and details on the project status.

1.3 STRUCTURE OF THE MTR REPORT

This evaluation report is structured according to the "Guidance for conducting mid-term reviews of UNDP-supported GEF –financed projects" (project level monitoring) 2014" and the indications in the Terms of Reference for the MTR itself (Annex A).

The report consists of five main sections:

- Overview of project and its context;
- Assessment of project achievements based on project objectives and outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected outcomes and sustainability of the project;
- Conclusions and recommendations.

2 PROJECT DESCRIPTION AND BACKGROUND CONTEXT

2.1 DEVELOPMENT CONTEXT

China is considered the world's largest current processor of e-waste derived from WEEE recycling. WEEE domestic generation in China has reached 6 million tons in 2014 and the number is expected to soar as the result of economic growth. Currently the majority of WEEE and e-waste component has been collected and processed primarily by an informal resource recovery and recycling sector that typically utilizes crude, polluting technologies. This has resulted in the sector being associated with a range of serious environmental and health impacts including significant POPs and PTS release, and further contributes to air, land and water contamination.

The project is designed to help China to fulfil the requirement of the Stockholm Convention and support the input of international experience and best practice into China's aggressive policy efforts to address this significant issue through development and implementation of an Extended Producer Responsibility (EPR) based system for WEEE generally. Consistent with this objective, the project addresses the POPs/PTS release sensitive e-waste stream in the recycling, dismantling, treatment and final disposal processes of WEEE. The overall expected results of the project is China having an domestic WEEE management system financed by a robust sustainable EPR mechanism and operating with BAT/BEP that effectively maximizes the resource recovery potential available while eliminating the major environmental releases, particularly POPs releases currently attributed to WEEE processing.

2.2 PROBLEMS THAT THE PROJECT SOUGHT TO ADDRESS

Majority of China's WEEE dismantling process employs more basic, manual or simple machinery technologies. WEEE contains persistent toxic chemical contaminants (such as POPs and other brominated flame retardants, heavy metals, etc.) that can be released into the environment through improper treatment and residual waste disposal processes. Also improper treatment processes cause the release of other types of POPs such as dioxins, serious threats are imposed to the ecological system and the human health at the dismantling sites and further to global commons. The problems and obstacles that China is facing can be summarized as follow:

- Existing references all point to the fact that WEEE contains POPs/PTS substances, and that improper treatment will release additional POPs; China has not undertaken quantitative analysis on POPs/PTS substances during the production process of electronic products; nor had it undertaken qualitative and quantitative identification of the types and quantities of POPs/PTS discharge or emission in the waste treatment and disposal process.

- Enterprises undertaking WEEE dismantling or processing perform only part of dismantling and material recovery work. For example, a licensed enterprise that can handle the four major types of home appliances (television, refrigerator, washing machines, air conditioner) and computer, was found to only crush the plastic shell of sorted WEEE and then the waste was sold to the market and how it was subsequently treated remains unknown. This increases the difficulties in controlling POPs/PTS substances flow during the dismantling and treatment processes of WEEE and not conducive to the management and reduction of POPs/PTS release.
- At present, there is a variety of technologies used for WEEE dismantling and treatment process. While it is known that in general POPs/PTS substances are released during the dismantling and treatment process, however, in the absence of monitoring and control mechanism, enterprises do not pay attention to whether the wastes generated contain POPs/PTS substances nor the quantities generated. This results in difficulties to take effective measures to control and reduce POPs/PTS emission, and that also impacts on China's compliance with the Stockholm Convention.
- Currently the main aim for WEEE disposal and treatment process centers on resources and regeneration, and barely considers environmental protection, paying little concern on assessment and management of POPs/PTS release. Furthermore, the lack of related emission standards, emission reduction guidelines and corresponding environmental impact assessment (EIA) guidelines on WEEE limits the sound management and supervision of POPs/PTS release.
- Existing studies fail to find qualitative and quantitative solutions for an effective management strategy that encompasses multi objectives including economic costs, recycling rate of WEEE, management and reduction of POPs/PTS, thus making it difficult for an efficient state- and local-level environmental management effort, or to offer local enterprises a constructive and practical programme on reducing POPs/PTS release.

Beginning in 2003, China initiated work on development of a national WEEE management system that has involved promotion of development of a formal processing sector employing environmentally sound technologies. This has resulted in a series of regulatory initiatives undertaken by the Ministry of Environmental Protection (MEP), Ministry of Industry and Information Technology (MIIT), and, at the state level, through the Ministry of Finance (MOF), which have now been replaced by a permanent WEEE management system financed by an Extended Producer Responsibility (EPR) mechanism under the state level Regulations on the Administration of Recovery and Disposal of Waste Electrical and Electronic Products. This was introduced in 2009, came into effect in 2011 with the plan of being fully implemented by 2015.

The current implementation plan for the EPR based WEEE management system in China is based on few critical assumptions which define on one end the main barriers to achieve the overall goal and, at the same time, help identifying the areas where the GEF funds, during the project, will help:

1. The current informal sector will be replaced by or absorbed into the new formal sector, something that will depend on the effectiveness and competiveness of the EPR system relative to the informal sector that should be achieved by the financial incentives a well-funded EPR system can preferentially provide to the formal sector and the private sector investing in it as a consequence;
2. The current large volumes of imported e-waste which might otherwise sustain a competing informal sector will be eliminated;
3. There is a broader coverage of WEEE than currently provided for; and

4. International experience related to implementing EPR systems and introducing processing technology based on international BAT/BEP is available and applicable to the Chinese context.

2.3 PROJECT DESCRIPTION AND STRATEGY

The project is structured with five components; a short description with objectives and expected results is reported below:

- **Component 1: Development and implementation of the national EPR system for WEEE**
  Covers national WEEE management system development and implementation in terms of scope, administration, business arrangements and promotion with the GEF support being focused on introduction of international experience and lessons learned.
- **Component 2: Demonstration and development of market based WEEE processing**
  Covers the development of the required infrastructure and the demonstration of BAT/BEP technologies with the GEF support focused on introduction of international technology and capability.
- **Component 3: Upgrading of informal WEEE processing and its integration into the EPR System**
  Addresses the integration of the informal sector into the formal EPR system with GEF support focused on information exchange, training and international cooperation related to illegal imports.
- **Component 4: Project Monitoring and Evaluation**
  Supports the monitoring and evaluation of the project and dissemination of experience, something that is seen as useful for other developing countries dealing with the issue globally.
- **Component 5: Project Management**
  Strengthens project management capacity to achieve implementation effectiveness and efficiency.

Table below summarizes the main outcomes for each component and the number of supporting activities defined in the project plan.

Component	Expected Outcome	Number of Supporting Activities
1	Outcome 1.1: Operational national EPR system covering priority POPs/PTS release sensitive E-Waste streams	3
	Outcome 1.2: Adopted and implemented national technical standards and operational business documentation governing the management of WEEE in support of the EPR system	1
	Outcome 1.3: Applied LCA/LCM procedures and labelling for product design and production.	2
	Outcome 1.4: Achieved public awareness and stakeholder consensus on the detailed design and implementation of the national EPR system.	1
	Outcome 1.5: Implementation of effective discrimination between second hand product and e-waste imports.	3
2	Outcome 2.1: Utilization and upgrading of the existing domestic WEEE collection system to efficiently and cost effectively supply registered/permitted WEEE processing facilities particularly for POPs/PTS sensitive e-waste constituents.	2
	Outcome 2.2: Operation of a comprehensive national network of registered WEEE processing facilities to dismantle and process POPs/PTS release sensitive materials in an environmentally sound manner utilizing demonstrated BAT/BEP technologies.	6

3	Outcome 3.1: Characterization of overall national scale, scope and impacts associated with the informal WEEE processing inclusive of identification of high priority regions and centers.	2
	Outcome 3.2: Provision of policy, regulatory enforcement and awareness support provided through MEP to the local level related to supervision of the informal WEEE sector.	2
	Outcome 3.3: Demonstration of collective infrastructure supporting informal WEEE processors and providing environmentally sound dismantling operations related to POPs/PTS sensitive release developed and integrated with the national EPR system recycling network for further processing.	1
4	Outcome 4.1: Effective monitoring and evaluation; knowledge sharing and information dissemination	3
	Outcome 4.2: Knowledge sharing implemented and post-project action plan prepared	1
5	Outcome 5.1: Strengthened project management capacities and efficiency	2

Table 4: Expected outcomes.

2.4 PROJECT IMPLEMENTATION ARRANGEMENTS

The project is being implemented in line with the Agreement between UNDP and the Government of China and the Country Programme Action Plan (CPAP). The Ministry of Environmental Protection (MEP), the government institution responsible for the daily execution and coordination of the project, has designated FECO/MEP as the entity in the implementation of activities for the project.

In each demonstration province a Local Project Management Office (LPMO) has been identified and appointed for the local execution, including relationship with sub-contactors. To ensure smooth and efficient implementation of the project under the arrangement between UNDP and FECO/MEP, major component of the project activities will be implemented with the support of qualified technical national and international experts and institutes, to be engaged through contractual agreements (subcontracts) by FECO/MEP, through competitive bidding process. Such contractual agreements enable efficient supervision and monitoring by FECO/MEP and UNDP to assure the timely delivery of anticipated results; subcontract arrangements will also afford better financial management as payments are effected on agreed deliverables and upon satisfactory completion of the tasks stipulated in the subcontract.

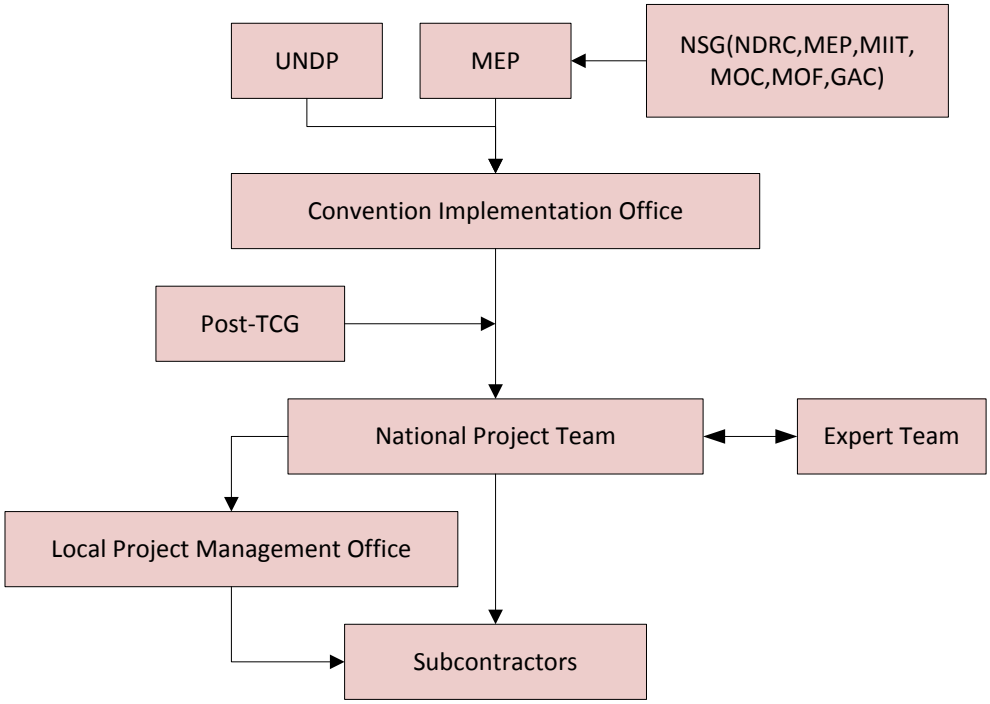


Figure 1: Project implementation structure.

2.5 PROJECT TIMING AND MILESTONES

Table below provide the overall Gantt of the project, highlighting per each component the expected outcomes and the linked activities.

Project Component	Expected Outcome	Project Activities	Year 1	Year 2	Year 3	Year 4
Component 1	Outcome 1.1	Activity 1.1.1				
		Activity 1.1.2				
		Activity 1.1.3				
	Outcome 1.2	Activity 1.2.1				
	Outcome 1.3	Activity 1.3.1				
		Activity 1.3.2				
	Outcome 1.4	Activity 1.4.1				
	Outcome 1.5	Activity 1.5.1				
		Activity 1.5.2				
		Activity 1.5.3				
Component 2	Outcome 2.1	Activity 2.1.1				
		Activity 2.1.2				

Project Component	Expected Outcome	Project Activities	Year 1	Year 2	Year 3	Year 4
	Outcome 2.2	Activity 2.2.1				
		Activity 2.2.2				
		Activity 2.2.3				
		Activity 2.2.4				
		Activity 2.2.5				
		Activity 2.2.6				
Component 3	Outcome 3.1	Activity 3.1.1				
		Activity 3.1.2				
	Outcome 3.2	Activity 3.2.1				
		Activity 3.2.2				
	Outcome 3.3	Activity 3.3.1				
Component 4	Outcome 4.1	Activity 4.1.1				
		Activity 4.1.2				
		Activity 4.1.3				
	Outcome 4.2	Activity 4.2.1				
Component 5	Outcome 5.1	Activity 5.1.1				
		Activity 5.1.2				

Figure 2: Project Gantt.

2.6 MAIN STAKEHOLDERS

The main stakeholders involved in the project are listed in table below. Table does not include subcontractors.

Stakeholder	Role in the project
UNDP China	Implementing Agency
FECO/MEP	National Executing Agency
Hubei Environmental Protection Bureau	Local PMO for Hubei province
Tianjin Environmental Protection Bureau	Local PMO for Tianjin
Jiangsu Environmental Protection Bureau	Local PMO for Jiangsu province
TCL Aobo (Tianjin) Environmental Protection Development Co. Ltd	Demonstration company
Jiangsu XiangyuChangzhou Xiangyu Recycling Resources Co. Ltd.	Demonstration company
Jingmen Green Eco-Manufacturer Co.Ltd	Demonstration company
Hubei Jinyang Metallurgical Incorporated Co.Ltd.	Demonstrator company candidate
Wuhan Bowang Xingyuan Property Service Co. Ltd.	Demonstration company
Daye Nonferrous Boyuan Environmental Protection Co. Ltd.	Demonstration company
Yunnan Chihong Zinc & Germanium Co., Ltd.	Demonstrator company candidate

Table 5: Stakeholders in the project.

3 FINDINGS

3.1 PROJECT STRATEGY

3.1.1 PROJECT DESIGN

The design of the project is comprehensive and embraces the key elements that need to be talked to ensure a long-term implementation of EPR system in China. The Project Document itself and the proposal prove how the conceptual design and the involvement of key players has been planned in early stages already.

The project strategy also reflects the main challenges currently at stake in China: (i) support of introduction of state-of-the-art technologies for WEEE processing, ensuring high level of environmental protection and resource recovery, (ii) definition and implementation of long-term sustainable financing mechanism in line with EPR principles, (iii) phase-out of informal processors and integration of informal collectors in the system. In a nutshell: creating a blueprint for a sustainable model and channelling flows towards the system.

The heavily involvement of key national and regional stakeholders, including relevant ministries will ensure that project results can be easily channelled towards the policy development and implementation of national regulations.

On the other hand, the selection of demonstration companies proved to be promising considering: (i) the size of the companies and their financial capability for the co-financing, but also (ii) the vision to increase the amount of WEEE processed and the (iii) potential to be successful examples and champions for replication across the country.

3.1.2 RESULTS FRAMEWORK/LOG-FRAME

The log-frame of the project is consistent and well structured. Each one of the five components is broke down in measurable indicators, in particular the first 3 components that are focusing on operational activities. This is certainly helping the National Project Team to keep the focus on the progresses of the project and assess the need of corrective measures targeting specific areas of the overall project plan.

The gender dimension appears to be taken into account considering at least 40% of the personnel hired by the demonstration enterprises is female. These female workers, including managers and technicians, attended the training events and awareness raising activities under the project.

Some of the activities linked to specific outcome, despite running for the entire duration of the project already achieved the expected results. This in particular relevant for activities related to the awareness raising and the integration of informal collectors into the formal system.

On the other hand it would have been probably appropriate to define, for task lasting for the entire duration of the project and particularly critical for the overall success and sustainability of the project's results, intermediate benchmark as well to be verified during the MTR.

The project appears anyway on track to deliver the expected results of the log-frame.

3.2 PROGRESS TOWARDS RESULTS

The great majority of activities are lasting for the entire project duration but appears to be, in the majority of cases, on track to achieve the expected results. The following table provide a detailed analysis and overview.

3.2.1 PROGRESS TOWARDS OUTCOMES ANALYSIS

Table below provides the assessment from MTR team considering the Project Log-frame and the outcome of the review. The following "Indicator Assessment Key" is adopted:

Green = Achieved	Yellow = On target to be achieved	Red = Not on target to be achieved

In many cases activities are still running or in early stage. Despite they all seem on track to achieve the project target, it is not always possible to evaluate if they can be regarded as best practice, hence the rating "S" rather than "HS". But overall in almost all the components/activities, the project shows good progresses.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
Project Objective The project will address the POPs/PTS release sensitive e-waste stream in the recycling, dismantling, treatment and final disposal processes of Waste Electrical and Electronic Equipment (WEEE).	Efficient and functional EPR and WEEE management system	EPR Treatment Fund established but not efficiently operational	During this reporting period, the 2014 Electrical and Electronic Equipment catalog was updated and came into force on 1 March 2016. Nine (9) new types of e-waste products were added to the 2014 edition catalog. A policy on dismantling standards for the 9 newly added e-waste products is being updated, which will enable the EPR Treatment Fund to be implemented more smoothly.	n.d.	National policy about EPR finalized	Y	S	Project results can be channelled but no direct control over policy development from project partners.
			The fund subsidy standards were revised and implemented.	n.d.	Improved operational mechanism of EPR Treatment Fund and WEEE management	Y	S	Project results can be channelled but no direct control over policy development from project partners.
			Total number of people trained during the duration of the project 143.	n.d.	At least 250 management personnel at national and demonstration locations trained on EPR concept and WEEE management system	Y	HS	Already close to achieving target and good potential to increase the total number of trained persons.

[3] If available

[4] Color code this column only

[5] Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
	Amount of WEEE treated by permitted recyclers in the three demonstration locations	Over 2 million units of WEEE collected and processed by permitted recyclers at the 3 demonstration provinces / municipality	Total number of units collected and processed during the duration of the project is more than 23 million.	n.d.	Estimated 50% increase of WEEE collected and processed	G	HS	By far exceeded the initial target. Good potential to further increase the benefits of the project in the upcoming 2 years.
	Number of facilities replicating or establishing sound WEEE recycling		This activity will be carried out in subsequent reporting periods.	n.d.	At least 2 BAT/BEP technologies for pre-treatment demonstrated and relevant technical guidelines finalized	Y	HS	Work in progress but good potential for replication considering the involvement of big companies and role of LPMOs.
			This activity will be carried out in subsequent reporting periods.	n.d.	At least 2 BAT/BEP technologies for disposal demonstrated, end gas discharge of PCDD/PCDF to meet pollution control standards for hazardous waste incineration if incineration technology selected. Relevant technical guidelines finalized	Y	S	Work in progress. Activities in too early stage to evaluate if can be "good practice" (HS)
	Numbers of workers received training in sound WEEE processing		Total number of workers to-date 10,300	n.d.	At least 25,000 technical workers trained on BAT/BEP and sound WEEE processing	Y	HS	Work in progress but very good potential to achieve and maybe exceed the target. Interesting to see how the training has also been provided to workers not directly working for demonstration companies only.
	Market based WEEE processing infrastructure demonstrated and developed	Low rate of WEEE collection and recycling by formal sector	The demonstration enterprises recycled e-waste using multi-channel recycling models including reverse logistics, community recycling, and assigned spot recycling.	n.d.	Demonstration of collection successfully completed at selected enterprises.	Y	S	Majority of demonstration enterprises focused on final user collection, especially developing reverse logistics strategies and web-based solutions.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
								Only one enterprise (Jiangsu) tried to integrate collection from informal players. It is recommended to test if the approach working in Jiangsu can be also tested/replicated in other provinces.
		Dominated by primitive and manual processing of WEEE	All demonstration enterprises conducted production line improvements and technical demonstration activities are ongoing in an orderly way : • Xiangyu in Jiangsu Province added screen line cutting equipment with electric-heating, video monitoring and storage devices, exhaust gas treatment equipment and a stripping device. • TCL in Tianjin added new dust exhausts on refrigerator, TV and computer processing lines. • Bowang in Hubei added video monitoring and storage devices and updated terminal monitoring system, updated refrigerator processing lines. • GEM in Hubei added new dust exhaust devices and video monitoring and storage devices.	n.d.	Technology demonstration activities at selected enterprises at the three demonstration provinces/municipality successfully completed	Y	S	Good implementation of technological improvement.
			More than 173,000 t of plastics containing BFR processed, with a total of 277 kg of PBDEs not emitted according to GEF tracking tool.	n.d.	Over 5,000 ton of BFR (brominated flame retardant) containing plastic/resins performed/reused annually		S	Need only to account for the share of plastics containing BFR in the tracking tool (bout 25-30% of the total plastic fraction).
			Contracts with CRT demonstration enterprises will be signed and	n.d.	Over 5,000 tons of CRT to be recycled annually from	Y	HS	The potential recovery of Pb from the Lead smelter, if proved

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
			demonstration activity will be carried out in 2017.		environmental emission annually in the demonstration locations			to be working, can be a showcase for other regions.
			Bidding documents for the preparation of the 5 WEEE Technical Guidelines being prepared.	n.d.	5 WEEE technical guidelines about eco-design finalized	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
			At national level, 99 enterprises were selected as pilot enterprises for industrial products eco-design, of which 12 enterprises are from the electronic and electrical equipment industry. The project plans to choose one of these 12 enterprises to conduct an eco-design demonstration.	n.d.	Eco-design for at least one electrical and electronic equipment developed	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
	Informal WEEE processing facilities upgraded and integrated into EPR system through diversion into formal processing facilities	Large percentage of WEEE is estimated to be collected and processed by the informal sector	This activity will be carried out in subsequent reporting periods.	n.d.	Three types of WEEE collection/recycling demonstrated and successfully completed at three selected provinces/municipality.	Y	S	Good progresses in particular with online & offline system (O20). Only the province of Jiangsu tried to integrate the informal collectors into the system.
	Number of newly registered WEEE processors	Zero	A total of 109 WEEE processors had been registered and considered eligible for fund subsidies.	n.d.	Increase WEEE collected and channelled by informal or newly registered (ex-informal) collectors to formal recycling enterprises for treatment	Y	HS	Good progresses so far and room to further increase the quantity of material being collected and recycled by demonstration companies.
			This activity will be carried out in subsequent reporting periods.	n.d.	New WEEE entities registered and qualified and eligible to receive EPR Treatment Fund subsidies	Y	S	Good progresses so far and room to further increase the number of registered companies in the system.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
Component 1								
Outcome 1.1 Operational national EPR system covering priority POPs/PTS release sensitive E-Waste streams								
	Number of companies in EPR system	Approximately 120 formal enterprises	Total number of WEEE companies registered during the duration of the project and eligible for fund subsidies are 109.	n.d.	All newly established and qualified formal enterprises are required to be registered	Y	HS	Good progresses so far and room to further increase the number of registered companies in the system.
	Amount of WEEE processed by companies receiving EPR Treatment Fund	2,000,000 units WEEE collected and processed at the three demonstration provinces/municipality	Total number of units collected and processed during the duration of the project over 23 million.	n.d.	Estimated 50% increase in WEEE collected and processed in the demonstration locations	G	HS	By far exceeded the initial target. Good potential to further increase the benefits of the project in the upcoming 2 years.
	Amount of fund disbursed by the EPR Treatment Fund		In total (at the national level) around 9.2 billion RMB was disbursed from EPR Treatment Fund during 2012 - 2014. Funds for 2015 updated in next reporting period.	n.d.	Nationally, RMB 500 million disbursed annually from EPR Treatment Fund	G	HS	By far exceeded the initial target. Good potential to further increase the benefits of the project in the upcoming 2 years.
	At least one training per year conducted disseminating international EPR experience	No training with input of international experience	25/05/2016: International Conference on WEEE Management and EPR Principle (260 represents from China and abroad) 2-4/06/2016: E-waste international workshop in Beijing (32 guests from 13 developing countries + 8 local participants & 15 management staff from demonstration provinces/municipality)	n.d.	3 trainings conducted	Y	HS	Good progress so far, and potential to further disseminate the good results of the project trough the international network established.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
	Integrated information/data management system installed and utilized by MOF for disbursement under the EPR Treatment Fund	Preliminary database used by MOF to calculate and manage subsidy and disbursement	Subcontract for the development of the data information system signed. Real-time information gathering and remote monitoring through this IT system will be realized while standardization of the operation will be promoted.	n.d.	Fully established data-base, with all EPR Treatment Fund disbursements released through the Integrated Information Data Management System	Y	HS	The proposed IT system has good potential for ensuring effective monitoring of operations and creating baseline for financial monitoring of the Fund.
Outcome 1.2 Adopted and implemented national technical standards and operational business documentation governing the management of WEEE in support of the EPR system.								
	Number of technical standards finalized	No specific technical standard document available for collection, logistics, pre-treatment, material recovery and hazardous waste disposal	This activity will be carried out in subsequent reporting periods.	n.d.	2 technical standard documents finalized	Y	S	Draft prepared but it is suggested to review latest EU standards (WEEELABEX and CENELEC) for technical comparison of requirements. It is also suggest to "test" the WEEELABEX requirements on demonstration companies to analyse gaps and room for improvement.
Outcome 1.3 Applied LCA/LCM procedures and labeling for product design and production.								
	Five eco-design standard documents	None exist	The bidding documents on six eco-design technical guidelines are being prepared (television, computer, washing machine, refrigerator, air conditioner and mobile telephone) The subcontract on chemicals in electronic and electric equipment products was signed with Solid Waste and Chemicals Management Center (SCC) of Ministry of Environmental Protection to	n.d.	Eco-design document finalized and made available	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
			provide technical support throughout the eco-design activity.					
	Electric and electronic product eco-design developed	None exist	12 enterprises from the electronic and electrical equipment industry were selected as pilot enterprises for industrial products eco-design. Plan to choose one of these 12 enterprises to conduct eco-design demonstration. Subcontract expected to be signed in2017.	n.d.	Eco-design for at least one electrical and Electronic equipment developed	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
Outcome 1.4 Achieved public awareness and stakeholder consensus on the detailed design and implementation of the national EPR system.								
	One stakeholder nodal body is established	No coordination body exist for WEEE stakeholders	This activity will be carried out in subsequent reporting periods.	n.d.	1 multi-stakeholder platform established	Y	HS	The involvement of regional, national and international stakeholders proved already to be good.
	At least one public awareness campaign conducted every year	None. Level of awareness to be established during first year of implementation	Every LPMO organized public awareness campaigns at provincial level. 2014/2015: • Tianjin: Baidu recycling campaign involving film star Ms. Zhao Wei as advocate with both local and international news coverage. • Hubei: short video broadcast in Wuhan city subway from • Jiangsu: launch an O2O way in e-waste recycle. 2015/2016: • Tianjin: awareness activities in 50 communities.	n.d.	3 public awareness campaigns conducted in the demonstration provinces/municipality	Y	HS	Good progresses so far and diversified communication strategy involving various media and addressing different target groups. Room to further improve till the end of the project reaching higher number of persons leveraging on already developed material or resources (f.i. GEM museum).

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
			• Jiangsu: campaigns in subway for 3 months, reaching 600,000 people and community events reaching 2,000 people and campaigns on Nanjing TV covering 10,000 people (estimates). Jiangsu Province Cooperation forum for new Environmental protection technology opened from 19 November: more than 5000 participants from 11 countries and regions and 239 national environmental protection enterprises attended the fair.					
Outcome 1.5 Implementation of effective discrimination between second hand product and e-waste imports.								
	Training Guidelines for the control of imports are made available to the relevant government agency	None existed	This activity will be carried out in subsequent reporting periods.	n.d.	Guidelines compatible with Basel Convention finalized and made available and used by relevant government agencies	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
	Training program and workshop	None implemented	This activity will be carried out in subsequent reporting periods.	n.d.	Guidelines documents of the Basel Convention are used	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
	Criteria for discrimination between e-waste and second hand product established and used by relevant government authorities	None implemented	This activity will be carried out in subsequent reporting periods.	n.d.	Guideline documents of the Basel Convention are used as reference	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
	Contacts and communication with major exporting countries established	No active activities	This activity will be carried out in subsequent reporting periods. ToR for illegal exporting is in preparation and will be finished in August and the bidding process will be started in September.	n.d.	Possibilities and mechanisms of cooperation and coordination explored and activities initiated	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
Component 2								
Outcome 2.1 Utilization and upgrading of the existing domestic WEEE collection system to efficiently and cost effectively supply registered WEEE processing facilities particularly for POPs/PTS sensitive e-waste constituents.								
	Diagnostic studies and action plan conducted with at least one recycler in each demonstration province.	None	This activity will be carried out in subsequent reporting periods.	n.d.	3 diagnostic reports and action plan finalized	Y	S	Plan established but activities in too early stage to evaluate if can be "good practice" (HS)
Outcome 2.2 Operation of a comprehensive national network of registered WEEE processing facilities to dismantle and process POPs/PTS release sensitive materials in an environmentally sound manner utilizing demonstrated								
	Authorized recyclers registered with the EPR Treatment Fund	Only about 120 formal recyclers registered	Total number of WEEE companies registered and eligible for Fund subsidies during the duration of the project 109. Register will be revised as new 9 products have been added in legislation.	n.d.	All newly established formal recyclers in the demonstration provinces/municipality are registered	Y	HS	Good progresses so far and room to further increase the number of registered companies in the system.
	Operational Guidelines for upgrading to technical standards are made available	None	This activity will be carried out in subsequent reporting periods.	n.d.	3 operational guideline documents finalized and made available	Y	S	Draft prepared but it is suggested to review latest EU standards (WEEELABEX and CENELEC) for technical comparison of requirements

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
BAT/BEP technologies.	Technical guidelines for pre-treatment of WEEE prepared	Not existed	Technical guidelines for the pre-treatment of WEEE being prepared and the draft document to be completed before the end of 2016.	n.d.	Technical guideline for pre-treatment of WEEE finalized and made available	Y	S	Draft prepared but it is suggested to review latest EU standards (WEEELABEX and CENELEC) for technical comparison of requirements
	Demonstration initiatives implemented with at least one recycler in each demonstration province/municipality	None	All demonstration enterprises actively carried out BAT demonstration activities: • Jiangsu: Xiangyu added screen line cutting equipment with electric-heating, video monitoring and storage devices, exhaust gas treatment equipment and a stripping device. • Tianjin: TCL added new dust exhausts on refrigerator, TV and computer processing lines. • Hubei: Bowang added video monitoring and storage devices and updated terminal monitoring system, updated refrigerator processing lines. • Hubei: GEM added new dust exhaust devices and video monitoring and storage devices.	n.d.	3 demonstration activities implemented	Y	S	Upgrade of treatment operations in line with technical needs.
	Risk assessment undertaken to evaluate the establishment of a network of regional facilities	None	Risk assessment on WEEE processing completed. Report indicated the release of pollutants and health risks during e-waste processing and provides technical support for demonstration activities implementation. And the final evaluation and risk assessment on the implementation and achievements of	n.d.	At least 3 assessment reports completed	Y	S	Work completed.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
			demonstration activities will be conducted in late 2017 or early 2018.					
	At least one non-ferrous metal smelter processing printed circuit boards with precious metal recovery >85 %	None	This activity will be carried out in subsequent reporting periods.	n.d.	Emission meeting pollution control standard for hazardous wastes incineration	Y	S	Risk related to licensing of demonstrator company initially selected. FECO and UNDP started the process to replace it.
Component 3								
Outcome 3.1 Characterization of overall national scale, scope and impacts associated with the informal e-waste processing inclusive of identification high priority regions and centers.								
	Characterization study highlighting the most critical processes from the informal WEEE recycling sector undertaken	Several reports mentioned the informal sector but data not clear due to data scarcity	This activity will be carried out in subsequent reporting periods.	n.d.	Characterization study report completed and finalized	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)
	Guidance document completed and information disseminated	No guidance document available on measurement of impacts associated with informal recycling	This activity will be carried out in subsequent reporting periods.	n.d.	Guidance document finalized	Y	S	Activities in too early stage to evaluate if can be "good practice" (HS)

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
Outcome 3.2 Provision of policy, regulatory enforcement and awareness support provided through MEP to the local level related to supervision of the informal WEEE sector.	WEEE flows from informal sector to registered recyclers are monitored by the EPR Treatment Fund	No registered exchange between informal and formal recyclers	Day-to-day supervision for WEEE dismantling enterprises conducted in demonstration areas by on-site inspection and remote monitoring. At enterprise level, monitoring the dismantling process by video monitoring and report their collection and treatment data daily. At provincial level, strengthen review and supervision by on-site inception and video monitoring system. At national level, comprehensive and real-time monitoring of the enterprise management process.	n.d.	Enforcement actions on informal recyclers and efforts to divert e-waste to formal sector	Y	S	Activities seem not 100% aligned with the indicator, as there is no link with "informal sector flows". Activities are aiming at monitoring the flows in the formal system and in this respect show good progresses.
	At least one awareness campaign conducted in each demonstration province/municipality	None	Every LPMO organized public awareness campaigns at provincial level. 2014/2015: • Tianjin: Baidu recycling campaign involving film star Ms Zhao Wei as advocate with both local and international news coverage. • Hubei: short video broadcast in Wuhan city subway from • Jiangsu: launch an O2O way in e-waste recycle. 2015/2016: • Tianjin: awareness activities in 50 communities. • Jiangsu: campaigns in subway for 3 months, reaching 600,000 people and community events reaching	n.d.	3 awareness campaigns conducted	G	HS	Target achieved, interesting and diversified communication strategy involving various media and addressing different target groups. Room to further improve till the end of the project reaching higher number of persons leveraging on already developed material or resources (f.i. GEM museum).

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
			2,000 people and campaigns on Nanjing TV covering 10,000 people (estimates). Jiangsu Province Cooperation forum for new Environmental protection technology opened from 19 November: more than 5000 participants from 11 countries and regions and 239 national environmental protection enterprises attended the fair.					
Outcome 3.3 Demonstration of collective infrastructure supporting informal WEEE processors and providing environmentally sound dismantling operations related to POPs/ PTS release developed and integrated with the national EPR system recycling network for further processing.								
	Pilot interventions implemented based on technical standards for collection and logistics	None	Multi-channel recycling ways were applied and operationalized in the demonstration enterprises including: • reverse logistics, • community recycle, and • assigned spot recycle. For instance: • TCL in Tianjin cooperated with Baidu to recycle WEEE by O2O way. • GEM in Hubei build recycling system to collect household waste and solve recycling problems in city waste classification by O2O methods including Recycling Guy APP, websites and Wechat.	n.d.	At least 3 pilot interventions implemented	G	HS	Pilots are on-going and the interventions has been implemented. Good potential to further exploit the collection strategy in the remaining part of the project.
Component 4								

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
Outcome 4.1 Monitoring and evaluation, knowledge sharing and information dissemination	Timing and quality of annual (APRs, PIRs etc.) and M&E reports	Indicative M&E plan, budget and timeframe	2014/2015: • 1 Annual Project Report, 1 Project Implementation Report, 1 Annual Work Plan, 4 Quarter Project Reports, 6 Funding Authorization and Certificate of Expenditures. 2015/2016: • 1 Annual Project Report (APR), 1 Project Implementation Report (PIR), 3 Quarterly Project Report, 6 Funding Authorizations and Certificates of Expenditures • Field visit to 3 demonstration areas • Review meeting of demonstration enterprises from Jiangsu province and Hubei province.	n.d.	M&E activities implemented as scheduled and project implementation monitored to achieve project objectives	G	HS	Good and smooth implementation of project activities and monitoring system.
	Quality appraisal in Mid-Term Review and Terminal Evaluation			n.d.		Y	HS	Good and smooth implementation of project activities and monitoring system.
	Lessons learnt and experience documented and disseminated; post-project action plan formulated	None	This activity will be carried out in subsequent reporting periods.	n.d.	Lessons and experience documented and disseminated	Y	S	Good potential to share project's progresses, especially considering the role of LPMOs and the international network established.
Component 5								

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
Outcome 5.1 Strengthened project management capacities and efficiency	Timely project implementation and disbursement	Existing staff	1 project coordinator was recruited.	n.d.	Capacity of National Project Team strengthened. In additional to existing staff, a Project Coordinator and a secretary are recruited. National Project Team established, staffed, equipped and trained	G	HS	Strong National Project team established and good cooperation with stakeholders involved in the project.
	LPMO established in each demonstration provinces/municipality furnished with staff and equipment	None	The LPMOs were established during the previous reporting period.	n.d.	LPMOs at each demonstration location established, staffed, equipped and trained	G	HS	Achievement of the target.
	Project Implementation Manual (PIM) developed	PIM for other GEF project can be used as reference	One PIM finalized and distributed to LPMOs during the projects inception workshop (01/07/2014).	n.d.	PIM finalized and used as guidance for project implementation	G	HS	Achievement of the target.
	Staff of PT and LPMOs staff trained about the PIM and relevant requirements of GEF and UNDP on project management	None	07/2014 and 01/2015: training workshops for LPMO staff. 09/2015: annual review meeting organized and LPMO staff trained on project management skills. 12/2015: 5 staff of project team participated in the capacity building and communication workshop organized by UNDP to enhance project management skills . A total of 35 person-times, about 20 project workers have been trained during the entire duration of the project.	n.d.	Staff trained and project management capacity strengthened	G	HS	Achievement of the target.

Project Strategy	Indicator	Baseline	Level in 1st (2016) PIR (self-reported)	MTR Target[3]	End of Project Target	MTR Level[4]	Rating[5]	Justification for Rating
	Routine project management activities undertaken to ensure the smooth and timely implementation of the project. The activities include but not limited to: drafting TORs, select and contract with consultants, organize M&E activities, organize the review of substantial report	None	Coordination mechanism and management rules at local level established. Steering group meetings conducted to review the projects annual work report and guide work plan development of the 3 LPMOs, at least once a year.	n.d.	Efficient and effective project management leading to achievement of project objectives	G	HS	Achievement of the target.

Table 6: Progress towards outcomes analysis.

3.2.2 REMAINING BARRIERS TO ACHIEVING THE PROJECT OBJECTIVE

The evaluation of project tangible benefits in terms of POPs reduction can be assessed using the GEF Tracking Tool. In the context of the project emission reduction is related to:

- PCDD/F, due to open burning of:
  - Cables, and
  - Printed circuit boards (PCB)
- PBDEs, due to open burning of plastics containing brominated flame retardants (BFR)

Contribution is evaluated considering average weight per appliance (25kg) and the contribution of the three different components: 2% for cables, 1.7% for PCB and 30% for plastics.

It is anyway recommended, given the progresses made during the project on the information managment system to track operations at demonstration facility level, to calculate more precisely, taking also into account the 50% discount factor mentioned in the Project Document:

- Detailed mass balance assessment at product level for the 3 components (cables, PCB, plastics),
- Accounting only for the share of plastics containing BFR (can be assessed by means of literature[6] review or specific analysis done in the project) and not the total plastic fraction, and
- Comparison of results considering the UNEP Toolkit updates of emission factors.

3.3 PROJECT IMPLEMENTATION AND ADAPTIVE MANAGEMENT

3.3.1 MANAGEMENT ARRANGEMENTS

The project leverages on the strong interaction between different entities and players: in China for coordination and management of e-waste flows, activities and policies, the government plays a pivotal role, but there is no single government agency designated to supervise and legislate the range of activities related to e-waste management, rather the responsibilities and tasks are allocated to various government agencies[7] in accordance with their respective administrative domains.

This is reflected at project level (Figure 1: Project implementation structure.) with the involvement of a broad range of national and regional entities/stakeholders.

UNDP China is actively monitoring and cooperating with FECO/MEP to ensure smooth implementation of the project:

[6] Wäger, P., Schluep M. and Müller, E. (2010) RoHS Substances in Mixed Plastics from Waste Electrical and Electronic Equipment. Swiss Federal Laboratories for Materials Sci- ence and Technology (Empa). September 17, 2010

[7] National Development and Reform Committee (NDRC), Ministry of Environmental Protection (MEP), Ministry of Industry and Information Technology (MIIT), Ministry of Commerce (MOC), Ministry of Finance (MOF) and General Administration of Customs (GAC).

- Reviewing survey was carried out during July and August 2015 to evaluate the effect of project implementation in each demonstration area and understanding financial management.
- Research team composed (UNDP China & FECO/MEP), national consultant and financial consultant has full communication with LPMOs and representatives of demonstration enterprise.
- Review meeting of demonstration enterprises.
- Annual review meetings to warp-up and evaluate past year's work

3.3.2 WORK PLANNING

There are not any delays since the project started and during its implementation. All project activities had been accomplished according to work plans of Project designing document. During two years implementation of Q2/2014-Q2/2016, the progress against the annual plans qualify of implementation arrangement was satisfactory.

In Q2/2016 the demonstrator company Daye Nonferrous Boyuan Environmental Protection Co. Ltd., revealed that couldn't complete demonstration activities or achieve demonstration objective for PCB treatment. FECO started the process to select a new demonstrator company on a national scale.

Given almost all the activities are lasting for the entire duration of the project (Figure 2: Project Gantt.), it is not possible to assess, without intermediate targets, delays compared to the original plan, even if, overall, the project seems on track.

3.3.3 FINANCE AND CO-FINANCE

The financial status of the project, with expenses to-date (as indicated in the CDR), and comparison with total funding available from GEF is displayed in the table below.

Component	GEF	Co-financing	Expenses to Oct, 2016	% of GEF funding
Component 1	***$1,900,000***	***$6,000,000***	***$318,820***	**17%**
Component 2	***$6,800,000***	***$30,000,000***	***$2,097,726***	**31%**
Component 3	***$1,900,000***	***$7,800,000***	***$806,620***	**42%**
Component 4	***$500,000***	***$1,000,000***	***$117,206***	**23%**
Component 5	***$550,000***	***$2,200,000***	***$221,646***	**40%**

Component	Atlas Code	Atlas Budget Description	GEF	Expenses to Oct, 2016	% of GEF funding
1	71300	Local Consultant	$15,000	$0	0%
	71600	Travel	$70,000	$3,625	5%
	72100	Contractual Services-companies	$1,815,000	$315,195	17%
Sub-total component			***$1,900,000***	***$318,820***	**17%**
2	71200	International Consultans	$80,000	$0	0%
	71600	Travel	$80,000	$0	0%
	71800	Contractual Services-individuals	$30,000	$8,496	28%
	72100	Contractual Services-companies	$6,610,000	$2,089,230	32%
Sub-total component			**$6,800,000**	**$2,097,726**	**31%**
3	71300	Local Consultant	$40,000	$0	0%

	71600	Travel	$70,000	$55,990	80%
	72100	Contractual Services-companies	$1,770,000	$745,297	42%
	74500	Miscellaneous	$0	$3,054	
	75700	Training, workshop, and conference	$20,000	$2,279	11%
Sub-total component			**$1,900,000**	**$806,620**	**42%**
4	71200	International Consultans	$40,000	$6,900	17%
	71300	Local Consultant	$120,000	$52,027	43%
	71600	Travel	$70,000	$1,924	3%
	72100	Contractual Services-companies	$130,000	$90	0%
	72200	Equipments	$40,000	$8,490	21%
	75700	Training, workshop, and conference	$100,000	$47,775	48%
Sub-total component			**$500,000**	**$117,206**	**23%**
5	71300	Local Consultant	$370,000	$174,210	47%
	71600	Travel	$30,000	$20,250	68%
	72400	Communication & Audio Visual Equip	$10,000	$1,341	13%
	73100	Rental & Maintenance-Premises	$20,000	$0	0%
	74100	Professional Services	$20,000	$12,928	65%
	74500	Miscellaneous	$60,000	$2,621	4%
	75700	Training, workshop, and conference	$40,000	$10,296	26%
Sub-total component			**$550,000**	**$221,646**	**40%**
Total			***$11,650,000***	***$3,562,018***	***31%***

Component	Outcome	Project Activities	Total	GEF	Co-financing	Expenses to-date	% of GEF funding
1	1.1	1.1.1	800,000	220,000	580,000	$154.000	70%
		1.1.2	130,000	100,000	30,000	$104.000	104%
		1.1.3	300,000	150,000	150,000	$130.000	87%
	1.2	1.2.1	270,000	135,000	135,000	$65.000	48%
	1.3	1.3.1	1,200,000	600,000	600,000	$480.000	80%
		1.3.2	3,300,000	300,000	3,000,000	$230.000	77%
	1.4	1.4.1	1,675,000	335,000	1,340,000	$342.000	102%
	1.5	1.5.1	60,000	20,000	40,000	$8.000	40%
		1.5.2	65,000	20,000	45,000	$12.000	60%
		1.5.3	100,000	20,000	80,000	$12.000	60%
	Sub-total component			***1,900,000***		***1,537,000***	***81%***
2	2.1	2.1.1	40,000	20,000	20,000	$12.000	60%
		2.1.2	40,000	20,000	20,000	$6.000	30%
	2.2	2.2.1	160,000	80,000	80,000	$50.000	63%
		2.2.2	380,000	270,000	110,000	$147.000	54%
		2.2.3	8,074,000	1,501,000	6,573,000	$2.919.500	63%

Component	Outcome	Project Activities	Total	GEF	Co-financing	Expenses to-date	% of GEF funding
			1,500,000	250,000	1,250,000		
			3,718,000	953,000	2,765,000		
			3,818,000	606,000	3,212,000		
			7,800,000	1,300,000	6,500,000		
		2.2.4	5,200,000	500,000	4,700,000	$400.000	80%
		2.2.5	1,350,000	270,000	1,080,000	$125.000	46%
		2.2.6	4,720,000	1,030,000	3,690,000	$745.560	72%
	Sub-total component			**6,800,000**		**$4.405.060**	**65%**
3	3.1	3.1.1	80,000	80,000	-	$33.000	41%
		3.1.2	85,000	85,000	-	$41.000	48%
	3.2	3.2.1	985,000	635,000	350,000	$650.440	102%
		3.2.2	180,000	180,000	-	$60.000	33%
	3.3	3.3.1	8,370,000	920,000	7,450,000	$710.000	77%
	Sub-total component			**1,900,000**		**$1.494.440**	**79%**
4	4.1	4.1.1	420,000	140,000	280,000	$95.000	68%
		4.1.2	570,000	190,000	380,000	$99.000	52%
		4.1.3	360,000	120,000	240,000	$60.000	50%
	4.2	4.2.1	150,000	50,000	100,000	$25.000	50%
	Sub-total component			**500,000**		**$279.000**	**56%**
5	5.1	5.1.1	1,835,000	465,000	1,370,000	$349.400	64%
		5.1.2	915,000	85,000	830,000		
	Sub-total component			**550,000**		**$349.400**	**64%**
Total Project						***$8.064.900***	***69%***

Table 7: Financial overview of the project at MTR.

3.3.4 PROJECT-LEVEL MONITORING AND EVALUATION SYSTEMS

Project carried out monitoring and evaluation on activities progress and finance management according to the UNDP monitoring tools and procedures, in accordance with the project work plans. Monitoring and evaluation of project had been conducted:

- 2 Project Implementation Reports (2015 and 2016)
- 2 Annual Project Reports (2014 and 2015)
- 6 Quarterly Project Progress Reports (Q3/2014, Q1-Q3/2015, Q1-Q2/2016)
- 3 Two Year work plan (2014-2015, 2015-2016 and 2016-2017)
- 2 audit reports from certified accountants (2014 and 2015)

3.3.5 STAKEHOLDER ENGAGEMENT

The involvement and engagement of stakeholders during the project is good and builds on 3 main pillars:

- **Role of LPMOs**: They are key drivers in local implementation of the project and interaction of demonstrators. This is ensuring good ownership at local level and, at the same time, a seamless integration of project's results into the operational framework of policies for e-waste management.
- **Engagement of consumers**: various activities has been carried out already in the past 2 years of the project to increase awareness and engage consumers, including:
    - a short video about e-waste broadcasted on Wuhan Metro.
    - about 10,000 brochures were distributed in Tianjin City.
    - In Nanjing, posters themed on POPs reduction were put up in the metros to disseminate knowledge and raise awareness.
    - UNDP, MEP, Baidu and TCL jointly launched Baidu recycling involving film star Ms Zhao Wei as advocate with both local and international news coverage.
- **Engagement with international players**: contact with US-EPA, Swedish EPA, Norwegian NEA, GIZ and Switzerland Embassy was established for possible cooperation for e-waste management in China and also improve the visibility of e-waste project. In addition to that in 2016 an International Conference on WEEE Management and EPR Principle was organized (260 represents from China and abroad) and an E-waste international workshop (32 guests from 13 developing countries).
  Travelling in Sweden and Germany for WEEE to foster exchanges of best practices and experiences, cooperation and coordination on illegal WEEE shipment was also done.

3.3.6 REPORTING

There is a good communication between the demonstrator companies, LPMOs and National Project Team and reporting lines are clear considering also the initial training organized in 07/2014 and 01/2015 for LPMO staff (20 persons from LPMOs): this included procurement procedures, daily project management, financing and performance evaluation.

Adaptive management activities or recommendations are well traced in project documents: to date the two elements reported are referring to:

- Lower distribution of funds compared to planning: this is mainly due to the fact that payment are only done after activity has been completed, checked and approved by FECO/MEP. The delay is caused by such further quality and assurance check by the implementing partner and is justified.
- The need of replacing one of the initially selected demonstration companies for the pyro-metallurgical treatment of PCBs.

3.3.7 COMMUNICATIONS

Internal project communication is good, and the interaction between the various project partners (UNDP China, FECO/MEP and LPMOs) is effective: (i) training has been organized for LPMOs, and (ii) annual meetings are organized with LPMOs and demonstrators, with involvement of experts, as reported in Annual reports (2014 and 2015) and Project Implementation Review reports (2015 and 2016):

- Inception workshop: 07/2014
- Field visits: annually as required (10/2014, 11/2014, 7-8 2015 and 7/2016)
- Technical Coordination Group meeting: 11/2015
- Annual Review meetings: 1/2015 and 12/2015

External communication is also well established and involves various media (leaflet, radio, advert on subway,…) and target groups (students, general public,…).

In addition to local stakeholders also communication with international players proved to be effective, particularly with the organization of conferences and workshops.

3.4 SUSTAINABILITY

Sustainability of the project has been already considered in the Project Document where the risks and assumptions of each activity/outcome have been detailed.

Currently the biggest risk is related to the need of selecting another demonstration company for the pyro-metallurgical process of PCB (as reported in the Q2/2016 report). FECO has anyway already started the process to identify an alternative company.

3.4.1 FINANCIAL RISKS TO SUSTAINABILITY

There is low risk for the financial sustainability of the project as the system created at the end will be directly leveraging on the EPR system, which is progressively being developed and expanded to new products. The result of the current project will be easily plugged in and will be eventually the best blueprint for the formal system fully operational.

The opportunities connected with more material being channels through the system envisaged and tested by the project will increase and ensure the long term sustainability of the project.

3.4.2 SOCIO-ECONOMIC TO SUSTAINABILITY

The project set-up, the work done so far and the commitment of stakeholders even in term of co-financing, demonstrate ownership by government and local agencies, responsible at provincial level.

Involvement of big companies as demonstrator is also increasing the chances of sustainability of project results, particularly taking into account that in some cases, like TCL Aobo (Tianjin) Environmental Protection Development Co. Ltd. is not only a company involved in recycling of WEEE but also a manufacturer of Electronic products thus having the opportunity to implement on full scale the EPR principle and recovering back from waste material for the production of new devices.

Engagement of consumers from early stage of the project and also by means of modern mass-media (f.i. WeChat, particularly used by younger generation), involvement of famous testimonials (f.i. Ms Zhao Wei) or leveraging of crowded places (f.i. the subway) will further contribute to the increase of general public awareness.

The availability of material and details on the communication activities and lessons learned during the project, especially fostering the communication between the 3 LPMOs will also contribute to future replication.

3.4.3 INSTITUTIONAL FRAMEWORK AND GOVERNANCE RISKS TO SUSTAINABILITY

In 2011, Regulations on the Management of the Recovery and Treatment of Waste Electronic and Electrical Products was put into effect. The project design the related activities to improve EPR system and set-up and the involvement of key stakeholders and agencies at national and provincial level will ensure that project results are channelled into the national debate and implementation of EPR policies.

The implementation of the envisaged WEEE treatment information management system can further contribute to the creation of a transparent and accountable system, particularly with regard of disbursement of the Fund.

3.4.4 ENVIRONMENTAL RISKS TO SUSTAINABILITY

There are no environmental risks that might jeopardize the sustainability of the project. Rather the contrary: the successful results of the project and the positive environmental benefits achieved trough proper recycling of WEEE can further contribute to the exploitation of project results in China and in other countries.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

The project appears to be on track to deliver the expected outcome and in particular:

- **Conclusion 1: The national policy framework of EPR for WEEE in China was initially constructed**

  Based on the implement of this project, it's not difficult to find that the policy framework of EPR for WEEE in China has been initially constructed including different guidelines on recycling, dismantling and treatment of WEEE either in the national or the demonstration provinces level (e.g. draft of third-party audit guideline on WEEE dismantling and treatment, auditing in Jiangsu and initial draft of the standardized fine disassembly scheme of waste electrical and electronic products of Hubei).

  These policies and guidelines will promote local management system of WEEE dismantling and treatment, auditing and also finally ensure China's future long-term effective implementation of the Stockholm Convention policy successfully.

- **Conclusion 2: Establishing an excellent coordination and communications platform to transfer the technologies to developing and other countries**

  The biggest challenge of e-waste management in China is that there are a lot of stakeholders of the e-waste management and they are working separately really lacking coordination.
  For the past two years an international and cross-sectorial platform was established for the communication and coordination of key stakeholders of WEEE.

- **Conclusion 3: Establishment of database and government subsidy greatly increase the quantity of WEEE dismantled and treatment in formal way**

  There is nearly 9.2 billion RMB disbursed from the National Fund from 2012 to 2014, while the project target was to have 500 million disbursed annually. During the implementation of the project:

  - The number of formal WEEE treatment enterprises in China changed from 91 to 109 during the period of this project implement during the past two years.
  - Approximately 23 million units collected and processed by 3 LPMOs during project implementing two years.
  - Comparing the first PIR reporting year (July 2014-June 2015) with the 2nd PIR reporting year (July 2015-June 2016), the increase of Tianjin is 50 % from 1.46 million units to 2.92 million unit,

Jiangsu is from 2.7 million units to 5.68 million units, and a big increase of that of Hubei province from 3.28 million to 7.09 million units.

- **Conclusion 4: The multiple collection models improve the condition of WEEE collection in China**

The project has introduced multiple e-waste collection models such as Online to Offline (O2O) apps, community-based collection, reverse logistics and intermediary collection points.

The project has also upgraded informal actors to be more environmentally friendly via the O2O apps because the former informal collectors are now trained and acting as off-line collectors under the O2O apps. Baidu Recycle App, as an example, has been expanded to 21 cities and registered collectors have been raised to 67. Roughly, 15% of those collectors under Baidu Recycle are formally unregulated street vendors of e-waste.

The demonstration enterprise of Jiangsu province established websites, phone platform, recycling sites for the model enterprise. Till December 2015, 400 phone platforms and websites and 8 recycling sites have been established. According to the statistic results from July to September in 2016, GEM has recycled about 1.4 million sets of waste electronic resources, like waste TV, waste air conditioning, waste washing machine, waste display, waste computer host, etc. in Hubei.

- **Conclusion 5: Significantly reduce the environmental emission and working environmental healthy risk implementing of BAT/BEP in demonstration enterprises**

Under the requirements and fund of the project, the demonstration enterprises upgraded and innovates the original television disassembly equipment and improve the disassembly system by implementing clean production and updating pollution prevention measures, such as establishing information management and real-time monitoring system and realizing transparency and safety of disassembly process.

There are significant reduction of environment emissions and working environmental health risk. Approximately 117,675 tons of BFR containing plastic/resins performed/reused annually has been reused in line with scheme in three demonstration locations and 43 g I-TEQ of PCDD/F reduced in the working environment.

Through the reform of dusting systemin GEM, dust in the blanking hole doesn't fly up and diffuse. There is not black carbon pile up on the production equipment, dust content in the exit is less than 50mg/m^3.where health risks associated with POPs release, dusts, heats and noise are reduced because of the introduction of advanced technologies, environmentally friendly practices and environmental facilities such as furnace, dust removal system, noise-proof facilities and worker occupational suits. Four thousand workers were trained on POPs and occupational safety standards to increase their abilities to work safely.

- **Conclusion 6**: **Public participation is very import to change the informal dismantle and treatment to formal way**

Many people keep a lot of unused small electronic products such as mobile phones and note books at home for fear that the data will be lost if the equipment is processed by traditional informal channels of disposal. The equipment left at home also means resources that are left unutilized. The increase of the e-waste disposal figure reflects that most of awareness-raising activities have exerted influence on the public and encouraged the behavioral change.

The project has established a partnership for effective e-waste collection which will provide on-line and offline solution to e-waste collection. The public awareness on POPs, e-waste and O2O collection has been

increased in the last two years. It has induced behavioral change, such as handing over old electronic appliances to legitimate players. By adding up the awareness raising organized in all demonstration places, Beijng and media coverage, it is estimated that cumulatively 1,000,000 people is benefited from awareness raising. On the other hand, consumers are provided with convenient and trustworthy e-waste collection choices that will protect consumers' privacy and safety.

In addition, the project is significant, as:

1. The project can represent a blue print of EPR system working in China and, potentially, for other countries as well. The project embraces various component of the EPR system, including the analysis of best practices in project design but, more important, can prove how the informal operators can be integrated in a formal system.
2. Already established network of international stakeholders can further exploit the project results outside China.
3. Progressive phase-out of informal treatment operators and integration of informal collectors (f.i. Jiangsu province) is one of the current stumbling blocks for development of modern ERP systems not only in China but in many other developing countries in Asia, Africa and Latin America.

4. The current process proposed by one of the demonstrator candidate facilities for recovery of CRT glass can potentially be regarded as best practice not only for China: the lack of technological solutions to recover the lead from CRT glass is nowadays one of the global problems associated with the treatment of such fraction. The lack of closed-loop solutions for the recovery of glass fraction from a growing amount of CRT-containing products disposal, can be tackled by the process being developed by final identified demonstration enterprises

4.2 RECOMMENDATIONS

A set of recommendations is proposed below; they are clustered at component level, in order to facilitate their implementation and integration into the existing timeline of activities.

4.2.1 CORRECTIVE ACTIONS FOR THE DESIGN, IMPLEMENTATION, MONITORING AND EVALUATION OF THE PROJECT

- Component 2
  1. Facilities are adopting technologies in line with the individual product needs but it is recommended to align (progressively) guidelines and standard with international ones, particularly EU WEELABEX/CENELEC. This will not only ensure an easier benchmarking with international standards and practices, but also leverage on the work already done to ensure best practices are adopted. It is suggested to try applying WEELABEX requirements to demonstration facilities to assess the gap between national and international standards.
  2. It's vital for the project to assess the effect of the improvement of the demonstration enterprises implementing BAT/BAT with the scientific and credible monitoring results.

     The monitoring data of the project by now is coming from a 3-day on-site monitoring in different demonstrations and with some uncertain parameter selection. This project launched the assessment of the pollutant one by one. The dismantling line can contain a variety of contaminants, such as PBDEs and Pb and other pollutants can be present together. Superimposed effect of toxic pollutants is still unknown, so the enterprises shall still make a good effort to protect the health and safety of staffs.

3. Wuhan Bo Wang Xing Yuan cannot carry out hydro-metallurgical process for PCB treatment on schedule. Although the demonstration enterprise applied the FECO with the registration certificate, there are still some risks to achieve the final outcome of the project.
4. This project on safety treatment of CRT came up with two different ideas: while the demonstration enterprise of **Hubei Jinyang Metallurgical Incorporated Co.Ltd.** showed that it's possible to successfully extract the lead form the CRT, in the other case the glass was simply used as flux agent, without recovery of the lead. It will be important to carefully assess the two different options.
5. It is also recommended, when developing processes to treat PCB to progressively increase the number of elements recovered, going beyond Copper, Silver and Gold, but also looking at other critical materials that are present in the PCB and that might be recovered.

- Component 3
  6. In the majority of demonstration provinces the strategy to divert material from informal processing is to collect as much as possible directly from consumers but might not be enough especially where informal collection is still very effective. It is recommended to further exchange experiences and feedbacks with Jiangsu province who also developed a strategy for the inclusion of informal collection.
- Component 4
  7. It is recommended to develop a dashboard of indicators to check the planned versus actual status of the budget at (i) activity level, (ii) outcome level, and (iii) component level; this to ensure a quicker and smoother control of the overall project progresses.
- Component 5
  8. Given the majority of activities and outcome are still running and final results are only expected at the end of the project is suggested to organize virtual/physical bi-annual updates in the remaining 2 years with external experts, to ensure the project keeps working on track.

4.2.2 ACTIONS TO FOLLOW UP OR REINFORCE INITIAL BENEFITS FROM THE PROJECT

- Component 1
  1. It is recommended to trace collection and recycling at individual product types (TV, Air-Con, PC, Washing Machines, Fridges). This detailed tracking is enabled by the IT system being developed in the project context and would increase the precision in the calculation of material recovered and input for GEF Tracking tool.
  2. The proper tracking at individual product level could allow to feed data and experiences to the Fund Managers, particularly taking into account a proper accounting of all flows and the economics of their collection and recycling.
- Component 2
  3. Project partners demonstrated good capability to engage external stakeholders and consumers for awareness raising activities. It is suggested to further reinforce the benefits of the project with exploitation of (i) training modules developed and (ii) awareness raising, for instance leveraging further on material developed, engaging in particular younger generations, or on structures like the GEM museum in Hubei province.

5 ANNEXES

5.1 MTR SCOPE OF WORK

Title: Midterm Review of (Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of electrical and electronic equipment and associated wastes in China)

Position Title: Independent Consultants

Location: Home-based with mission travel to (*China***)**

Duration of contract: (23) days over a time period of three months

Application closure date: (*August 10, 2016***)**

Starting date: (*Sep 12, 2016***)**

1. INTRODUCTION

This is the Terms of Reference (ToR) for the UNDP-GEF Midterm Review (MTR) of the full-sized four-year project titled **Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of electrical and electronic equipment and associated wastes in China** (PIMS5044) implemented through the *FECO-MEP*, which is to be undertaken in late *2016*. The project started on the *April, 2014* and is in its *second* year of implementation. In line with the UNDP-GEF Guidance on MTRs, this MTR process was initiated before the submission of the second Project Implementation Report (PIR). This ToR sets out the expectations for this MTR. The MTR process must follow the guidance outlined in the document *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*. (*http://web.undp.org/evaluation/documents/guidance/GEF/miderm/Guidance_Midterm%20Review%20_EN_2014.pdf*).

2. PROJECT BACKGROUND INFORMATION

China is considered the world's largest current processor of e-waste derived from Waste Electrical and Electronic Equipment (WEEE) recycling, accounting for approximately 70% of global generation. WEEE production in China has reached 3.5 million tons in 2011 and the number is expected to soar as the result of economic growth. Currently the majority of WEEE and e-waste component has been collected and processed primarily by an informal resource recovery and recycling sector that typically utilizes crude, polluting technologies. This has resulted in the sector being associated with a range of serious environmental and health impacts including significant POPs and PTS release, and further contributes to air, land and water contamination.

The proposed project is designed to help China to fulfill the requirement of the Stockholm Convention and support the input of international experience and best practice into China's aggressive policy efforts to address

this significant issue through development and implementation of an Extended Producer Responsibility (EPR) based system for WEEE generally. Consistent with this objective, the project will address the POPs/PTS release sensitive e-waste stream in the recycling, dismantling, treatment and final disposal processes of Waste Electrical and Electronic Equipment (WEEE). The overall result of the project will be China having an domestic WEEE management system financed by a robust sustainable EPR mechanism and operating with BAT/BEP that effectively maximizes the resource recovery potential available while eliminating the major environmental releases, particularly POPs releases currently attributed to WEEE processing by 2015.

The project as outlined is structured with five components: Component 1 covers national WEEE management system development and implementation in terms of scope, administration, business arrangements and promotion with the UNDP-GEF support being focused on introduction of international experience and lessons learned; Component 2 covers the development of the required infrastructure and the demonstration of BAT/BEP technologies with the UNDP-GEF support focused on introduction of international technology and capability; Component 3 addresses the integration of the informal sector into the formal EPR system with UNDP-GEF support focused on demonstration of collection systems and information exchange, training and international cooperation related to illegal imports; Component 4 supports the monitoring and evaluation of the project and dissemination of experience, something that is seen as useful for other developing countries dealing with the issue globally; and Component 5 strengthens project management capacity to achieve implementation effectiveness and efficiency.

The programme period is 48 months and the total GEF fund is $11,650,000. There are three demonstration provinces/cities under the project including Jiangsu, Hubei and Tianjin. Jiangsu Xiangyu, Jinmen GEM, Wuhan Bowang and Tianjin TCL Aobo are the demonstration factories under the project.

3. OBJECTIVES OF THE MTR

The modified MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy and its risks to sustainability.

4. MTR APPROACH & METHODOLOGY

The MTR should provide evidence-based information that is credible, reliable and useful. The MTR team will review relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review). The MTR team

will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins.

The MTR team is expected to follow a collaborative and participatory approach[8] ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders.

Engagement of stakeholders is vital to a successful MTR.[9] Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, implementing agencies, senior officials, local PMOs, demonstration factories, and task team, key experts and consultants in the subject area, Project Board, project stakeholders, academia, local government and CSOs, etc. Additionally, the MTR team is expected to conduct field missions to the project sites in Hubei, Jiangsu Province and Tianjin.

The final MTR report should describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

5. DETAILED SCOPE OF THE MTR

The MTR team will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

i. Project Strategy

Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results.
- Review how the project addresses country priorities. Review country ownership.
- Review the extent to which relevant gender issues were raised in the project design. Make suggestions for how relevant gender issues can be better incorporated and monitored in the project. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.

[8] For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.

[9] For more stakeholder engagement in the M&E process, see the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 3, pg. 93.

Results Framework/Logframe:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc.) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART 'development' indicators, including sex-disaggregated indicators and indicators that capture development benefits.

ii. Progress Towards Results

Progress Towards Outcomes Analysis:

- Review the logframe indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and following the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as "Not on target to be achieved" (red).

Table. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Indicator[10]	Baseline Level[11]	Level in 1st PIR (self-reported)	Midterm Target[12]	End-of-project Target	Midterm Level & Assessment[13]	Achievement Rating[14]	Justification for Rating
Objective:	Indicator (if applicable):							
Outcome 1:	Indicator 1:							
	Indicator 2:							
Outcome 2:	Indicator 3:							

[10] Populate with data from the Logframe and scorecards

[11] Populate with data from the Project Document

[12] If available

[13] Colour code this column only

[14] Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

	Indicator 4:							
	Etc.							
Etc.								

Indicator Assessment Key

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved

In addition to the progress towards outcomes analysis:

- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

iii. Project Implementation and Adaptive Management

Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the Implementing Agency/GEF Partner Agency (UNDP) and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?

Finance and co-finance:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.

- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)

iv. Sustainability

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

Conclusions & Recommendations

The MTR team will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.[15]

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for guidance on a recommendation table.

The MTR team should make no more than 15 recommendations total. Recommendations should outline corrective actions for the design, implementation, monitoring and evaluation of the project and should focus on actions to follow up or reinforce initial benefits from the project.

Ratings

The MTR team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table. MTR Ratings & Achievement Summary Table for (*Reduction of POPs and PTS release by environmentally sound management throughout the life cycle of electrical and electronic equipment and associated wastes in China*)

[15] Alternatively, MTR conclusions may be integrated into the body of the report.

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
Project Implementation & Adaptive Management	(rate 6 pt. scale)	
Sustainability	(rate 4 pt. scale)	

6. TIMEFRAME

The total duration of the MTR will be approximately *(23) days* over a time period of *approximately three months* starting *(Mid of September 2016),* and shall not exceed five months from when the team is contracted. The tentative MTR timeframe is as follows:

COMPLETION DATE / TIMEFRAME	ACTIVITY
Sep12th and 13th, 2016 (2 working days)	Prep the MTR team (handover of Project Documents, desk review for related Project Document)
Sep 19th – 29th , 2016 (9 working days)	MTR mission: stakeholder meetings, interviews, field visits, etc. Presentation of initial findings- last day of the MTR mission
Sep. 30th -Oct 9th , 2016 (10 working days)	Preparing draft report, Circulation of draft report to UNDP for comments
Oct 13th – 14th (2 working days)	Incorporating audit trail from feedback on draft report/Finalization of MTR report

7. MIDTERM REVIEW DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	**Presentation**	Initial Findings	End of MTR mission	MTR team presents to project management and the Commissioning Unit
2	**Draft Final Report**	Full report (using guidelines on content outlined in Annex B) with annexes	Within 3 weeks of the MTR mission	Sent to the Commissioning Unit, reviewed by RTA, Project Coordinating Unit, GEF OFP
3	**Final Report***	Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTR report	Within 1 week of receiving UNDP comments on draft	Sent to the Commissioning Unit

8. MTR ARRANGEMENTS

The principal responsibility for managing this MTR resides with the Commissioning Unit. The Commissioning Unit for this project's MTR is UNDP China Office.

The commissioning unit will contract the consultants and ensure the timely provision of per diems and travel arrangements within China for the MTR team. The Project Team will be responsible for liaising with the MTR team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

5.2 MTR EVALUATIVE MATRIX

Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?			
• **How does the Project support the development objectives of People's Republic of China?** • **Does the Project participate in the implementation of the SC in China?** • **How country-driven is the Project?** • **Does the Project adequately take into account the national realities, both in terms of institutional framework and programming, in its design and its implementation?** • **Were the capacities of executing institutions and counterparts properly considered when the project was designed?** • **To what extent were national partners involved in the design and implementation of the Project?**	• Degree of coherence between project objectives and national development priorities, policies and strategies • Level of involvement of government officials and other partners in project design and implementation • Coherence between needs expressed by national stakeholders and UNDP-GEF criteria	• Project documents • China POPs National Implementation Plan (NIP) • Key project partners • http://www.zhb.gov.cn/home/rdq/gjhz/gjgy/201605/t20160523_343600.shtml	• Document analyses • Interview with UNDP,FECO ,LEMO and project partners
• **How does the Project support the needs of target beneficiaries?** • **Is the implementation of the Project been inclusive of all relevant Stakeholders?** • **Are local beneficiaries and stakeholders adequately involved in Project design and implementation?**	• Strength of the link between expected project results from the project and the needs of relevant stakeholders • Degree of involvement and inclusiveness of stakeholders and beneficiaries in project design and implementation	• Project partners and stakeholders • Needs assessment studies • Project documents	• Document analyses • Interviews with government, UNDP, other partners

• **Are there logical linkage between expected results of the project (log frame) and the project design (in terms of Project components, choice of partners, structure, delivery mechanism, scope, budget, use of resources etc.)?** • **Is the length of the project sufficient to achieve project outcomes?**	• Level of coherence between expected project results and project design internal logic • Level of coherence between project design and implementation approach	• Program and project documents • Key project stakeholders	• Document analysis • Key interviews
Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far?			
• **Has the project been effective in achieving its expected outcomes?** ➢ **Institutions and mechanism for project management and coordination;** ➢ **Management information system (MIS) and information management;** ➢ **Enabling policy environment;** ➢ **Environmental education and awareness raising;** ➢ **Monitoring and evaluation.**	• Indicators in project document results framework	• Project documents • Project Team and relevant stakeholders • Data reported in project annual and quarterly reports	• Document analysis • Interviews with Project Team • Interviews with relevant stakeholders
• **What lessons have been learned from the project regarding achievement of outcomes?** • **What changes could have been made (if any) to the design of the project in order to improve the achievement of the project's expected results?**		• Data collected through evaluation	• Data analysis
• **Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?**			
• **Was adaptive management used or needed to ensure efficient resource use?**	• Availability and quality of financial and progress reports	• Project documents and evaluations • UNDP • Project Team	• Document analysis • Key interviews

• **Did the project logical framework and work plans and any changes made to them use as management tools during implementation** • **Were the accounting and financial systems in place adequate for project management and producing accurate and timely financial information?** • **Were progress reports produced accurately, timely and responded to reporting requirements including adaptive management change?** • **Did the leveraging of funds (co-financing) happen as planned?** • **Was procurement carried out in a manner making efficient use of project resources?**	• Timeliness and adequacy of reporting provided • Planned vs. actual funds leveraged • Occurrence of change in project design / implementation approach (i.e. restructuring when needed to improve project efficiency)		
• **To what extent partnerships/linkages between institutions / organizations were encourage and supported** • **What partnerships/linkages were facilitated? Which ones can be considered sustainable?** • **What was the level of efficiency of cooperation and collaboration arrangements?**	• Specific activities conducted to support the development of cooperative arrangements between partners • Examples of supported partnership? • Evidence that particular partnership/linkages will be sustained • Types/quality of partnership cooperation methods utilized	• Project documents and evaluations • Project partners and relevant stakeholders	• Document analysis • Interviews
• **Did the project take into account local capacity in design and implementation of the project?** • **Was there an effective collaboration between institutions responsible for implementing the project?**	• National expertise utilized • Number/quality of analysis done to asses local capacity potential and absorptive capacity	• Project documents and evaluations • UNDP • Beneficiaries	• Document analysis • Interviews
• **What lessons can be learned from the project regarding efficiency?**		• Data collected throughout evaluation	• Data analysis

• **How could the project have more efficiently carried out implementation (in terms of arrangement structures and procedures, partnership arrangements etc.)?** • **What change could have been made (if any) to the project in order to improve its efficiency)?**			
• **How and to what extent have project implementation process, coordination with participating stakeholders and important aspects affected the timely project start-up, implementation and closure?**	• Relationship and coordination mechanism of project partners • Timeliness of project activities implemented	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
• **Do the outcomes developed during the project formulation still represent the best project strategy for achieving the project objectives?**	• Extent of relevance of project outcomes and objectives to changing circumstances	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
• **Does the project consult and make use of skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the implementation and evaluation of project activities?**	• National capacities utilized • Number/type of partnership formed	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
• **Was project sustainability strategy developed during the project design?** • **How relevant was the project sustainability strategy?**	• Evidence/quality of sustainability strategy • Evidence/quality of steps taken to address sustainability	• Project documents • Project Team and relevant stakeholders • Beneficiaries	• Document analysis • Key interviews
• **Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood of**	• Financial resources available after project completion to support and sustain project outcomes	• Project Team and relevant stakeholders • Project partners • Beneficiaries	• Document and data analysis • Key interviews

financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)?			
• **Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes/benefits be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there a sufficient public/ stakeholder awareness in support of the long term objectives of the project?**	• Social and political risk assessment data to support sustainability of project outcomes	• Project Team and relevant stakeholders • Project partners • Beneficiaries	• Document and data analysis • Key interviews
• **What are the main positive and negative impacts of the project?**	• Project impacts (e.g. capacity, policy enabling framework, etc.)	• Project documents • GEF focal area tracking tools	• Document analysis • Key Interviews
• **How has the project contributed to global environmental benefits or reductions in stress to ecological systems, or is there evidence that the project has put in place processes that will lead to such impact?**	• Levels of reduction of POPs release • Systems, structures and capacities that contribute to changes in POPs release	• Project documents • GEF focal area tracking tools	• Document analysis • Key Interviews

Table 8: MTR evaluation matrix.

5.3 EXAMPLE QUESTIONNAIRE OR INTERVIEW GUIDE USED FOR DATA COLLECTION

5.3.1 QUESTIONS FOR LPMOS AND STAKEHOLDERS BASED ON THE LOG-FRAME (ANNEX III OF PROJECT DOCUMENT)

1. **Project Objective: Efficient and functional EPR WEEE Management system**
   - What is the link between the National policy about EPR finalization (out of direct control of the project) and the disbursement of fund related?
   - How is the Fund supposed to work in practice?
   - How are international experiences on EPR injected? Which one are considered in particular as best practices?
2. **Component 1: Outcome 1.1 Assumptions.**
   - Which best practices are used to improve the EPR WEEE Management? How is this having an impact on policy development and stakeholder engagement?
   - How is the "efficient and functioning registration and permitting system" having an impact on formal and informal facilities? What's the plan? What are the results achieved so far?
3. **Component 1: Outcome 1.2 Assumptions**
   - How are the standards being developed? Are you referring to some international standards already in place (f.i. R2, WEEELABEX,…) and how are you testing and rolling-out the standards?
   - Which part of the chain is the standard covering? Only treatment?
4. **Component 1: Outcome 1.5 Assumptions**
   - How are you testing the guidelines?
   - Any plan to increase capacity of enforcement agencies?
5. **Component 2: Outcome 2.1 Assumptions**
   - How is the improved collection system being able to divert WEEE from informal to formal? Only collection or treatment?
6. **Component 3: Outcome 3.1, 3.2, 3.3 Assumptions**
   - How is the diversion from informal to formal being planned?
   - Is working during the demo phase? Which are the success factors or critical elements for long-term sustainability if this is currently working?

5.3.2 QUESTIONS FOR LPMOS AND STAKEHOLDERS BASED ON PIR 2016

1. Can we have the training program to see? Have you foreseen any follow-up activity with the persons attending the training to check how effective it was?
2. Which are the products treated by facilities? Only CRT? Or other products as well? Would be good to use also weight as reference, not only units.
3. For various indicators activities are reported to "be carried out in the subsequent reporting period". Would be good to have an idea on the plan or strategy to accomplish the goals, as some of those activities are crucial for the success of the project:

5.4 RATINGS SCALES

Ratings for Progress Towards Results: (one rating for each outcome and for the objective)		
6	Highly Satisfactory (HS)	The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as "good practice".
5	Satisfactory (S)	The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
4	Moderately Satisfactory (MS)	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
3	Moderately Unsatisfactory (HU)	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.
2	Unsatisfactory (U)	The objective/outcome is expected not to achieve most of its end-of-project targets.
1	Highly Unsatisfactory (HU)	The objective/outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets.

Ratings for Project Implementation & Adaptive Management: (one overall rating)		
6	Highly Satisfactory (HS)	Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as "good practice".
5	Satisfactory (S)	Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action.
4	Moderately Satisfactory (MS)	Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action.
3	Moderately Unsatisfactory (MU)	Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action.

2	Unsatisfactory (U)	Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management.
1	Highly Unsatisfactory (HU)	Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management.

Ratings for Sustainability: (one overall rating)		
4	Likely (L)	Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future
3	Moderately Likely (ML)	Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review
2	Moderately Unlikely (MU)	Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on
1	Unlikely (U)	Severe risks that project outcomes as well as key outputs will not be sustained

5.5 MTR MISSION ITINERARY

2am-6:30am 18 September, 2016	**Introduction meeting in FECO**

- 6 presentations from FECO, subcontractors and technical experts
  - FECO: overall introduction
  - Solid Waste and Chemicals Management Center of Ministry of Environmental Protection: introduction on Management Information System on E-waste Treatment Fund
  - Beijing Normal University: introduction on pollutant emission environmental risk assessment of deep processing section of demonstration enterprises
  - Tsinghua University: introduction on development of evaluation scheme and operation manual for E-waste disposal technologies
  - China Academy of Sciences: introduction on CRT treatment
  - Mu Jinxiang: Expert on PCB (Printed Circulate Board) treatment
- Q&A

19 September, 2016 Tianjin
• Early train to Tianjin Demo Factory • Meet with Tianjin LPMO and demo factory TCL • Visit TCL factory • Document check, interview, Q&A • Return to Beijing
20 September, 2016 Hubei Province
• Flight to Hubei province • Presentation from Hubei LPMO and 3 demo factories, GEM, Jinyang and Bowang • Interview by consultants
21 September, 2016 Hubei Province
• Visit GEM factory • Document and facility check, interview, Q&A • Flight return to Beijing
22 September,2016 FECO building
• Document review by two MTR consultants • Internal discussion and perpetration by two MTR consultants
23 September, 2016 UNDP China

• Introduction by Jiangsu LPMO + Demo factory
• Wrap-up by 2 experts
  ○ Overall summary and updates to UNDP and FECO
  ○ Any additional info or docs are required
  ○ Draft a timeline for evaluation report

5.6 LIST OF PERSONS INTERVIEWED

Location	Date	Name	Unit
FECO	18/09/2016	Han Yang	UNDP
		Yajing Tian	FECO
		Shengnan Shi	FECO
		Jing Yang	FECO
		Shaofeng Sun	MEPSCC
		Nan Hu	MEPSCC
		Xihua Zhang	MEPSCC
		Jiangxiang Mu	China Electronic Engineering Design Institute
		Yuan Chen	Tsinghua University
		Jie Yang	Tsinghua University
		Yaobin Meng	Beijing Normal University
		Yang Zhang	South University of Science and Technology of China
		Jianxin Zhu	Research center for Eco-environment Sciences, Chinese Academy of Sciences
Tianjin	19/09/2106	Han Yang	UNDP
		Yajing Tian	FECO
		Shengnan Shi	FECO
		Jing Yang	FECO
		Shenghua Guo	Tianjin solid waste and toxic chemical management center
		Weihua Liang	Tianjin solid waste and toxic chemical management center
		Lei Wu	Tianjin solid waste and toxic chemical management center

Location	Date	Name	Unit
		Chunlin Wang	TCL
		Jianhui Liu	TCL
		Ruijiang Zhang	TCL
		Xiaodan Wang	TCL
		Yunli Fu	TCL
Hubei	20-21/09/2016	Han Yang	UNDP
		Yajing Tian	FECO
		Shengnan Shi	FECO
		Liqun Yang	Environmental management Center of solid waste in Hubei province
		Min Lu	Environmental management Center of solid waste in Hubei province
		Xianpu Dai	Environmental management Center of solid waste in Jingmen City
		Mengdi Li	Environmental management Center of solid waste in Jingmen City
		Ye Yuan	Wuhan Bowang
		Zhuqin Qiu	Wuhan Bowang
		Xiao Chen	Wuhan Bowang
		Jin Wang	Hubei Jinyang
		Shu Jiang	Hubei Jinyang
		Jingping Li	GEM
		Wenrong Zhang	GEM
		Xiaohuan Miao	GEM
		Man Wang	GEM
	23/09/2016	Yun Hong	UNDP

Location	Date	Name	Unit
UNDP		Han Yang	UNDP
		Yajing Tian	FECO
		Shengnan Shi	FECO
		Jing Yang	FECO
		Peng Gao	FECO
		Lingwei Yu	Jiangsu LPMO
		Hui Yu	Jiangsu LPMO
		Min Yao	Jiangsu LPMO
		Junlian Wu	Jiangsu LPMO
		Weijian Fan	Jiangsu Xiangyu
		Yunfei Guo	Jiangsu Xiangyu
		Renjie Yu	Jiangsu Xiangyu
		Chenglu Bi	Jiangsu University of Technology
		Wenjie Zhao	Jiangsu University of Technology
		Hongsheng Xu	Jiangsu University of Technology
		Weixiang Xue	Accounting Firm

Table 9: List of persons interviewed.

5.7 LIST OF DOCUMENTS REVIEWED

Project Documents (PD)

Project Implementation Report (PIR)

Initiation Plan

initiation Plan China

Quarterly Annual Process Reports,

Two Years Work Plan

Process Implementation Report (PIR)

Audit Reports

Project budget revisions, lesson learned reports,

National strategic and legal documents,

National Implementation by the Government of UNDP Supported Projects: Guidelines and Procedures

Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects

Mid-term Review from FECO

Progress on the Establishment of Database for Treatment of Waste Electrical and Electronic Equipment (WEEE) in China (Solid Waste and Chemicals Management Center of MEP)

Training materials from three LPMOs (JiangSu, Hubei, Tianjin)

Implementation of the project from four demonstration enterprises (Tianjin TCL, Hubei Bowang, Hubei GEM, Jiangsu Xiangyu)

Introduction of the environmental treatment and extraction of lead from CRT in safe way(Hubei Jinyang and Research Center of Eco-Environmental Sciences)

Technical Advisory Report: PCB Waste Disposal (China Electronics Engineering Design Institute, Mujingxiang)

Development of E-waste Treatment Technology Assessment Programme and Operating Manual (Tsinghua University)

E-waste dismantling model enterprise pollutant s emission monitoring and environmental risk assessment (Beijing Normal University)

Vedio of dismantling WEEE (Hubei Bowang)

5.8 -FINANCING TABLE

Component	Outcome	Project Activities	Description of Activities	Total	GEF	Co-financing
1	1.1	1.1.1	Support the development of procedural and administrative mechanisms required for the national and provincial level EPR Treatment Fund's efficient operation inclusive of input of international experience. Support implementation of the national EPR Treatment Fund system through trainings to stakeholders	800,000	220,000	580,000
		1.1.2	Support improvement of WEEE management system through development of training modules in collaboration with international EPR systems. Support knowledge exchange to acquire international experience on EPR system, particularly on how POPs/PTS containing materials are separated and managed	130,000	100,000	30,000
		1.1.3	Develop required data information management system to allow registration of authorized operators, material flow monitoring, audits, and market adjustment to EPR financing system at provincial and national level. Set up a national center of integrated e-waste information/data management system in support of the EPR system	300,000	150,000	150,000
	1.2	1.2.1	Develop the product and recovered material specific technical standards for at least one product, defining targeted POPs/PTS release sensitive WEEE in cooperation with the private sector. Prepare a catalogue of sensitive processes and materials on the selected product. Report and track POPs containing material. Implement WEEE management chain technology performance and residual waste management standards prioritizing POPs/PTS release minimization through trainings to local stakeholders	270,000	135,000	135,000
	1.3	1.3.1	Introduce a LCA component into the determination of EPR charges with specific emphasis on scaling such charges to the potential level of environmental impact such that POPs/PTS release sensitive products attract appropriate charges.	1,200,000	600,000	600,000
		1.3.2	Support internationally bench marked LCA/LCM and demonstrate eco-labelling based product design and production in conjunction with the private sector taking into account of identifying critical environmental parameters related to POPs/PTS emissions such as product design for recycling, waste minimization, phasing out of hazardous substances and waste residuals, energy efficiency, and cost efficiency. At least one electrical and electronic equipment developed through demonstration of eco-design and production. Introduce the international guidelines through workshops. Develop guidelines of LCA/LCM and associated eco-labelling of product design and production.	3,300,000	300,000	3,000,000

Component	Outcome	Project Activities	Description of Activities	Total	GEF	Co-financing
	1.4	1.4.1	Conduct annual consultation meetings with stakeholders including the private sector and public interest NGOs throughout the EPR system design and implementation process to ensure that a national consensus and acceptance of the system as well as equitable distribution of responsibilities, liabilities and benefits. Set up an online stakeholder consultation platform for long term review and planning of EPR Treatment Fund improvement. Undertake public awareness initiatives (campaigns, brochures, publications etc.) supporting the EPR system and soliciting public participation, particularly in relation to support for voluntary collection and early replacement where beneficial, including involvement of public interest NGOs at the local and community level.	1,675,000	335,000	1,340,000
	1.5	1.5.1	Review and strengthen policy and regulatory controls on imports of second hand electronic equipment and e-waste consistent with developing Basel Convention requirements through improving / upgrading the policy framework in China	60,000	20,000	40,000
		1.5.2	Develop the practical guidelines of discrimination between e-waste and second hand products import. Conduct trainings and detection capacity upgrading at ports of entry to strengthen import control enforcement	65,000	20,000	45,000
		1.5.3	Bilateral and multi-lateral initiatives (regional coordination group meeting, joint detection mechanism etc.) with exporting countries on WEEE trade and adoption of coordinated notification/consent procedures including cooperation with agencies and organizations involved in the issue	100,000	20,000	80,000
	Sub-total Component 1			**7,900,000**	**1,900,000**	**6,000,000**
2	2.1	2.1.1	Undertake a comprehensive characterization, at the provincial level, of the current collection chain from source through various collection, segregation and consolidation steps inclusive of the types of participants, business arrangements operating and constraints that may exist. Undertake case study on 2-3 currently operating collection schemes with existing authorized recyclers in the three regions (reverse supply, on-line collection, network of small shops and public organizations) and assessment of the improvement measures for increasing collection, including payback schemes, elaboration of new collection strategies, collaboration with door2door collectors, etc. Mapping of e-waste production distribution and collection network in the 3 selected regions; also develop a menu of interventions for optimization of the collection network matching the licensed recyclers in the region	40,000	20,000	20,000
		2.1.2	Undertake pilot interventions in collection chain to optimize efficiency, particularly relating to primary product separation for direction to recycling facilities. Develop operational guidelines on the 2-3 selected collection chains/systems, including primary product separation	40,000	20,000	20,000
	2.2	2.2.1	Support the registration and permitting activities of existing WEEE processing operations through introducing internationally benchmarked standards in at least one of the three selected municipality/provinces. Develop/improve the management rules/procedures for registration/authorization of the different WEEE processing enterprises (including collection, storage, sorting, dismantling, depollution, pre-treatment,	160,000	80,000	80,000

Component	Outcome	Project Activities	Description of Activities	Total	GEF	Co-financing
			recycling). Demonstrate the registration system of WEEE processing operations covering all different WEEE processing companies in one province			
		2.2.2	Develop technology selection and operational technical guidelines, particularly paying attention to diverting POPs containing plastics from further recycling, that are appropriate to various scale levels of WEEE processing (2-3 technology solutions), comprising manual dismantling, mechanical pre-processing and end material refining. Organize a multi-stakeholder technical control committee in charge of formulating recommendations and editing technical guidelines for various scales of WEEE processing. Review international best practices and technical standards, and systematic assessment for suitably applicable to Chinese context. Editing of technical guidelines and diffusion among Chinese operational organizations	380,000	270,000	110,000
		2.2.3	Undertake BAT/BEP technology demonstration on refined dismantling process at 3 enterprises in the three selected municipality/provinces. High attention is brought to the identification, removal and safe disposal of POPs/PTS containing components	8,074,000	1,501,000	6,573,000
			Undertake BAT/BEP technology demonstration on plastic, cable and epoxy resin processing at one enterprise: identification, segregation and safe disposal of BFR containing plastics, conduct risk assessment and carry out labelling of plastic products	1,500,000	250,000	1,250,000
			Undertake BAT/BEP technology demonstration on Waste Printed Circuit Boards at 2 enterprises in the three selected municipality/provinces. Improve mechanical pre-treatment processes in order to minimize losses of valuable fractions and diffusion of POPs/PTS. Ensure that the valuable fraction is channelled to a non-ferrous smelting facility. Support facilities that remove components from WPCBs to upgrade them to an integrated process	3,718,000	953,000	2,765,000
			Undertake BAT/BEP technology demonstration on hazardous component disposal/management at 2 enterprises. Ensure that the hazardous fractions that are removed during the dismantling processes are channelled to proper treatment and disposal facilities (high temperature incineration, hazardous waste landfills)	3,818,000	606,000	3,212,000
			Undertake BAT/BEP technology demonstration on cathode ray tube (CRT). Ensure the safety dismantling and environmentally sound management and reuse of different components of CRT, in particular the extraction of lead in the cathode ray tubes	7,800,000	1,300,000	6,500,000
		2.2.4	Provide international experience in the establishment and qualification of at least one economically scaled center created for processing of high value materials (i.e. printed circuit boards) to recover precious metals on the basis of a qualified non-ferrous metals smelter. Support technology transfer to one Chinese non-ferrous smelter with an integrated precious metal refinery (possibly sourcing technology from Umicore, Boliden, NDA, or Xstrata). Evaluate that smelter is the preferred destination for non-ferrous metal mix from WEEE processors and precious metal recovery	5,200,000	500,000	4,700,000
		2.2.5	Technical Assistance in upgrading existing and establishing new formal dismantling and pre-processing operations at the three demonstration provinces/municipality. Conduct survey of facilities operating within the national register and assess compatibility of processes for efficient POPs/PTS removal. Identify	1,350,000	270,000	1,080,000

Component	Outcome	Project Activities	Description of Activities	Total	GEF	Co-financing
			incremental improvements and document the feasibility of implementation. Implement improvement measures. Conduct evaluation and risk assessments on the implementation and achievement of the demonstration activities			
		2.2.6	Provide policy, technology, and management support and promote the demonstration activities in the three demonstration provinces / municipality. Undertake research in environmentally sound collection, dismantling, processing and disposal technology and provide technical support to demonstration enterprises. Actively promote environmentally sound processing activities	4,720,000	1,030,000	3,690,000
	Sub-total Component 2			**36,800,000**	**6,800,000**	**30,000,000**
3	3.1	3.1.1	Undertake a national level characterization study of the informal WEEE processing sector to better understand its level of activity, key locations, stakeholder networks, the nature of its operation and potential strategies to integrate it with the developing formal sector, including economic incentives. Identify and develop economic incentives that the EPR system can provide to enhance informal sector integration	80,000	80,000	-
		3.1.2	Develop guidance and procedural documentation for undertaking environmental and health impact evaluations of potentially impacted areas and locations at the local level. Undertake stakeholder information dissemination related to the developing EPR based system and promotion of participation of current operators in the informal sector, in cooperation with local and community level public interest NGOs and other local stakeholders	85,000	85,000	-
	3.2	3.2.1	Develop model regulations and guidance materials on enforcement activities on informal WEEE processing at the local level. Conduct training program for local level officials and other stakeholders including local and community level NGOs on controls appropriate to the informal sector and options available to it	985,000	635,000	350,000
		3.2.2	Prepare and deliver awareness programs on the impacts of informal WEEE processing for local officials, operators and the public with the involvement of local authorities and community level public interest NGOs	180,000	180,000	-
	3.3	3.3.1	Identify opportunities for developing collective infrastructure that would attract and accommodate current informal dismantling/processing operations. Design and implement demonstration of municipal level collection chains/systems with 3 enterprises in the three selected provinces/municipality, including introduction of approaches adapted from international experience in the collection to optimize efficiency, particularly relating to primary product separation for direction to processing facilities	8,370,000	920,000	7,450,000
	Sub-total Component 3			**9,700,000**	**1,900,000**	**7,800,000**
4	4.1	4.1.1	Undertake continuous monitoring and periodic progress reviews on development and operation of the overall EPR based WEEE managements system and associated effectiveness evaluations	420,000	140,000	280,000
		4.1.2	Develop and implement impact assessment procedures with respect to estimated POPs/PTS releases reduced, levels of WEEE diverted from the informal sector, degree of integration of informal operators into the system, and reductions in imports	570,000	190,000	380,000

Component	Outcome	Project Activities	Description of Activities	Total	GEF	Co-financing
		4.1.3	Conduct Mid-Term Review and Terminal Evaluation	360,000	120,000	240,000
	4.2	4.2.1	Prepare and disseminate experience and lessons learned nationally as the system develops and internationally through multilateral forums such as Basel Regional Centers and directly with other developing countries	150,000	50,000	100,000
	Sub-total Component 4			**1,500,000**	**500,000**	**1,000,000**
5	5.1	5.1.1	Strengthen institutional capacity of the National Project Team (NPT) in MEP for project management; establish Local Project Management Office (LPMO) and strengthen project management capacity in each of the three demonstration provinces/municipality; develop Project Implementation Manual (PIM), train staff on PIM and relevant GEF and UNDP requirements on project management	1,835,000	465,000	1,370,000
		5.1.2	Undertake day-to-day project management activities by NPT and LPMOs to ensure smooth and timely implementation of project activities including but not limited to: drafting TORs, select and contract with consultants, organize M&E activities, organize the review of substantial report	915,000	85,000	830,000
	Sub-total Component 5			**2,750,000**	**550,000**	**2,200,000**
PROJECT TOTAL				**58,650,000**	**11,650,000**	**47,000,000**

Table 10: Co-financing table.

5.9 SIGNED UNEG CODE OF CONDUCT FORM

Evaluators/Consultants:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

MTR Consultant Agreement Form

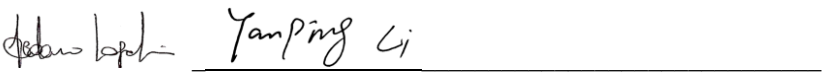
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: ___Federico Magalini, Li Yanping_____

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at ___*Byfleet, UK* *Beijing, China*_____ *(Place)* on ___*28 Nov 2016*_____ *(Date)*

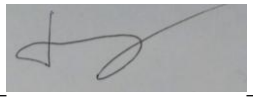
Signature: ____  _____

5.10 SIGNED MTR FINAL REPORT CLEARANCE FORM

Midterm Review Report Reviewed and Cleared By:

Commissioning Unit

Name: _____Yang Han_____

Signature: _____  ____ Date: _____29 Nov 2016_____

UNDP-GEF Regional Technical Advisor

Name: _____

Signature: _____ Date: _____