

End-Term Project Evaluation: The Urgent Improvement of Solid Waste Management in Yangon City



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First published in Nairobi in December 2023 by UN-Habitat.

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Produced by the Independent Evaluation Unit

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www.unhabitat.org

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Acknowledgements

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Evaluation Report 2023/10

End-Term Project Evaluation: The Urgent Improvement of Solid Waste Management in Yangon City



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Construction of Fukuoka method at Htein Bin
Final Disposal Site © UN-Habitat



CONTENTS

List of Abbreviations and Acronyms	IV
Executive Summary	V
Purpose, objectives, and scope of the Evaluation.....	V
Overview of the Project	V
Approach and Methods.....	VI
Key Findings	VII
Recommendations	X
1. Introduction	3
1.1 Background and context	3
1.2 Purpose, scope and objectives of the evaluation.....	3
2. Overview of the Project	7
2.1 Objectives of the project	7
2.2 Expected Accomplishments of the project	7
3. Evaluation questions based on evaluation criteria	11
4. Approach and Methodology	13
4.1 Approach	13
4.2 Methodology.....	14
4.3 Limitations to the evaluation.....	15
5. Main Findings	17
5.1 Achievements of the project performance.....	17
5.2 Relevance	19
5.3 Efficiency	20
5.4 Effectiveness	23
5.5 Coherence	24
5.6 Sustainability.....	25
5.7 Impact Outlook.....	26
5.8 Cross-cutting issues.....	27
6. Conclusions	29
6.1 Achievements and performance	29
6.2 Relevance.....	29
6.3 Efficiency	29
6.4 Effectiveness.....	29
6.5 Coherence	30
6.6 Sustainability	30
6.7 Impact Outlook.....	30
6.8 Cross-cutting Issues	30
7. Lessons Learned	31
8. Recommendations	33
APPENDICES	35
Appendix 1: TOR for the Evaluation.....	35
Appendix 2: Logical Framework and Performance Monitoring Framework.....	42
Appendix 1: List of Documents Reviewed for the Evaluation	45
Appendix 2: List of Semi-structured interviewees	46
Appendix 3: Semi-Structured Interviews Guidance and Questionnaires.....	47

LIST OF ABBREVIATIONS AND ACRONYMS

AoC	Agreement of Cooperation
COVID-19	Coronavirus disease 2019
2030 Agenda	The United Nations 2030 Agenda for Sustainable Development
FCC	Fukuoka City Consortium - Fukuoka University and Fukuoka City Environmental Bureau
FDS	Final Disposal Site
GoJ	Government of Japan
IA	Implementing Agency
IP	Implementing Partner
IPSC	Implementing Partners Selection Committee at UN-Habitat headquarters
JICA	Japan International Cooperation Agency
Logframe	Project Logical Framework
NGOs	Non-Governmental Organisations
NUA	New Urban Agenda
OECD DAC	Organisation for Economic Co-operation and Development Assistance Committee
PCCD	Pollution Control and Cleansing Department
ROAP	Regional Office for Asia and Pacific (UN-Habitat)
SDGs	Sustainable Development Goals
SMEs	Small and Medium Sized Companies
SWAN	Solid Waste Management Adviser's Network
SWM	Solid Waste Management
ToC	Theory of Change
ToR	Terms of Reference
UECCD	Urban, Environmental Conservation and Cleansing Department
UNEG	United Nations Evaluation Group
UN-Habitat	United Nations Human Settlements Programme
WASH	Water and Sanitation
YCDC	Yangon City Development Committee

EXECUTIVE SUMMARY

Purpose, objectives, and scope of the Evaluation

This report concerns the evaluation of the Japan funded project entitled “Urgent Improvement of Solid Waste Management in Yangon City”. The evaluation was undertaken to assess the performance of the project, the extent to which it has been relevant, efficient, effective, coherent, and sustainable, as well as to assess impact outlook and sustainability.

The evaluation serves purposes of accountability, learning and decision making. It is intended to strengthen accountability by providing the Government of Japan (the donor), UN-Habitat management, the main beneficiary – Yangon City Development Committee (YCDC), Urban, Environmental Conservation and Cleansing Department (UECCD), other implementing partners and other key stakeholders with credible evidence of what the project achieved in terms of the planned results with the resources used. In keeping with UN-Habitat’s commitment to helping programmes and projects learn and improve, the evaluation serves the purpose of contributing to enhanced learning to understand what worked well, what did not, operational experience, opportunities, and challenges. The sharing of evaluation findings from this evaluation will inform UN-Habitat and the international and local implementing partners and other stakeholders on what worked well and why or what did not work and feed into decision-making processes for continuation or scaling up of this pilot project or similar projects, as well as improvement of future cooperation agreements.

The project was initially planned to start in April 2019 and be completed in March 2021. However, due to COVID-19 pandemic and the difficult operating environment caused by the political event on 1 February 2021 in Myanmar, the project was delayed and extended twice at no cost extension until March 2023.

The specific objectives of the evaluation were:

- a. Assess the design, implementation, and achievement of results at the objective, outcomes, and output levels of the project. This will entail analysis of actual versus planned results in the project document.
- b. Assess the project’s performance in terms of relevance, efficiency, effectiveness, sustainability, coherence, and emerging impacts caused by the project.
- c. Assess appropriateness of working modalities, coordination, partnerships, and management; and assess the effects of COVID-19 pandemic and political event on 1st February 2021 in Myanmar on the project.
- d. Assess the quality of implementation, adequacy of resources, financial management/ feasibility, and how they impacted on the effectiveness of the project.
- e. Assess how social inclusion issues of gender equality, youth, human rights, disability as well as social and environmental safeguards were integrated and impacted by the project.
- f. Considering intended users of the evaluation, identify lessons learned and provide recommendations for scaling up the pilot project or improving future programming of similar projects.

Overview of the Project

The Urgent Improvement of Solid Waste Management in Yangon City had two main components: Component 1: Stabilization of the existing dump site; and Component 2: Construction of a new dump site, and the following key objectives:

- Review the causes of fire, assess future fire risks, and introduce structural and non-structural measures to reduce the risk of future fire.
- Stabilize the existing fire gutted area of the Htein Bin Final Disposal Site (FDS) to prevent further methane gas explosion, which is at higher risk of occurrence with larger impact to the surrounding informal settlement areas.
- Introduce appropriate mitigation measures to ensure reduced risk of fire in the dump site.
- Provide technical support to YCDC to introduce the Fukuoka Method and control the environmental and socio-economic risks with increased efficiency.

- Review, revise, and design solid waste management plan at the dumpsite and prepare landfill site design at a pilot scale for construction of a new landfill site using the Fukuoka Method.
- Introduce mechanism of waste segregation, including advocacy and awareness at source at the Htein Bin FDS.
- Develop safety nets to waste pickers, among them women and youths.

Based on the project's Logical Framework the project had the following outcomes:

- The human risks due to further fire in the dumpsite by hot and dry weather to surrounding 150,000 residents and environmental risk are reduced through the rehabilitation and stabilization of the fire disaster area (the Fukuoka Method will be applied to introduce technical solution to the existing problem).
- The dumpsite life span will be increased due to rehabilitation and stabilization of the fire gutted areas of the existing dump site.
- Technical capacity for the management and operation of solid waste management (SWM) at the dumpsite has increased. Furthermore, knowledge of Urban Environmental Conservation and Cleansing Department in mitigating fire risk in the dump site is enhanced by application of the Fukuoka Method (technology-transfer).
- A pilot project to replicate the Fukuoka Method semi-aerobic landfill constructed on available land at Htein Bin dumpsite.
- Health hazard of the surrounding communities due to fire outbreak is reduced.
- Socio-economic risks of the waste pickers and their families is reduced.

The project's main target groups were:

- Specific: 148,000 people (living in Kalar Gyi Su village, six wards and two villages) and 31,000 households who are living close to the Htein Bin FDS area and 5,300 staff engaged in Solid Waste Management in Yangon city; and
- General: 5.2 million citizens of Yangon city.

Approach and Methods

The evaluation centered on the six United Nations Evaluation Group (UNEG) evaluation criteria: relevance, efficiency, effectiveness, coherence, impact, and sustainability. The evaluation has been conducted in four consecutive phases: 1) inception phase; 2) desk phase; 3) analysis and synthesis phase – which includes the analysis, findings, conclusions, overall lessons learned, recommendations; and 4) dissemination phase.

The project's Theory of Change (ToC) and Logical Framework (logframe) were developed as part of the project concept and were included in the Cooperation Agreement and Inception Report and established the overall framework for the evaluation. The ToC identified the key problem, its underlying cause and impact to be ultimately achieved from the implementation of the project. The logframe highlighted the project objective, expected accomplishments against key performance indicators, baseline environment, targets to be achieved and data sources to verify the indicators, and the project's activities.

An Evaluation Matrix was developed based on the evaluation questions listed in the Terms of Reference specifying indicators and means of verification. In addition, an evaluation survey, based on semi-structured interviews with the implementing partners, main beneficiaries and other stakeholders was undertaken with a total of 17 persons, as follows:

- UN-Habitat and implementing partners - 11 interviews.
- Implementing partner - FCC submitted a written response to the questionnaire - 3 persons.
- Local community – one combined interview with 3 persons.

Due to the political situation in Myanmar, the evaluation assignment did not include visits to key stakeholders, i.e., YCDC nor the Htein Bin FDS, which posed a limitation to acquisition of adequate evidence on outputs and outcomes, etc. The lack of opportunity to meet with the primary target group - due to time and travel constraints – was compensated by online interviews and questionnaire surveys - supported by information from the desk review – and thus generated circumstantial evidence.

Similarly, it was not possible to conduct interviews with the main beneficiary, YCDC, UECCD, as formal interviews are not possible considering the UN engagement principles in Myanmar, and informal interviews are also considered difficult due to potential media exposure such discussions may entail.

Key Findings

Performance and achievements

The project's overall objective, the project's expected accomplishments and outputs were all achieved and, in some cases, exceeded, with some key highlights as follows:

- **Humanitarian and environmental risks due to further fire-outbreak are reduced:** the existing dumpsite is rehabilitated and stabilized, with all the affected area rehabilitated and environmental pollution levels in the existing dumpsite reduced.
- **Technical capacity for the management and operation of solid waste management at the dumpsite is increased:** over 60 UECCD staff and 3 NGOs trained in the Fukuoka Method and other related SWM disciplines.
- **Fukuoka method technical know-how transferred to YCDC UECCD:** a one-hectare pilot site constructed (with a sport related after-use), and one publication of the Fukuoka Method manual.
- **Socio-economic risks of the families of the waste pickers and their families are reduced:** waste pickers and their families have access to safer working-environment, their income is not affected by the new Fukuoka Method and over 330 households were directly involved in a community mobilization programme.

Relevance

The evaluation has shown that the relevance of the project was highly satisfactory. The objectives of the project are relevant, aligned, and consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies, such as the National Waste Management Strategy and Action Plan, and both the UN-Habitat's Strategic Plan 2014-2019 and UN-Habitat Strategic Policy 2020-2023. The improvement of the Htein Bin FDS should also contribute to creating a low-carbon society by reducing methane, which is the

main cause of fires and reducing the impact of global warming. The project is also well aligned with the 2030 Agenda for Sustainable Development, specifically SDGs 3 and 11, as well as the Myanmar New Urban Agenda. Beneficiaries have been heavily involved in the need, identification, design and implementation of the project activities and pilot initiatives.

Efficiency

The evaluation has shown that the overall efficiency of the project was highly satisfactory. Evidence shows the use of financial and human resources has been targeted and efficient, and the project has been delivered in a highly cost conscious and cost-efficient manner to achieve the expected outcomes. UN-Habitat's capacity to design, re-design and implement the project has been highly satisfactory, even though the project was impacted by two external events – the COVID-19 pandemic and the political event of 1st February 2021. The political coup caused difficulties in procurement and logistics, with fuel supply the main issue. The institutional arrangements between UN-Habitat, the main beneficiary, YCDC UECCD and the implementing partners were a major factor in allowing the outputs and outcomes of the project to be achieved, as well as efficient monitoring of the project.

Four respondents from the evaluation survey highlighted that the cooperation supported the progress of the project through accountability and development of trust, pushing the project forward. As most UN-Habitat local staff were working on the project for most of the duration of the project, that helped to build trust as well.

Effectiveness

The evaluation has shown that the overall effectiveness of the project was highly satisfactory, with the objectives, expected accomplishments/outcomes and outputs all achieved. The project rehabilitated a large proportion of the YCDC FDS in an environmentally compliant manner and mitigated the fire risk from the site, together with enabling YCDC UECCD to manage and operate Htein Bin FDS in a more sustainable manner, as well as providing high-quality deliverables. Committed individuals in both UN-Habitat and YCDC UECC, the provided technical support from FCC and SWAN, the involvement of the local community in the project, and political support, particularly prior to the political event of 1st February 2021, allowed the achievement of the expected accomplishments/outcomes.

All the partner organizations were well structured and worked effectively together throughout the full implementation period, as well as adjusting to the challenges posed by the COVID-19 pandemic and the political event in February 2021, in achieving the desired results of the project. The high level of collaboration and partnership approach between all partners was highlighted as being instrumental in delivering the project results.

Coherence

The project has been consistent with relevant national policies and strategies, and national development plans and goals, such as the National Waste Management Strategy and Master Plan for Myanmar, 2018-2030. The project did not overlap with any other similar projects or programmes funded by Japan or implemented by UN-Habitat.

Sustainability

The evaluation has shown that the sustainability of the benefits created by the project is overall good. The physical measures around rehabilitation of the Htein Bin FDS, the capacities built both at technical and institutional levels of the main beneficiaries' and the continuing longer-term sustainability with the replication of the Fukuoka Method at other waste disposal sites in Myanmar are evident. Technical, management and operational capacities have been appropriately built to guarantee the continuation of benefits after the project completion, with the main beneficiary, YCDC UECCD obtaining the know-how and means to manage, operate, and monitor the Htein Bin FDS in a more efficient and sustainable manner. Awareness and understanding of SWM principles are more fully understood in the local pilot community setting, as well as practicing waste minimization measures. The project has already enjoyed some replicability with the completion of two additional areas (totaling 8.5 ha) using the Fukuoka Method at the Htein Bin FDS and at other waste disposal sites in Yangon, notably Htawei Chaung FDS and Dala FDS. Discussions are ongoing about using the method for FDSs in Mandalay and Nay Pyi Taw.

Impact Outlook

The evaluation found that the project achieved its expected accomplishments/outcomes and had an overall positive impact on its targeted beneficiaries through capacity building and improved standards

and practices in SWM. The main problem of reducing the risk of future fire and environmental hazards and establishing a safer and longer-term sustainable and compliant waste management system for Htein Bin FDS has been largely achieved. YCDC UECCD has gained knowledge and technical capacity in landfill management and operations, and environmental quality monitoring. The community mobilization component changed the behavior and adopted practices in waste segregation, safe disposal, plastic reduction, and composting of the target pilot community.

Cross-cutting Issues

Cross cutting issues have been integrated in the project design, implementation, monitoring, and reporting. Whilst the project's main objective is directly related to social and environmental safeguards and notably climate change, the issues of gender equality and youth were central to the community mobilization part of the project. Women were encouraged to provide their opinion and concerns regarding the informal sector (many waste pickers are women and waste collection/recycling is their main source of income).

Lessons Learned

Due mainly to the current political climate, the evaluation highlighted that civil society, NGOs and SMEs are the logical choice as the best stakeholders and leaders in developing and implementing programmes/projects in SWM awareness raising and practices. There may be some challenges regarding future funding of such programmes/projects, which could be a role UN-Habitat and/or other donors can facilitate.

The institutional arrangements, structures and working relationship between UN-Habitat, the main beneficiaries and the implementing partners worked extremely well, with dedicated and committed staff, developing, and implementing contingency arrangements because of two external events (COVID-19 and the political event of February 2021) crucial in the delivery of the project's outputs and outcomes. Successful technology transfer requires leadership, responsiveness, and cooperation on the part of the providers of the technologies and should be carried out in a way that is acceptable to the beneficiaries. It is also important for beneficiaries to accept the guidance at an organization-wide level and apply it appropriately to the operating environment. The long-standing technical competence and knowledge of the operating environment



Leachate collection pond in Htein Bin FDS © UN-Habitat

by the Japanese implementing partners and their previous strong links with YCDC UECCD have been crucial in the delivery of the project. This shows the need to have a tried and tested and technically competent partnership in implementing a project.

There have been some serious challenges to the implementation of the project with the COVID-19 pandemic and the political event in February 2021. The flexible approach that was adopted in implementing the project allowed it to be adjusted and extended on two occasions. Revised work plans were developed and approved including extended timescales for the key activities and direct technical assistance and supervision for construction works and technology transfer through online on-the-job training and technical support. The importance of planning and flexibility in project management is therefore crucial when such external events occur.

It was acknowledged that the project enjoyed efficient and timely monitoring and reporting. Regular 'face-to-face' meetings prior to the COVID-19 pandemic and since then on-line progress meetings were held regularly between all the project partners. Internal and external communications have been well maintained and adapted to the actual circumstances. Hence, efficient monitoring and reporting is essential for the successful delivery of projects.

The project has been instrumental in developing high quality and beneficial dissemination and visibility products, including a short documentary film highlighting the approaches, achievements and impacts of the Fukuoka Method at Htein Bin FDS, together with the Thailand study tour, trainings, community mobilization activities and results, etc. disseminated via websites of UN-Habitat ROAP and UN-Habitat Myanmar. This approach to visibility and communications is regarded as good practice.

The capacity building and knowledge exchange have been highly satisfactory features of the project, both in context of the technical and the community involvement parts. The combination of on-site and online technical meetings, online discussions, theoretical and practical on the job training to site managers and operators, the study tour to Thailand, and the waste awareness and waste minimization related training, etc. have all been highlighted as beneficial. This combination of capacity building and knowledge transfer is considered good practice. New working methods, such as virtual (online) mechanisms have become the norm due to the COVID-19 pandemic and other dual or hybrid mechanisms may be the way forward in some cases.

There are opportunities for the utilization of FDSs after their closure. Depending on the status of stabilization, the use of the land can vary from using only the surface (e.g., parks, playgrounds) to more measures, such as buildings, which can be determined by using monitoring results from landfill gas quality, smell, temperature, color, amount of leachate and stability and height of the landfill. It was pointed out by Fukuoka city with the example of the utilization of a former FDS - Imazu landfill in Japan, which is utilized as land for training centers, an athletic park, playground, and a garden.

Whilst the introduction of the Fukuoka Method has proved beneficial to the management and operation of the Htein Bin FDS, as well as mitigating its negative environmental impacts, the community mobilization component has shown the immediate and long-term sustainable benefits of a more circular approach to SWM, based on the 3Rs (Reduce Reuse, Recycle) principle.

Recommendations

The following are key recommendations from the evaluation, considering that UN-Habitat's development operations in Myanmar were temporarily suspended and reformulated, in accordance with UN Country Team UN Engagement guidelines. They center on what worked well and what did not work regarding the continuation or scaling up of the project and similar projects, as well as improvement of future cooperation agreements.

1. Encourage civil society, NGOs and SMEs to develop and implement programme and projects in solid waste management. Due mainly to the current

political climate, civil society, NGOs, and SMEs should be encouraged to develop and implement programmes/projects in Solid Waste Management awareness raising and practices. As there may be some challenges regarding future funding of such programmes/projects, it should be considered what role UN-Habitat and/or other donors can provide.

2. Showcase the achievements and impacts of Fukuoka method at Htein Bin FDS. The importance of developing high quality dissemination and visibility products, such as the short documentary film highlighting the approaches, achievements and impacts of the Fukuoka Method at Htein Bin FDS and including project deliverables on the UN-Habitat ROAP and UN-Habitat Myanmar websites should be fully considered when developing project concepts. The dissemination and visibility practices from this project should be considered as best practice and included in UN-Habitat guidance, where possible and in consideration for UN engagement principles in Myanmar.

3. The 'hybrid' mechanism of implementing this project of combining physical works, capacity building and knowledge exchange should be applied to future projects as best practices and countries with similar characteristics should be involved in knowledge exchange and learning. The combination of technical assistance in implementing physical works and capacity building and knowledge exchange and learning (such as the knowledge exchange visit to Thailand) delivered by on-site and virtual methods, were acknowledged as highly satisfactory features of the project. This 'hybrid' mechanism should be considered as best practice for ways to deliver future projects. Countries with similar characteristics should be involved in knowledge exchange and learning.

4. Improve the YCDC UECCD environmental monitoring system by involving universities and analytical institutions that have such expertise of monitoring procedures. As highlighted by one of IPs and three respondents in the evaluation survey, accurate objective long-term environmental monitoring (and evaluation of the results) of leachate, groundwater, surface water and landfill gas is required at the Htein Bin FDS to demonstrate that the landfill is performing as



Replication of Fukuoka method in Dala FDS in Yangon © UECC

designed and not causing environmental pollution to the receiving environment and impacting the surrounding local community. The YCDC UECCD environmental monitoring system is not considered to be adequate and therefore they should develop links with universities and analytical institutions to strengthen its environmental monitoring system and procedures. UN-Habitat should consider whether additional support is required to maintain environmental monitoring at the site.

- 5. Give sufficient time for awareness raising in waste minimization, increase fee for waste collection to enable adequate collection and provide trainings to empower communities.** The project also raised awareness and understanding of SWM principles, through community mobilization, which encouraged the local community (Hlaing Thar Yar township) surrounding the Htein Bin FDS to practice waste minimization, including analysis of current waste management system in one selected target informal settlement; conducting awareness trainings to community volunteers, as well as waste pickers

and creating and initiating the waste segregation and disposal mechanism in the target communities. However, the IP highlighted that sufficient time over an extended period is required to raise awareness in waste minimization, fees are extremely low to maintain waste collection adequately and training needs to be focused and relatively short in duration.

- 6. Future technical assistance and capacity building should embody a more circular approach to waste management.** It should be considered what kind of further support could be provided in the SWM sector considering the community mobilization component of the project, which shows the immediate and long-term sustainable benefits of a more circular approach to SWM, based on the 3Rs (Reduce Reuse, Recycle) principle. Future technical assistance and capacity building should embody a more circular approach to waste management. Moreover, based on the approach and results of the project subject to the evaluation, UN-Habitat should consider supporting nearby or other countries with similar characteristics, issues to Myanmar.

Collection of leachate sample during the study tour in Thailand © UN-Habitat



1. INTRODUCTION

1.1 Background and context

The project for the “Urgent Improvement of Solid Waste Management in Yangon City” was a 4-year (2019 - 2023) Government of Japan (GoJ) funded project with the overall objective to contribute to reduce the risk of future fire hazard and environmental hazard by the establishment of resilient, safe and sustainable waste management systems for Htein Bin dump site of the Yangon city through the implementation of the Fukuoka Method of solid waste management.

In Yangon city, there are two large open dumping Final Disposal Sites (FDS), with the Htein Bin FDS being the largest. The site covers over 122 hectares (ha) of which 50 ha are utilized, receiving around 1,080 tons of waste per day. The FDS contains around 13 separate landfills, up to 3 metres deep. In April 2018, a fire occurred at Htein Bin FDS, quickly consuming more than half of the FDS. The fire was fueled by methane produced by decaying organic and other waste and was brought under full control after three weeks, in May 2018. The fire resulted in deterioration in air quality in areas near the dump site and dozens of people, including children, were hospitalized with respiratory problems. Hence, rehabilitating the impacted part of the FDS required an urgent response.

It is acknowledged that there is a rapid increase in volume of waste generation from the population of Yangon city and whilst a pilot project using the Fukuoka Method was implemented at Htein Bin FDS in 2017, there remains:

- Limited knowledge and technical capacity of landfill management (landfill planning and operation of heavy machinery especially during the rainy season);
- Limited knowledge and experience of rehabilitation of landfill;
- Partial knowledge and experience of Fukuoka method landfill construction; and
- Limited knowledge of Fukuoka method landfill management (landfill operation, maintenance, and management).

The Fukuoka Method which was developed by Fukuoka University and Fukuoka City, Japan in the 1970s, is a mechanism where leachate (wastewater) is swiftly removed from waste materials, leading to faster decomposition of waste material, improving the quality of the wastewater, and reducing emissions of landfill gas and especially methane. The introduction and replication of the Fukuoka Method in Yangon city was highlighted as bringing about substantial reductions in land required for solid waste disposal, as well as significant reductions in greenhouse gas emissions, reducing risk to the site from fires and leachate contaminants, and would, in turn, help reduce the negative environmental consequences due to urban population growth expected in Yangon over the coming years.

The project was managed by UN-Habitat with support of implementing partners - Fukuoka University, Fukuoka City Environmental Bureau (Fukuoka City Consortium – FCC) and SWAN-Fukuoka, and Thant Myanmar, which implemented the local community mobilization part of the project.

The main beneficiaries of the project were the YCDC, UECCD and citizens of Yangon city, notably the citizens immediately surrounding the Htein Bin FDS.

The project commenced in April 2019 and was planned to be completed by 31st March 2021, however it was extended to 31st March 2023 due to the COVID-19 pandemic and a political event in February 2021. The budget for the project was USD 5.5 million.

1.2 Purpose, scope and objectives of the evaluation

1.2.1 Purpose and scope

The evaluation is mandated by both the donor and UN-Habitat and was included in the Agreement of Cooperation (AoC) for the project. The evaluation serves purposes of accountability, learning and decision making. It is intended to strengthen accountability by providing the Government of Japan (the donor), UN-Habitat

management, the main beneficiary – YCDC, UECCD, other implementing partners and other key stakeholders with credible evidence of what the project achieved in terms of the planned results with the resources used. In keeping with UN-Habitat’s commitment to helping programmes and projects learn and improve, the evaluation serves the purpose of contributing to enhanced learning to understand what worked well, what did not, operational experience, opportunities, and challenges. The sharing of evaluation findings from this evaluation will inform UN-Habitat and international and local implementing partners and other stakeholders on what worked well and why or what did not work and feed into decision-making processes for continuation or scaling up of this pilot project or similar projects, as well as improvement of future cooperation agreements.

The evaluation covered the period from the start of the project in April 2019 up to completion on 31st March 2023. The project was initially planned to start in April 2019 and be completed in March 2021, however, due to COVID-19 pandemic and the difficult operating environment caused by the political event on 1 February 2021 in Myanmar, the project was delayed and extended twice at no cost extension until 31st March 2023.

Objectives

The specific objectives of the evaluation are:

- a. Assess the design, implementation, and achievement of results at the objective, outcomes, and output levels of the project. This will entail analysis of actual versus planned results in the project document.
- b. Assess the project’s performance in terms of relevance, efficiency, effectiveness, sustainability, coherence, and emerging impacts caused by the project.
- c. Assess appropriateness of working modalities, coordination, partnerships, and management; and assess the effects of COVID-19 pandemic and political event on 1st February 2021 in Myanmar on the project.
- d. Assess the quality of implementation, adequacy of resources, financial management/ feasibility, and how they impacted on the effectiveness of the project.
- e. Assess how social inclusion issues of gender equality, youth, human rights, disability as well as social and environmental safeguards were integrated and impacted by the project.
- f. Considering intended users of the evaluation, identify lessons learned and provide recommendations for scaling up the pilot project or improving future programming of similar projects.

1.2.2 Management and conduct of the evaluation

The evaluation of the project was managed by the UN-Habitat Evaluation Unit in close collaboration with the Regional Office for Asia and the Pacific (ROAP) and the UN-Habitat Myanmar Office. The Evaluation Unit provided guidance and assured the quality of the evaluation products.

The Evaluation Unit had the overall responsibility to ensure contractual requirements were met and approve all deliverables (i.e., Inception Report with work plan, draft, and final Evaluation Report). The UN-Habitat Myanmar Program Office/ROAP provided logistical support, submitted all necessary reference documents, and facilitated interviews with stakeholders and responded to all the evaluator’s queries.

A Reference Group was also established by UN-Habitat, including representatives from UN-Habitat Evaluation Unit and the ROAP, Myanmar, with the main task of reviewing the evaluation deliverables.

The evaluation consultant, David Lyth commenced the assignment on 2nd June 2023, via a kick-off meeting with staff from the UN-Habitat Evaluation Unit and the UN-Habitat Myanmar Programme Office to discuss the objectives, scope, and results of the evaluation. The Inception Report was issued as a draft on 27th June 2023, and the Final Inception Report was approved on 20th July 2023.

1.2.3 Outline of the Evaluation Report

The remainder of the report is structured as follows:

Chapter 2 presents a brief overview of the Project for the Urgent Improvement of Solid Waste Management in Yangon City and its organizational setting.

Chapter 3 outlines the evaluation approach and methodology, including considerations on the application of a Theory of Change approach and the evaluation matrix, including evaluation questions.

Chapter 4 presents the main findings related to

the evaluation questions based on the desk review, questionnaire survey and interviews with stakeholders.

Chapter 5 presents the main conclusions on the project's achievements and performance.

Chapter 6 highlights the lessons learned from the project.

Chapter 7 presents the recommendations.



Environmental monitoring at Htein Bin FDS © UN-Habitat

Replication of Fukuola method at the Htawei
Chaung FDS in Yangon © UECC



2. OVERVIEW OF THE PROJECT

The Urgent Improvement of Solid Waste Management in Yangon City had two main components: Component 1: Stabilization of the existing dump site; and Component 2: Construction of a new dump site.

2.1 Objectives of the project

- Review the causes of fire, assess future fire risks, and introduce structural and non-structural measures to reduce the risk of future fire.
- Stabilize the existing fire gutted area of the Htein Bin FDS to prevent further methane gas explosion, which is at higher risk of occurrence with larger impact to the surrounding informal settlement areas.
- Introduce appropriate mitigation measures to ensure reduced risk of fire in the dump site.
- Provide technical support to YCDC to introduce the Fukuoka Method and control the environmental and socio-economic risks with increased efficiency.
- Review, revise, and design solid waste management plan at the dumpsite and prepare landfill site design at a pilot scale for construction of a new landfill site using the Fukuoka Method.

- Introduce mechanism of waste segregation, including advocacy and awareness at source at the Htein Bin FDS.
- Develop safety nets to waste pickers, among them women and youths.

2.2 Expected Accomplishments of the project

Based on the project's Logical Framework (logframe - revised 3 times) the project included four expected accomplishments (EA):

- EA1: Human and environmental risks due to further fire-outbreak are reduced;
- EA2: Technical capacity for the management and operation of SWM the dumpsite is increased;
- EA3: Fukuoka Method technical know-how transferred to YCDC UECCD; and
- EA4: Socio-economic risks of the families of the waste pickers and their families are reduced; and had the following outcomes and outputs, as shown in Table 1.

Table 1: Outcomes and outputs of the project

Project outcomes	
a)	The human risks due to further fire in the dumpsite by hot and dry weather to surrounding 150,000 residents and environmental risk are reduced through the rehabilitation and stabilization of the fire disaster area (the Fukuoka Method will be applied to introduce technical solution to the existing problem).
b)	The dumpsite life span will be increased due to rehabilitation and stabilization of the fire gutted areas of the existing dump site.
c)	Technical capacity for the management and operation of SWM at the dumpsite has increased. Furthermore, knowledge of Urban Environmental Conservation and Cleansing Department (UECC) in mitigating fire risk in the dump site is enhanced by application of the Fukuoka Method (technology-transfer).
d)	A pilot project to replicate the Fukuoka Method semi-aerobic landfill constructed on available land at Htein Bin dumpsite.
e)	Health hazard of the surrounding communities due to fire outbreak is reduced.
f)	Socio-economic risks of the waste pickers and their families is reduced.
g)	Project outputs.
h)	Emergency rehabilitation and stabilization of the Htein Bin FDS completed.
i)	Technical support to UECC provided on Fukuoka Method.
j)	Technical know-how on survey, design, layout, estimation, and procurement for implementation of Fukuoka method is transferred.
k)	Construction of the Fukuoka Method landfill completed.
l)	Community mobilization (awareness and understanding), training on safety and security to waste pickers and pilot communities in surroundings of Htein Bin dump site completed.

The project's main target groups were identified in the design stage:

- Specific: 148,000 people (living in Kalar Gyi Su village, six wards and two villages) and 31,000 households who are living close to the Htein Bin FDS area and 5,300 staff engaged in SWM in Yangon city; and
- General: 5.2 million citizens of Yangon city.

At the end of 2020, due mainly to the impact of the COVID-19 pandemic, a request for a no-cost time extension was made and subsequently granted. The basis of the policy recommendation to YCDC, EUCDD included:

- The continuation of rehabilitation work where the current Project cannot cover;

- Securing funds to mobilize additional heavy machines for landfilling operation;
- Replication of project concept of Fukuoka Method SWM in Area C;
- Securing necessary materials for FDS management through coordination with other departments of YCDC; and
- Enhance environmental quality monitoring mechanism.

Furthermore, mainly due to the impact of the political event in February 2021, a further no-cost time extension was granted in January 2022 and the project was extended to 31st March 2023. Table 2 shows the main activities of the project.

Table 2: Main activities of the project

Component 1: Stabilization of the dump site	
A: Technical Assistance	
A1.1	Rapid assessment of the current state of the fire gutted area of dump site and design of the plan for the rehabilitation and improvement of the site including leachate treatment pond or catchment.
A1.2	Implementation of the rehabilitation and improvement plan (the Fukuoka Method) which includes costs of technical support and supervision.
A2	Good & services to rehabilitation, improve SWM system in Yangon
A3	Operations: office rental, running cost, vehicle cost, communication and visibility cost, evaluation, and reporting.
A4	Human resources.
Component 2: Construction of new dump site	
B1	Technical assistance for new construction.
B1.1	Land for dumpsite construction.
B1.2	Land demarcation and engineering assessment.
B1.3	Detail survey, design, construction and cost estimation including supervision by Japanese experts.
B2	Preparation of bid documents.
B3	Purchase of the required goods, materials and services to improve SWM system in Yangon.
B4.1	Human resources.
B4.2	Operations: office rental, running cost, vehicle cost, communication and visibility cost, evaluation and reporting.

2.1.1 Organizational setting

The project was funded by a Government of Japan grant, with a total budget of US\$5,631,000. The project was implemented by UN-Habitat's Regional Office for Asia and the Pacific (ROAP) and Myanmar Country Programme Office. The main beneficiary of the project was Yangon City Development Committee (YCDC) and its Urban, Environmental Conservation and Cleansing Department (UECCD), formally known as the Pollution Control and Cleansing Department (PCCD), together

with the population living in adjacent residence to Htein Bin FDS. Technical support in the implementation of the project was provided by Fukuoka University, Fukuoka City Environmental Bureau (Fukuoka City Consortium-FCC) and SWAN-Fukuoka (Solid Waste Management Advisers Network - Fukuoka), all from Japan. Three AoCs were signed with the PCCD after the approval from the Implementing Partners Selection Committee at UN-Habitat headquarters (IPSC). The project's organizational set-up and key targets are shown in Table 3.

Table 3: Project's organizational set-up and key targets

Organization	Location
Funder	Government of Japan
Lead Agency	UN-Habitat, Regional Office for Asia and Pacific (ROAP)
Collaborating Agency	UN-Habitat Myanmar Country Programme Office
Implementing partners	Fukuoka University, Fukuoka City Environmental Bureau (Fukuoka City Consortium - FCC), Japan SWAN-Fukuoka (Solid Waste Management Advisers Network - Fukuoka), Japan
Main Beneficiaries	Yangon City Development Department, Urban and Environmental Conservation and Cleansing Department 148,000 citizens living adjacent to Htein Bin FDS and 5,300 staff engaged in SWM activities across Yangon city 5.2 million citizens of Yangon city

2.1.2 Project financing

The project received a budget of USD 5,631,000, (5,631,768.45) from a Government of Japan grant. Financing was divided between the two project components, as shown in Table 4.

Table 4: Project financing per component/activity

Description	Original Budget (USD)	Revised Budget (USD)	
Component 1: Stabilization of the dump site			
A: Technical Assistance			
A1.1	Rapid assessment of the current state of the fire gutted area of dump site and design of the plan for the rehabilitation and improvement of the site including leachate treatment pond or catchment	75,000	75,000
A1.2	Implementation of the rehabilitation and improvement plan (the Fukuoka Method) which includes costs of technical support and supervision	550,000	558,055.00
A2	Good & services to rehabilitation, improve SWM system in Yangon	965,000	985,000
A3	Operations: office rental, running cost, vehicle cost, communication & visibility cost, evaluation and reporting	200,000	240,000
A4	Human resources	515,000	692,017.00
Total Direct Cost A		2,305,000.00	2,650,072.00
A5	Project support cost/ Agency overhead	161,350	185,505.04
Total project cost component 1		2,466,350.00	2,835,577.04

Component 2: Construction of new dump site**B1 Technical assistance for new construction**

B1.1	Land for dumpsite construction	95,000	95,000
B1.2	Land demarcation and engineering assessment	40,000	40,000
B1.3	Detail survey, design, construction and cost estimation including supervision by Japanese experts	635,000	635,000
B2	Preparation of bid documents	50,000	-
B3	Purchase of the required goods, materials and services to improve SWM system in Yangon	1,200,000	970,274.00
B4.1	Human resources	688,335.00	970,274.00
B4.2	Operations: office rental, running cost, vehicle cost, communication and visibility cost, evaluation and reporting	250,000	70,000
Total project B direct cost		2,958,335.00	2,613,263.00
B5	Project support cost/ Agency overhead	207,083.45	182,928.41
B.6 Total project cost for component 2		3,165,428.45	2,796,191.41
A+B Grand total of component 1 and component 2 (rounded)		5,631,768.45	5,631,768.45

In March 2020, due to the COVID-19 pandemic, after the preparation of a detailed implementation plan by the technical experts, it was agreed that most of the remaining funds, including savings from operations (Component 2) of around 1.24 million USD would be utilized for rehabilitation and stabilization work under Component 1 of the project. Additional funding was also allocated to project management (human resources), particularly for the need to coordinate the Japanese technical experts.

The project was audited four times in 2019, 2020, 2021, and 2022 by the United Nations Board of Auditors. As per the UN-Habitat IP policy and with the decision of IPSC a third-party audit firm (SARB & Associates) was hired to conduct the independent third-party audit. In total, the auditors performed five audits (two for UECCD, two for FCC, and one for SWAN) for the funds provided by UN-Habitat.



Installation of Fukuoka method perforated pipes at the Htein Bin FDS © UN-Habitat

3. EVALUATION QUESTIONS BASED ON EVALUATION CRITERIA

The evaluation ToR included a set of evaluation questions for each of the evaluation criteria which were reviewed and slightly adjusted during the Inception phase. The evaluation questions are included in an Evaluation Matrix, shown in Table 5.

Table 5: Evaluation Matrix

Evaluation Questions		Indicator
Relevance		
1.	To what extent is the project consistent with beneficiaries' requirement, country needs, national development goals, and partners' and donors' policies and UN-Habitat and contributes to low carbon development?	Degree of interventions' alignment with national and local development plans and donor policies.
2.	Was the implementation strategy in line with and responsive to Sustainable Development Goal (SDG) 11 and New Urban Agenda (NUA)?	Degree to which interventions are responsive to SDG targets and the NUA. Integration of SDGs and NUA in the knowledge products and events.
3.	To what extent was the programme and its objectives relevant to the needs and priorities of the participating country and city and responded to their urban development plans?	Degree to which intervention accords with agreed country and city development needs.
4.	To what extent did the identification, design and implementation process of activities and pilot initiatives involve beneficiaries?	Extent of beneficiary involvement in design and implementation.
Efficiency		
5.	How well were economic resources/inputs (funds, expertise, time, etc.) efficiently utilized to achieve the expected outcomes?	Key project developers' perception of the efficiency.
6.	Did UN-Habitat demonstrate to have adequate capacity to design and implement the project?	Key project developers' assessment on UN-Habitat's capacity.
7.	Were institutional arrangements adequate for implementing the project and for delivery of expected outputs and outcomes?	Timely conduct of project activities and delivery of outputs.
8.	How did the Covid-19 pandemic and the political event on 1st February 2021 in Myanmar affect the project implementation?	Level of impact from Covid-19 and the political event of 1st February 2021.
9.	To what extent have monitoring and reporting on the implementation of the project been timely, meaningful, and adequate?	Activities undertaken timely – considering the COVID-19 pandemic.
Effectiveness		
10.	To what extent has the project been effective in achieving its objectives and outcomes? What results have been achieved and which ones have not been achieved?	Quality of outputs and stakeholders' attitude to the project.
11.	How effectively was the programme engaging with countries and cities to achieve the desired outcomes of the project, considering the UN engagement principles in Myanmar?	Extent of engagement and with other countries and cities and its added value
12.	What types of products and services did the project provide to beneficiaries that contributed to achieving the results and objectives of the project.	Quality of outputs and stakeholders' attitude to the project.
13.	Did UN-Habitat and other implementing partners credibly monitor the implementation of the programme, using the indicators of achievements on outcomes to provide evidence on performance and flag any necessary adjustments to improve delivery of the project?	Degree of monitoring project activities and results.
14.	Did the partner organizations work together effectively? Were partnership structures effective in achieving the desired results?	Level of participation in implementing the project activities and results.
15.	What are the levels of awareness amongst beneficiaries regarding the contribution of the funding partner, visibility materials in the field and other communication material?	Examples of visibility of project activities and results.

Coherence

- | | | |
|-----|--|--|
| 16. | To what extent was the project coherent with other interventions of similar nature funded by Japan in the country? | Relevant GoJ projects and level of complementarity. |
| 17. | To what extent did the project have connections with other interventions of the UN-Habitat relating to solid waste management? | Relevant UN-Habitat projects and level of complementarity. |

Sustainability

- | | | |
|-----|---|---|
| 18. | To what extent was capacity developed and what mechanisms were put in place, including capacity and ownership of stakeholders, to ensure sustainability of the results and benefits achieved? | Degree of participation by beneficiary and stakeholders in developing and implementing the project. |
| 19. | To what extent did activities and pilot projects engage beneficiaries in design, implementation and building ownership of the beneficiaries? | Degree of participation of beneficiary in managing landfill site. |
| 20. | To what extent will the projects and programmes supported by the donor be replicated or scaled up? | Positive results and use of resources from the project itself. |
| 21. | How is access to financing for further developments secured? | |

Impact Outlook

- | | | |
|-----|--|---|
| 22. | To what extent did the project attain its objective and anticipated impact on partners and targeted beneficiaries, whether stakeholders or cities? | Expected physical improvements by YCDC and capacity developed for waste management. |
| 23. | What positive and/or transformative changes have occurred because of the project? | Beneficiaries' expectations for improved waste management. |

Cross-cutting issues

- | | | |
|-----|--|---|
| 24. | To what extent are the social inclusion issues of gender equality, youth, and human rights as well as social and environmental safeguards considerations integrated in the project design, implementation, monitoring and reporting of the project? Are there any outstanding examples of how these issues were successfully applied in the project? | Appropriate inclusion of the crosscutting issues in the design and delivery of the project, with specific examples highlighted. |
|-----|--|---|

4. APPROACH AND METHODOLOGY

4.1 Approach

The approach to the evaluation has followed the United Nations Evaluation Group's (UNEG) Norms and Standards for Evaluation¹. The evaluation centered on the six UNEG evaluation criteria: relevance, efficiency, effectiveness, coherence, impact, and sustainability (which are compatible with the OECD/ DAC criteria²; UN-Habitat Evaluation Policy, 2013³; the Revised UN-Habitat Evaluation Framework, 2016⁴; and the UN-Habitat Evaluation Manual, 2018⁵).

The evaluation has been conducted in four consecutive phases: 1) inception phase; 2) desk phase; 3) analysis and synthesis phase - which includes the analysis, findings, conclusions, overall lessons learned, recommendations; and 4) dissemination phase.

The application of the Theory of Change (ToC) approach as part of the analytical framework is emphasized in the UN-Habitat Evaluation Manual, 2018, together with the Logical Framework (logframe). The ToC and logframe for the project were developed as part of the project concept and were included in the Cooperation Agreement and Inception Report. The ToC identified the key problem, its underlying cause and impact to be ultimately achieved from the implementation of the project. The logframe (revised 3 times, with the final version from February 2022) highlighted the project objective, expected accomplishments against key performance indicators, baseline environment, targets to be achieved and data sources to verify the indicators, and the project's activities.

The ToC identified the problem to be addressed is: To contribute to reduce the risk of future fire hazard and environmental hazard by the establishment of safe and sustainable waste management systems for Htein Bin dump site of the Yangon city through the implementation of the Fukuoka Method of SWM.

The underlying cause of the problem is: Fire outbreak that began in April 2018 at the Htein Bin FDS spread rapidly consuming more than half of the dump, which could not be extinguished for three weeks. As a result, due to considerable deterioration in the air quality numerous people were hospitalized with respiratory problems.

Waste was disposed onto the open dumpsite, polluting the soil and water. YCDC highlighted key concerns for future fires and resulting impacts, hence the urgency of implementing the proposed project at the time.

The impact we want to achieve is: To bring impact in Yangon city that would bring about substantial reductions in the amount of land required for solid waste disposal, as well as significant reductions in greenhouse gas emissions, risk to the dumpsite fires and leachate contamination of the surface and sub-surface of soil strata. Such reductions would, in turn, help reduce the negative environmental consequences of the urbanization growth expected in Yangon soon. The project would also turn the dumpsite into a safe, sustainable, environmentally sound operation, and increase the life of the dumpsite significantly. Figure 1 shows the original project ToC.

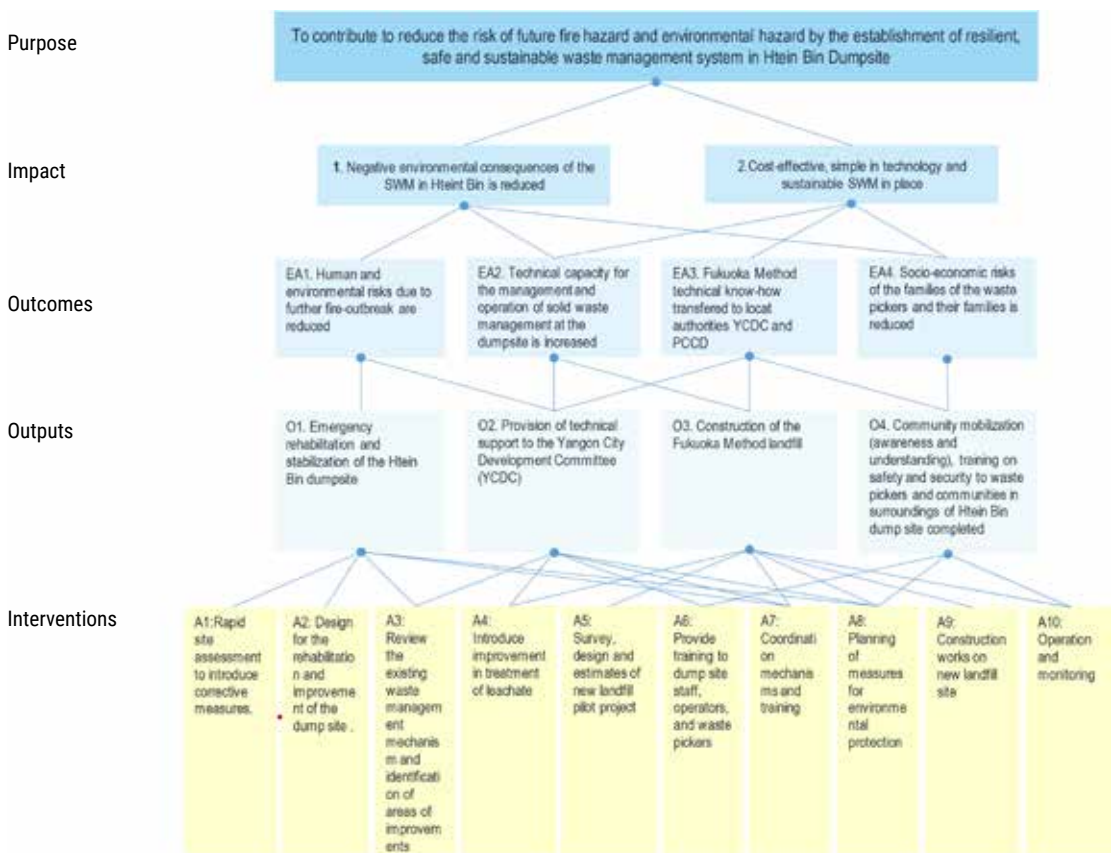
1 United Nations Evaluation Group, Norms and Standards for Evaluation, 2016

2 OECD, Revised and Updated Evaluation Criteria: Better Criteria for Better Evaluation, 2020

3 UN-Habitat, Evaluation Policy, 2013

4 UN-Habitat, Revised UN-Habitat Evaluation Framework, 2016

5 UN-Habitat, Evaluation Manual, 2018

Figure 1: Original project Theory of Change

The project's logframe is shown in **Appendix 2**.

4.2 Methodology

As indicated in the ToR, the evaluation included three methodological elements: desk review; data collection and analysis, including an evaluation survey, and synthesis and reporting.

4.2.1 Desk review

The desk review was based on the analysis of over 20 documents (see Appendix 3), which included:

- Main working documents, including Programme Document, progress reports, final report, meeting minutes, partner agreements/Agreements of Cooperation and narrative and financial reports;
- Technical documents, including designs for landfills cells (i.e., B3, B4), leachate pond designs, environmental monitoring specifications, ventilation pipe designs;
- Official outputs of the project, including workshops, training sessions, guidance developed as part of the project, etc.; and
- Other types of documents were also consulted, to expand the understanding of context and interlinkages of the project with international policies, i.e., Myanmar national development and socio-economic development policies, Agenda 2030 and Sustainable development Goals, UN-Habitat evaluation guidance policy and manual, strategic documents, and EU policies.

4.2.2 Data collection

An evaluation survey, based on semi-structured interviews with the implementing partners, main beneficiaries and other stakeholders was undertaken (following a stakeholder analysis, focusing on the implementing partners, main beneficiary and other stakeholders' groups and their representatives was undertaken with the ROAP and the Myanmar Country Programme Office and presented in the Inception Report) between 26th June - 28 July 2023. Two questionnaires were developed, targeting the main beneficiary, and implementing partners, and the local community (and approved in the Inception Report).

Semi-structured interviews (as shown in Appendix 4) and receipt of the questionnaires in writing were realized with a total of 17 persons, as follows:

- UN-Habitat and implementing partners - 11 interviews;
- Implementing partner – FCC, submitted a written response to the questionnaire - 3 persons;
- Local community – one combined interview with 3 persons.

The semi-structured interviews were conducted to obtain qualitative information on the evaluation issues to be able to address the criteria of relevance, efficiency, effectiveness of the project, together with using feedback to ascertain the coherence, sustainability, impact of the project – and findings highlighted in Section 4. Feedback on cross-cutting issues was also discussed. The interviews were guided by a questionnaire and were approximately 50 - 60 minutes in duration. Appendix 5 shows the semi-structured interviews guidance and questionnaires.

The request for interviews was sent to the persons identified in the stakeholder analysis by Myanmar Country Programme Office and complimented by the evaluator.

The gender perspective in the evaluation reflects the gender balance in the implementation and partners organization of the project.

Following data collection and analyses, a draft external evaluation report was discussed and validated with UN-Habitat's Independent Evaluation Unit. The evaluation process culminated with the production of this final external evaluation report.

4.3 Limitations to the evaluation

Due to the political situation in Myanmar, the evaluation assignment did not include visits to key stakeholders, i.e., YCDC nor the Htein Bin FDS, which posed a limitation to acquisition of adequate evidence on outputs and outcomes, etc. The lack of opportunity to meet with the primary target group – due to time and travel constraints – was compensated by online interviews and questionnaire surveys – supported by information from the desk review – and thus generated circumstantial evidence.

Similarly, it was not possible to conduct interviews with the main beneficiary, YCDC, UECCD, as formal interviews are not possible considering the UN engagement principles in Myanmar, and informal interviews are also considered difficult due to potential media exposure such discussions may entail.

Constructed biotope and leachate treatment
aeration facilities at Htein Bin FDS © UN-Habitat



5. MAIN FINDINGS

This section includes the outcomes from the desk review of the project documents, the evaluation survey - semi-structured interviews and questionnaires with project beneficiaries and key stakeholders. It provides an overview of the expected accomplishments and outputs of the project and the findings related to the evaluation questions for each of the evaluation criteria - relevance, efficiency and effectiveness, sustainability, impact, and coherence. It also addresses cross-cutting issues.

5.1 Achievements of the project performance

5.1.1 Expected accomplishments/outcomes

The project's overall objective, the project's four expected accomplishments and outputs have all been achieved and, in some cases, exceeded, according to Project proposal and its project logframe.

Expected Accomplishment 1: Humanitarian and environmental risks due to further fire-outbreak are reduced

Against the key performance indicators - the existing dumpsite is rehabilitated and stabilized, the targets (compared to the baseline) have been achieved, with all the affected areas rehabilitated and environmental pollution levels in the existing dumpsite improved.

Specifically, the following key achievements have been realized, including:

- Total area of 50 ha affected by fire rehabilitated (Areas A1 - A4 and B1, B2, B5), with leveling/compaction of wastes, stabilization of waste layers and waste embankments, installation of gas ventilation pipes, new drainage, construction of leachate ponds to stabilize leachate, development of access roads and improved landfill operations and environmental pollution levels in the FDS;
- Environmental monitoring of leachate, landfill gas and air quality;
- Rehabilitation of Area C of the Htein Bin FDS, with

the construction and operation of new access roads on a north-south basis, thus improving landfill management and reducing the risk of fires in this part of the FDS;

- Overall, the status of wastes has migrated from anaerobic to semi-aerobic condition, accelerating the decomposition of organic wastes faster and reducing the emissions of methane - a major cause of the fire in the dumpsite and for climate change, and the lifespan of the site has been extended; and
- Human and environmental risks due to further fires on the Htein Bin FDS to surrounding 150,000 residents through the rehabilitation and stabilization of the fire impacted area.

Expected Accomplishment 2: Technical capacity for the management and operation of solid waste management at the dumpsite is increased

Against the key performance indicators - YCDC UECCD staff are trained on Fukuoka Method of SWM and waste pickers are trained, the targets (compared to the baseline) have been achieved, with over 60 UECCD staff and 3 Non-Governmental Organizations (NGOs) trained in the Fukuoka Method and other related SWM disciplines.

Specifically, the following key achievements have been realized, including:

- Technical and material support for rehabilitation of the fire damaged area and for Fukuoka Method construction area. The technical provisions included an aerial survey of the disposal site, drainage flow assessments, designing of leachate ponds, horizontal and vertical ventilation pipes, and access roads. Bills of quantities have been prepared and recorded for each rehabilitated cell. These activities have helped to review, revise, and redesign the FDS to improve current land fill site management as well as to reduce fire risk in the future, as necessary;
- The preparation of the rehabilitation and construction design plans have been carried out by the project partners of Fukuoka City and SWAN-Fukuoka in close coordination with UN-Habitat and YCDC UECCD. In every phase of designing and implementation of the

project, the engineers from YCDC UECCD and UN-Habitat were closely involved to ensure the Fukuoka Method of SWM is transferred for long-terms sustainability of the site; and

- Other training delivered on environmental monitoring and specifically on water quality monitoring and improving landfill management, with over 50 attendees/trainees from selected NGOs in Myanmar related to SWM sector (Doh Eain, Thant Myanmar and Bokashi) and UN-Habitat local staff.

Expected Accomplishment 3: Fukuoka method technical know-how transferred to YCDC UECCD

Against the key performance indicators – the Fukuoka Method constructed, the targets (compared to the baseline) have been achieved, with a one-hectare pilot site constructed (with a sport related after-use) and one publication of the Fukuoka Method manual produced.

Specifically, the following key achievements have been realized, including:

- A one-hectare pilot site, including installation of vertical landfill gas venting pipes and a vegetation for sports activities as an after-use;
- A new five-hectare Fukuoka Method landfill (in area B3);
- A new 3.5-hectare Fukuoka Method landfill (in area B4); and
- A Fukuoka Method manual (in Myanmar and English languages) to highlight the concept and instruct environmental engineers, landfill management engineers and the wider public in implementing the practices and the methodology.

Expected Accomplishment 4: Socio-economic risks of the families of the waste pickers and their families is reduced

Against the key performance indicators - waste pickers and their families have access to safer working-environment and their income is not affected by the new Fukuoka Method, the targets (compared to the baseline) have been achieved, with over 330 households directly involved in a community mobilization programme.

Specifically, several key achievements have been realized, including:

Community involvement programme

- A community involvement programme in Hlaing Thar Yar township (Ward 20), targeted 350 informal households (out of 900);
- Key factors regarding SWM were identified via discussions with the community, women's groups and the informal sector (waste pickers) and through a waste audit which identified key SWM practices, leading to the goals and activities that would be implemented;
- Awareness raising through training in SWM, waste collection, recycling and composting to community volunteers as well as waste pickers, together with developing and initiating waste segregation and disposal mechanisms in the target communities, which is being widely practiced;
- An improved waste collection service, including separation of waste at source and disposing only inorganic waste; and
- Development of a Local SWM Plan aiming to ensure sustainability of initial results.

From the document analysis and evaluation survey, evidence shows that the waste awareness and practices training reached 39% of households, with 91% participation by women. Children and youth were also targeted through novel training methods (roadside games and songs), with 80 children participating in awareness raising sessions, out of an estimated 1,700 living in the pilot area. There has been an increase in awareness in the efficiency in recycling through source segregation of inorganic waste, which can reduce waste volumes by around 30% and benefits by reducing the organic component of waste by rough household composting and using organic waste for animal feed. Overall, the recycling campaign has strengthened recycling practice among the pilot community.

The introduction of cold composting technology through an incentive scheme to the community resulted in four households participating and two community compost areas being established, with an estimated 0.1 ton of waste being reduced per month. A plastic reduction campaign also targeted women from 30 households, who were trained in making their own set of reusable fabric shopping bags, resulting in 300 bags being created.

5.1.2 Project outputs

The outputs from the project were exceeded and included a series of technical, capacity building/training reports, including:

- Designs and bills of quantities for the implementation of the Fukuoka Method in rehabilitation areas of the Htein Bin FDS;
- Fukuoka Method manual;
- Training workshops/sessions, together with training reports;
- Project management reports – progress meeting minutes, progress reports on a quarterly basis and final project report; and
- Visibility outputs - project brochure and a short project documentary film.

From the document analysis and evaluation survey, evidence shows that there were seven technical missions by the project technical partners to Myanmar between April 2019 and February 2020 and over 35 virtual technical meetings on a variety of technical issues and project management matters over the whole project implementation period.

5.2 Relevance

Relevance was assessed in terms of the degree of the project's alignment with beneficiaries' requirements, country needs, national development goals and partner's, donors' and UN-Habitat's policies, the degree to which the project is in line with and responsive to SDG targets and the Myanmar NUA, to what extent the project and its objectives relevant to the needs and priorities of the participating country and city and responded to their urban development plans, and to what extent did the identification, design and implementation process of activities and pilot initiatives involve beneficiaries.

5.2.1 Consistency of the project with beneficiaries' requirements, national development goals and other related factors

The project has been consistent with the beneficiaries' requirements, national development goals, UN-Habitat policies and contributing to low carbon development.

The beneficiaries' requirements evolved through a consultative process with the main beneficiary – the YCDC, and the local community which was directly affected by the main problem identified – to prevent fires at the Htein Bin FDS, transfer technology for improved landfill operations and to prevent negative environmental impacts on residents living in the vicinity of the site. The project is well aligned with national development goals and policies, in particular, the project supports the implementation of the National Waste Management Strategy and Action Plan for Myanmar (2017- 2030), and especially activities under the Goal A: Extending sound waste collection service to all citizens and eliminate uncontrolled disposal and open burning as a first step towards environmentally sound waste management the activities; Goal C: Substantively reduce waste through 3Rs (reduce, reuse, recycling) and thereby establish a resource circular society; and Goal E: Awareness Raising, Advocacy and Capacity Building.

The project is also well aligned with UN-Habitat's Strategic Plan 2014-2019, contributing primarily to Focus area 6: risk reduction and rehabilitation and to Climate Change, listed as key cross-cutting issue and the UN-Habitat Strategic Policy 2020-2023, with reference to Domain of change 3 - Strengthened climate action and improved urban environment and Domain of change 4 - Effective urban crisis prevention and response. The improvement of the Htein Bin FDS should also contribute to creating a low-carbon society by reducing methane, which is a major direct cause of fires and has an impact on global warming.

5.2.2 Responsiveness to Sustainable Development Goals and the New Urban Agenda

The project is well aligned with the 2030 Agenda for Sustainable Development and specifically the targets set out in SDG Goal 3: Ensure healthy lives and promote well-being for all at all ages and 11: Sustainable Cities and Communities. With SDG 3, target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination and with SDG 11, target 11.5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic produced caused by disasters, including water-related disasters, with focus on protecting the poor

and people in vulnerable situations. With target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

The project has been designed and was implemented in line with the NUA with reference to:

- Environmentally sustainable and resilient urban development, specifically policies:

74 - promoting environmentally sound waste management.

78 - supporting moving from reactive to more proactive risk-based, all-hazards, and all-of-society approaches, such as raising public awareness of risks and promoting ex-ante investments to prevent risks and build resilience, while also ensuring timely and effective local responses to address the immediate needs of inhabitants affected by natural and human-made disasters and conflicts. This should include the integration of the “build back better” principles into the post-disaster recovery process to integrate resilience building, environmental and spatial measures, and lessons from past disasters, as well as awareness of new risks, into future planning.

- Planning and managing urban spatial Development, specifically policies:

119 - promoting adequate investments in protective, accessible, and sustainable infrastructure and service provision systems for water, sanitation and hygiene, sewage, SWM, urban drainage, reduction of air pollution and storm water management, to improve safety in the event of water-related disasters, improve health.

122 - supporting decentralized decision-making on waste disposal to promote universal access to sustainable waste management systems. We will support the promotion of extended producer-responsibility schemes that include waste generators and producers in the financing of urban waste management systems reduce the hazards and socioeconomic impacts of waste streams and increase recycling rates through better product design.

146 - expanding opportunities for North-South, South-South, and triangular regional and international cooperation, as well as subnational, decentralized and city-to-city cooperation, as appropriate, to contribute to

sustainable urban development, developing capacities and fostering exchanges of urban solutions and mutual learning at all levels and by all relevant actors.

147 - promoting promote capacity development as a multifaceted approach that addresses the ability of multiple stakeholders and institutions at all levels of governance, and combines the individual, societal and institutional capacity to formulate, implement, enhance, manage, monitor, and evaluate public policies for sustainable urban development.

5.2.3 Involvement of beneficiaries in project identification, design and implementation

The Yangon City Authority (YCA), the main beneficiary, YCDC and local stakeholders have been instrumental in the identification and design of the project. The urgency of the original problem, a fire at Htein Bin FDS was identified with the YCA not being able to ascertain and address the root causes of the fire and take technical action to mitigate future risk to human lives of the people living in the area. Hence, the YCA and specifically the Mayor of Yangon called for urgent assistance to reduce the risk of fire breakout in the summer 2019 reached out to Fukuoka City and UN-Habitat. The subsequent revisions in the work plan and budget line amendments, due to the impact of the COVID-19 pandemic, were also in line with the beneficiaries' needs and interests.

Similarly, the main beneficiaries' - YCDC UECCD and the local community surrounding the Htein Bin FDS has been involved in the implementation of the project, together with UN-Habitat and its implementing partners, with extensive participation in technical missions, online technical meetings, general and progress meetings.

The evaluation survey and several respondents highlighted the high level of involvement by the beneficiaries in the identification, design, and implementation of the project, taking ownership of the Htein FDS operations and environmental monitoring.

5.3 Efficiency

Efficiency has been assessed in terms of the extent to which the achievement of results was performed with economical use of resources (financial, human, time, etc.), UN-Habitat's capacity to design and implement the

project, adequacy of institutional arrangements, impact of external events and extent of timely, meaningful, and adequate monitoring and reporting.

5.3.1 Cost-effectiveness

As summarized in Section 3, the project was funded by a GoJ grant with a budget of USD 5,631,768.45. The split of financing across the activities from the rehabilitation, pilot actions, technical assistance, capacity building/training was suitable and by the end of March 2020, the commitments, and obligations were USD 4,391,653.

Overall, from the document analysis, the financial accounts of the project and the project audits, the use of financial and human resources was targeted and efficient and the project was delivered in a highly cost conscious and cost-efficient manner to achieve the expected outcomes.

From the audits, the financial performance of the two main implementing partners (IPs), FCC and SWAN-Fukuoka were also highly satisfactory, with their expenses in accordance with agreed upon accounting policies and were: (i) in conformity with the approved project budgets; (ii) for the approved purposes of the project; (iii) in compliance with the relevant terms and conditions of the AoCs between UN-Habitat and IPs and (iv) supported by properly approved vouchers and other supporting documents. The expenses incurred on the project delivery rate (budgeted funds/actual expenditure) of between 90 - 96%.

With procurement, the required procedures were adhered, with UN-Habitat procuring construction materials, equipment, and rental of heavy machinery to implement the activity at the project site. Major procurements (more than USD 50,000) solicitation process were handled by the United Nations Office at Nairobi (UNON) Procurement division and UNDP Myanmar Procurement Section. One respondent from the evaluation survey highlighted the high use of fuel by the UECCD during the project implementation. YCDC UECCD used its own petrol pump for UECCD vehicles and heavy machinery at the Htein Bin FDS and signed an internal Memo of Understanding at market price for the supply of fuel for UN-rented heavy machines. The supply and utilization of fuel were monitored by the UN-Habitat Myanmar Country Programme Office engineers.

One of the respondents to the evaluation survey highlighted that 60% of the project's outputs were achieved in the first two years (March 2021) of its implementation, considering the impact of the COVID-19 pandemic.

There were some issues related to administrative delays in approving the AoC at the outset of the project, from the impact of the COVID-19 pandemic and the political coup in February 2021. The political coup caused difficulties in procurement and logistics, with the price of materials and fuels increasing significantly or not available in the marketplace, and resulted in slow and complicated payment transactions, with for example delays in the supply of fuel. Regarding the COVID-19 pandemic, in consultation with YCDC UECCD, a revised work programme with a no cost time extension to 31st March 2022 was proposed and subsequently agreed. Similarly, at the end of January 2022, due to the political event of 1st February 2021, a second no-cost time extension to the project was granted.

5.3.2 UN-Habitat capacity to design and implement the project

From the document analysis, the design and implementation of the project was adequate, even though the project was impacted by the COVID-19 pandemic and the political event of 1st February 2021. Prior to the COVID-19 pandemic, the project resulted in several outputs and outcomes, particularly with regards the rehabilitation of the fire affected Htein Bin FDS, general improvements to the landfill management and operations, together with capacity building of UECCD staff.

UN-Habitat applied a contingency planning approach and worked well in partnership with YCDC UECCD to adjust the activities and work plans on two occasions due to COVID-19 and the political coup in February 2021. The last amendment to the work plan centered on stabilizing a larger area of the Htein Bin FDS due to increasing waste volumes (from around 1,000 tons per day in 2018 to around 1,500 tons per day) and the lack of capacity in rehabilitated landfills (A and B areas) - through physical works rather than on-site technical assistance.

From the evaluation survey, three respondents highlighted that the UN-Habitat contributed significantly to the design and implementation of the project, and its employment of local Myanmar staff and Japanese staff had a significant positive impact on the success

of the project, due to their local knowledge and skills of local staff, and the liaison ability of Japanese to act as intermediaries between Fukuoka experts and local stakeholders in Myanmar.

5.3.3 Adequacy of institutional arrangements

The institutional arrangements between UN-Habitat, the main beneficiary, YCDC UECCD and the implementing partners allowed the outputs and outcomes of the project to be achieved. During the project implementation, there were two UN-Habitat project managers which were supported by the UN-Habitat Country Programme Manager and a Programme Officer (from September 2022), together with a Programme Officer responsible for all administrative issues including finance, procurement, human resources, and office management. This was complemented by project managers/focal points at the implementing partners – FCC, SWAN-Fukuoka and Thant Myanmar, as well as at the local community level. In addition, there was also a special advisor from UN-Habitat who was involved in the implementation of the project along with the UN-Habitat Myanmar programme management team.

5.3.4 Impact of external events

During the project implementation two external events directly affected the project - the COVID-19 pandemic and the political event on 1st February 2021, which were not foreseen in the project's risk analysis. From March 2020, the implications of the COVID-19 pandemic included additional workload for YCDC UECCD staff, travel restrictions for the implementing partners and positive cases of COVID-19 amongst YCDC UECCD and UN-Habitat staff. These posed challenges in the implementation of the project as no direct technical support on the ground could be provided by the Japanese technical experts and a change in the timing of the construction of new landfill with Fukuoka Method and environmental monitoring. A revised work plan was developed and approved with adjusted timescales for these key activities and providing direct technical assistance and supervision for construction works and technology transfer through online on-the-job training and technical support.

Three respondents to the evaluation survey, commented that due to the inability to travel to Myanmar, it meant that exchange and follow-up meetings could not be

conducted directly on-site and had to be performed online, which required a higher level of inputs and use of resources than direct guidance.

On 1st February 2021, Myanmar's military took power through a coup and temporarily partially suspended UN-Habitat's development operations in Myanmar in accordance with UN Country Team's (UNCT) UN Engagement guidelines. Most of the respondents to the evaluation survey highlighted that the military coup created a difficult operating environment for the project to operate in, with suppliers' payments impacted due to limited banking functions and restricted supply chain logistics. From the document analysis, some specific issues included the late delivery of fuel for construction works at Htein Bin FDS and delays in procurement of construction items and heavy machinery. Moreover, due to the limitation in banking systems, inflation increased resulting in higher transport prices and increases in costs for a broader range of imported inputs and for some items due to there being no qualified bidders due to limited availability in Myanmar markets, they were delayed due to the need for them to be imported.

Both COVID-19 and the February coup also delayed the community mobilization activity in Hlaing Thar Yar, although it was implemented successfully at the end 2022/early 2023.

5.3.5 Quality of monitoring and reporting

From the document analysis and respondents to the evaluation survey, during the project implementation, UN-Habitat employed a robust mechanism to monitor projects at two levels: a) in-country monitoring, and b) through global online system, Project Accrual and Accounting System (PAAS). Project development and implementation has been adequately supported by the UN-Habitat project team under the supervision of the UN-Habitat Country Programme Manager and a Programme Officer. The project finances and the progress were closely monitored by UN-Habitat operation and finance team. Technical staff (senior engineers and field engineers) also contributed to regularly gathering relevant data and generated evidence-based information by recording weekly narrative and pictorial reports.

Regular progress reports on a quarterly basis (as requested by the donor) from the outset of the project were prepared, except for 2020 when the project

extension was requested. Regular 'face-to-face' meetings prior to the COVID-19 pandemic and since then on-line progress meetings were held between the project partners. Internal and external communications were well maintained and adapted to the actual circumstances, for example meeting minutes for general and team meetings. One of the respondents to the evaluation survey highlighted the value of weekly site meetings (between UN-Habitat and the site engineers), the monthly project progress meetings, together with the quarterly progress reporting.

5.4 Effectiveness

Effectiveness was assessed in terms of the extent to which the development intervention's objectives were achieved, or are expected to be achieved, considering their relative importance. It also assessed the level of engagement with countries and cities, extent of the partner organizations working together and the level of awareness amongst beneficiaries of the contribution of the funding partner, and visibility materials in the field and other communication materials.

5.4.1 Extent in achieving the project objectives and outcomes

The intervention's objectives, expected achievements and outputs were all achieved and can be considered as highly satisfactory, as highlighted in Section 4.1. In particular, the project has rehabilitated a large proportion of the YCDC FDS in an environmentally compliant manner and mitigated the fire risk from the site, together with enabling YCDC UECCD to manage and operate Htein Bin FDS in a more sustainable manner. Some specific highlights include the ability for YCDC UECCD to install landfill gas venting pipes, the awareness and understanding of creating access roads within the FDS, adopting the appropriate slope elevation at the FDS, the compaction sand leveling of waste effectively, allowing waste collection vehicles to access all parts of the FDS. However, there are still some challenges around the full coverage of waste at the Htein Bin FDS, an essential factor in reducing the risk of fires.

The project provided several high-quality deliverables, including surveys and appraisals of the Htein Bin FDS, designs for rehabilitation and new measures in the site, guidance manual, training material and reports, and

community mobilization surveys and research studies, awareness and methods training and training reports and waste minimization solutions.

Major factors that influenced the achievement of the expected accomplishments were committed individuals in both UN-Habitat and YCDC UECCD, the provided technical support, the involvement of the local community in the project, and political support, particularly prior to the political event of 1st February 2021.

UN-Habitat and the other implementing partners monitored the implementation of the programme, using the indicators of achievements on outcomes (as set out in the project logframe), with regular progress meetings (mainly online), good quality progress reports on a quarterly basis and a final report. The project logframe was adjusted on three occasions, mainly to accommodate the challenges from the COVID-19 pandemic and the political event of 1st February 2021.

5.4.2 Engagement with countries and cities

The project itself was funded through a grant from the GoJ and three of the external partners are Japanese. The SWAN-Fukuoka consortium is instrumental in implementing the Fukuoka Method across different regions, providing technical assistance and capacity building on numerous occasions to numerous countries and Fukuoka city has a sister agreement with Yangon.

Considering the UN engagement principles in Myanmar and resulting restrictions in working with the Myanmar government, the project engaged with Thailand (UN-Habitat Myanmar and Thailand), which has similar landfill conditions and waste composition, on sharing best practices and knowledge exchange on environmental management issues and SWM, and specifically water quality monitoring training to analyze the environmental impact of the landfill sites.

The evaluation survey and several respondents highlighted the value of the training on water quality monitoring and improving landfill management in Thailand, particularly sharing knowledge, and experiences between the participating fourteen organizations from Japan, Myanmar, and Thailand.

5.4.3 Working together

The partner organizations worked effectively together in achieving the desired results, from UN-Habitat, the Japanese Embassy in Myanmar to the technical partners - FCC, SWAN-Fukuoka and Thant Myanmar. The Japanese organizations that partnered with UN-Habitat were well structured and effective in delivering the results of the project. The technical inputs, including assessments, planning, survey, design, and engineering support have been well developed and implemented, via direct on-site means initially (prior to the COVID-19 pandemic) and online after that, via technical meetings and sessions and workshops. Similarly, the partner that implemented the community mobilization element of the project is a renowned local NGO with expertise on community involvement in both SWM and sanitation and adequately conducted research and surveys of the current waste management system in the chosen informal settlement pilot site, as well as training community volunteers, and creating and operating the waste segregation mechanism that was introduced in the pilot settlement.

The partner organizations also worked effectively when adjusting to the challenge of the COVID-19 pandemic with its impact on travel restrictions and on-site technical assistance, with the efficient use of online communication. Similarly, the political event of February 2021 which created a difficult operating environment and therefore major challenges in implementing the project have been successfully overcome by extending the project for an additional twelve months and mitigating key risks such as shortage of fuel, delays in procurement and payments and logistical issues.

The evaluation survey and four respondents emphasized that the partnership approach between UN-Habitat, the implementing partners and YCDC UECCD at all levels, from management, technical to visibility as being one of the main reasons for the success of the project. Moreover, one respondent highlighted that the project enjoyed one of the best examples of collaboration amongst the project team in delivering the planned activities and results.

5.4.4 Awareness and visibility of results

The project has been instrumental in developing high quality dissemination and visibility products. Notably, the

project included an opening ceremony with participation from key stakeholders, including the Mayor of Yangon in August 2019, together with the production of a Project Brochure. In conjunction with Yangon Film Services, UN-Habitat developed a short documentary film highlighting the approaches, achievements and impacts of the project. The documentary captured the achievement and milestones of the project, the contribution of the experts from Fukuoka city, Fukuoka University and SWAN-Fukuoka, and the technical support from UN-Habitat. The SWM project documentary has been posted on the YouTube page of UN-Habitat Myanmar as a public relation resource to disseminate the project outcomes for wider public. The community mobilization sub-component of the project also included a good level of visibility.

The project's achievements, study tour, trainings, etc. have also been widely disseminated via the websites of UN-Habitat RAOP and of UN-Habitat Myanmar.

5.5 Coherence

Coherence was assessed in terms of the extent to which the project is coherent with other interventions of a similar nature funded by Japan and any connections with other interventions of the UN-Habitat relating to SWM.

5.5.1 Coherence and connections with other interventions

The project has been consistent with relevant national policies and strategies, and national development plans and goals as highlighted in Relevance. The project did not overlap with any other similar projects or programmes.

A relevant project was the development of a climate change strategy in Myanmar which was funded by the European Union and the Global Climate Change Alliance Plus Initiative (GCCA+) and implemented by UN-Habitat and United Nations Environment Programme (UNEP).

Several other related UN-Habitat programmes/projects related to WASH have involved developing and sustaining community involvement, something which the project also complemented in context of SWM.

The project also accords with the National Waste Management Strategy and Master Plan for Myanmar, 2018-2030, which was published in 2020 and developed by the Ministry of Natural Resources and

Environmental Conservation and the United Nations Environment Programme.

Japan has funded interventions in solid waste in Myanmar, through JICA funding, although prior to the project under evaluation.

5.6 Sustainability

Sustainability has been assessed in terms of the extent capacity was developed and what mechanisms have been put in place, including capacity and ownership of stakeholders, to ensure sustainability of the results and benefits, the extent activities and pilot projects engaged beneficiaries in design, implementation and building ownership of the beneficiaries, and the extent to which the project will be replicated.

5.6.1 Capacity development and ownership

Technical, management and operational capacities were overall appropriately built to guarantee the continuation of benefits after the project completion. The Htein Bin FDS has been improved in terms of its design, facilities and management and operation, both in a formal (YCDC UECCD) and informal (i.e., waste pickers) context, from the technical assistance provided by the project. Most crucially, YCDC UECCD has obtained the know-how and means to manage and operate the Htein Bin FDS in a more efficient and sustainable manner.

Specifically, technical capacity was developed for improved landfilling operations, (i.e., waste compaction, coverage), installing measures for leachate and landfill gas management and collection, landfill maintenance and environmental monitoring of work will be further continued by UECCD based on the learnings from the project and improving the efficiency and use of the informal sector (i.e., waste pickers).

After the project completion, UN-Habitat has been following up on the sustainability of the project and reported that the site is operating well. There have been no incidents of fires being reported related to operations at the Htein Bin FDS, except for a fire incident due to the mishandling of chemicals on-site on 22 June 2023.

The evaluation survey through three respondents highlighted that the “technical training has been provided

in three steps, namely, show them how to do it, get them to do it, and get them to understand it. In this way, we encouraged continuity in the skill transfer process”.

The project also raised awareness and understanding of SWM principles, through community mobilization, which encouraged the local community (Hlaing Thar Yar township) surrounding the Htein Bin FDS to practice waste minimization, including analysis of current waste management system in one selected target informal settlement; conducting awareness trainings to community volunteers, as well as waste pickers and creating and initiating the waste segregation and disposal mechanism in the target communities. However, the IP highlighted that sufficient time over an extended period is required to raise awareness in waste minimization, fees are extremely low to maintain waste collection adequately and training needs to be focused and relatively short in duration.

The document analysis and evaluation survey and two respondents also highlighted that whilst the behavior of the local community that was part of the project has changed in a positive way in SWM practices, they stressed the need for champions to maintain the momentum, particularly with regards to the segregation of recyclables and organic waste streams. Another two respondents from the local community targeted by the project highlighted that the long-term sustainability of the behavior of the local community towards waste minimization should be maintained and cited examples such as the use of cloth shopping bags, using organic/ food waste as fertilizer in vegetable production and producing compost which can be sold back to the community.

5.6.2 Ownership of beneficiaries

The main beneficiaries have been involved in the design and implementation of the project and ultimately taking ownership of technical assistance provided and capacities developed. Beneficiaries were involved in the design of the project, focusing on the immediate need to mitigate the fire risk at the Htein Bin FDS and its rehabilitation. There was a demonstration element, piloting the Fukuoka Method and technical assistance, thereby integrating the method into the management and operation of the facility, successfully taken over by YCDC UECCD. Monitoring is also practiced and managed by the main beneficiary. The community mobilization part of

the project has been successful in developing awareness and practices in waste minimization, owned by the respective local beneficiary.

The evaluation survey and four respondents indicated that in their opinion, even with the challenges around the political event in February 2021, the main beneficiary, YCD UECCD has the know-how and resources to manage and operate the Htein Bin FDS in a more environmentally sustainable way.

5.6.3 Replication and scaling-up

The project has already provided replicability with the completion of two additional areas (totaling 8.5 ha) using the Fukuoka Method at the Htein Bin FDS. The replicability and longer-term sustainability of the project has been highlighted using the Fukuoka Method by YCDC UECCD at other waste disposal sites in Yangon, notably Htawei Chaung FDS, Dala FDS and Seikkyi Khaungto FDS, and there are discussions ongoing about using the method for FDSs in Mandalay and Nay Pyi Taw. This replicability has been aided by the development and publication of the Fukuoka Method Manual which has been developed based on the experience and learning from the project by experts from Fukuoka City, SWAN-Fukuoka, Fukuoka University in discussion with UN-Habitat and UECCD, with the aim for further application of the Fukuoka Method in Myanmar. The manual disseminates not only the project case study, design, and construction stages, but also explains how to manage landfill operations and targets environmental engineers, landfill management engineers and the wider public, and it is being targeted to over 350 towns and cities across Myanmar. The successful completion of the one-hectare pilot site has enabled the site to be rehabilitated into a public recreation area, with YCDC UECCD taking responsibility for the sustainability of the pilot site after the project period.

The evaluation survey and several respondents specifically highlighted the benefit of the Fukuoka Method Manual in transferring knowledge to key stakeholders and helping to replicate the methodology to other FDS's in Myanmar.

With the success of the community mobilization sub-component, there is potential to scale-up and potentially replicate the methods in other urban settings in other cities in Myanmar. It was also pointed out in the

evaluation survey by two respondents that civil society, NGOs and Small and Medium Sized Enterprises (SMEs) are currently capable of implementing community based SWM awareness and practices programmes.

Three respondents from the evaluation survey pointed out that whilst the project outcomes and outputs have been achieved, together with a high level of sustainability, there is a need to move towards the principles of 3Rs (Reduce, Reuse and Recycle) and the circular economy with regards to SWM. The community mobilization component of the project is an example of this approach; however, it needs to be practiced at a larger scale, with relevant technical assistance, capacity building and physical measures.

Access to financing for further development of the Fukuoka Method as highlighted above is being funded by YCDC UECCD. External funding is unlikely due to the UN Engagement Guideline, which requests to limit communication with the de facto authorities, such as YCDC, because of the political event in February 2021.

5.7 Impact Outlook

The impact outlook was assessed in terms of the extent of the project attaining its main objective and anticipated impact on partners and targeted beneficiaries, whether stakeholders or cities, and the extent of positive and/or transformative changes that have occurred because of the project.

5.7.1 Overall impact of the project

The project achieved its expected accomplishments/ outcomes and had an overall positive impact on its targeted beneficiaries through capacity building and improved standards and practices in SWM, as highlighted in Section 4.1.

The ToC pathways have been met in context of the addressing the underlying cause of the problem identified and thus reducing the risk of future fire hazard and environmental hazard by the establishment of safe and sustainable waste management systems for Htein Bin FDS through the implementation of the Fukuoka Method of SWM. The impact has largely been achieved, in bringing substantial reductions in the amount of land required for solid waste disposal, as well as significant reductions in greenhouse gas emissions,

risk to the dumpsite fire and leachate contamination of the surface and sub-surface of soil strata - helping to reduce the negative environmental consequences of the urbanization growth expected in Yangon in coming future. The project has enabled the Htein Bin FDS to become safer, environmentally compliant and increase the life of the site significantly and SWAN-Fukuoka estimate that due to the Fukuoka Method and the improved management and operation of the site, its capacity has doubled.

From the evaluation survey, one respondent indicated that whilst the overall impact of the project is high (scoring it 85/100), there is the need to continue longer-term environmental monitoring at the Htein Bin FDS and evaluate the data accordingly, and to implement post-closure environmental monitoring and evaluation.

5.7.2 Positive and transformative changes

The project has initiated several positive/transformative changes. The project has enabled a large proportion of the Htein Bin FDS to be rehabilitated operate as a semi-aerobic facility and in an environmental, sustainable manner, and allowed YCDC UECCD to gain knowledge and technical capacity in landfill management and operations and environmental quality monitoring.

With the community mobilization, UN-Habitat has undertaken an endline survey to monitor outcomes of community mobilization activities. The survey, targeting beneficiary households, showed that the project changed the behavior and adopted practices in waste segregation, safe disposal, plastic reduction, and composting.

Three respondents to the evaluation survey specifically highlighted that the project has not only reduced the fire risk at the Htein Bin FDS but has changed the mindset of the YCDC UECCD in managing and operating the site and planning for ongoing and future operations.

5.8 Cross-cutting issues

Cross cutting issues have been integrated in the project design, implementation, monitoring, and reporting, with the informal sector addressed as part of the management and operation of the Htein Bin FDS. The issues of gender equality and youth have been central to the community mobilization part of the project. Women have been encouraged to provide their opinion and concerns regarding the informal sector, as many waste pickers are women, and waste collection/recycling is their main source of income. Women have also been included as much as possible in the awareness raising and capacity building activities.

From the evaluation survey, a respondent highlighted that young women who are a high proportion of the informal waste collectors in the target local community participated in the SWM awareness and practices training.

Moreover, the project's main objective is directly related to social and environmental safeguards and notably climate change in that the introduction of the Fukuoka Method will bring significant reductions in greenhouse gas emissions, reduce risk to the dumpsite fire and leachate contaminants, and improve living conditions of the community surrounding the Htein Bin FDS.

Completed Fukuoka method pilot landfill at Htein Bin FDS which has been transformed into a green area © UN-Habitat



6. CONCLUSIONS

6.1 Achievements and performance

The project's overall objective, the project's expected accomplishments and outputs were all achieved and, in some cases, exceeded, with some key highlights as follows:

- Humanitarian and environmental risks due to further fire-outbreak are reduced: the existing dumpsite is rehabilitated and stabilized, with all the affected area rehabilitated and environmental pollution levels in the existing dumpsite reduced.
- Technical capacity for the management and operation of solid waste management at the dumpsite is increased: over 60 UECCD staff and 3 NGOs trained in the Fukuoka Method and other related SWM disciplines.
- Fukuoka method technical know-how transferred to YCDC UECCD: a one-hectare pilot site constructed (with a sport related after-use), and one publication of the Fukuoka Method manual.
- Socio-economic risks of the families of the waste pickers and their families are reduced: waste pickers and their families have access to safer working-environment, their income is not affected by the new Fukuoka Method and over 330 households were directly involved in a community mobilization programme.

6.2 Relevance

The evaluation has shown that the relevance of the project was highly satisfactory. The objectives of the project are relevant, aligned, and consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies, such as the National Waste Management Strategy and Action Plan, and both the UN-Habitat's Strategic Plan 2014-2019 and UN-Habitat Strategic Policy 2020-2023. The improvement of the Htein Bin FDS should also contribute to creating a low-carbon society by reducing methane, which is the main cause of fires and reducing the impact of global warming. The project is also well aligned with the 2030 Agenda for Sustainable Development, specifically SDGs

3 and 11, as well as the Myanmar New Urban Agenda. Beneficiaries have been heavily involved in the need, identification, design and implementation of the project activities and pilot initiatives.

6.3 Efficiency

The evaluation has shown that the overall efficiency of the project was highly satisfactory. Evidence shows the use of financial and human resources has been targeted and efficient and the project has been delivered in a highly cost conscious and cost-efficient manner to achieve the expected outcomes. UN-Habitat's capacity to design, re-design and implement the project has been highly satisfactory, even though the project was impacted by two external events – the COVID-19 pandemic and the political event of 1st February 2021. The political coup caused difficulties in procurement and logistics, with fuel supply the main issue. The institutional arrangements between UN-Habitat, the main beneficiary, YCDC UECCD and the implementing partners were a major factor in allowing the outputs and outcomes of the project to be achieved, as well as efficient monitoring of the project.

Four respondents from the evaluation survey highlighted that the cooperation supported the progress of the project through accountability and development of trust, pushing the project forward. As most UN-Habitat local staff were working on the project for most of the duration of the project, that helped to build trust as well.

6.4 Effectiveness

The evaluation has shown that the overall effectiveness of the project was highly satisfactory, with the objectives, expected accomplishments/outcomes and outputs all achieved. The project rehabilitated a large proportion of the YCDC FDS in an environmentally compliant manner and mitigated the fire risk from the site, together with enabling YCDC UECCD to manage and operate Htein Bin FDS in a more sustainable manner, as well as providing high-quality deliverables. Committed individuals in both UN-Habitat and YCDC UECC, the provided technical support from FCC and SWAN, the involvement of the local community in the project, and political support,

particularly prior to the political event of 1st February 2021, allowed the achievement of the expected accomplishments/outcomes.

All the partner organizations were well structured and worked effectively together throughout the full implementation period, as well as adjusting to the challenges posed by the COVID-19 pandemic and the political event in February 2021, in achieving the desired results of the project. The high level of collaboration and partnership approach between all partners was highlighted as being instrumental in delivering the project results.

6.5 Coherence

The project has been consistent with relevant national policies and strategies, and national development plans and goals, such as the National Waste Management Strategy and Master Plan for Myanmar, 2018-2030. The project did not overlap with any other similar projects or programmes funded by Japan or implemented by UN-Habitat.

6.6 Sustainability

The evaluation has shown that the sustainability of the benefits created by the project is overall good. The physical measures around rehabilitation of the Htein Bin FDS, the capacities built both at technical and institutional levels of the main beneficiaries' and the continuing longer-term sustainability with the replication of the Fukuoka Method at other waste disposal sites in Myanmar are evident. Technical, management and operational capacities have been appropriately built to guarantee the continuation of benefits after the project completion, with the main beneficiary, YCDC UECCD obtaining the know-how and means to manage, operate, and monitor the Htein Bin FDS in a more efficient and sustainable manner. Awareness and understanding of SWM principles are more fully understood in the local

pilot community setting, as well as practicing waste minimization measures. The project has already enjoyed some replicability with the completion of two additional areas (totaling 8.5 ha) using the Fukuoka Method at the Htein Bin FDS and at other waste disposal sites in Yangon, notably Htawei Chaung FDS and Dala FDS. Discussions are ongoing about using the method for FDSs in Mandalay and Nay Pyi Taw.

6.7 Impact Outlook

The evaluation found that the project achieved its expected accomplishments/outcomes and had an overall positive impact on its targeted beneficiaries through capacity building and improved standards and practices in SWM. The main problem of reducing the risk of future fire and environmental hazards and establishing a safer and longer-term sustainable and compliant waste management system for Htein Bin FDS has been largely achieved. YCDC UECCD has gained knowledge and technical capacity in landfill management and operations, and environmental quality monitoring. The community mobilization component changed the behavior and adopted practices in waste segregation, safe disposal, plastic reduction, and composting of the target pilot community.

6.8 Cross-cutting Issues

Cross cutting issues have been integrated in the project design, implementation, monitoring, and reporting. Whilst the project's main objective is directly related to social and environmental safeguards and notably climate change, the issues of gender equality and youth were central to the community mobilization part of the project. Women were encouraged to provide their opinion and concerns regarding the informal sector (many waste pickers are women and waste collection/recycling is their main source of income).

7. LESSONS LEARNED

The lessons learned based on the results from the document analysis and evaluation survey are highlighted below.

Due mainly to the current political climate, the evaluation highlighted that civil society, NGOs and SMEs are the logical choice as the best stakeholders and leaders in developing and implementing programmes/projects in SWM awareness raising and practices. There may be some challenges regarding future funding of such programmes/projects, which could be a role UN-Habitat and/or other donors can facilitate.

The institutional arrangements, structures and working relationship between UN-Habitat, the main beneficiaries and the implementing partners worked extremely well, with dedicated and committed staff, developing, and implementing contingency arrangements because of two external events (COVID-19 and the political event of February 2021) crucial in the delivery of the project's outputs and outcomes. Successful technology transfer requires leadership, responsiveness, and cooperation on the part of the providers of the technologies and should be carried out in a way that is acceptable to the beneficiaries. It is also important for beneficiaries to accept the guidance at an organization-wide level and apply it appropriately to the operating environment. The long-standing technical competence and knowledge of the operating environment by the Japanese implementing partners and their previous strong links with YCDC UECCD have been crucial in the delivery of the project. This shows the need to have a tried and tested and technically competent partnership in implementing a project.

There have been some serious challenges to the implementation of the project with the COVID-19 pandemic and the political event in February 2021. The flexible approach that was adopted in implementing the project allowed it to be adjusted and extended on two occasions. Revised work plans were developed and approved including extended timescales for the key activities and direct technical assistance and supervision for construction works and technology transfer through online on-the-job training and technical support. The importance of planning and flexibility in project



Installation of Fukuoka method perforated pipes at the Htein Bin FDS © UN-Habitat

management is therefore crucial when such external events occur.

It was acknowledged that the project enjoyed efficient and timely monitoring and reporting. Regular 'face-to-face' meetings prior to the COVID-19 pandemic and since then on-line progress meetings were held regularly between all the project partners. Internal and external communications have been well maintained and adapted to the actual circumstances. Hence, efficient monitoring and reporting is essential for the successful delivery of projects.

The project has been instrumental in developing high quality and beneficial dissemination and visibility products, including a short documentary film highlighting the approaches, achievements and impacts of the Fukuoka Method at Htein Bin FDS, together with the Thailand study tour, trainings, community mobilization activities and results, etc. disseminated via websites of UN-Habitat ROAP and UN-Habitat Myanmar. This approach to visibility and communications is regarded as good practice.

The capacity building and knowledge exchange have been highly satisfactory features of the project, both in context of the technical and the community involvement parts. The combination of on-site and online technical meetings, online discussions, theoretical and practical

on the job training to site managers and operators, the study tour to Thailand, and the waste awareness and waste minimization related training, etc. have all been highlighted as beneficial. This combination of capacity building and knowledge transfer is considered good practice. New working methods, such as virtual (online) mechanisms have become the norm due to the COVID-19 pandemic and other dual or hybrid mechanisms may be the way forward in some cases.

There are opportunities for the utilization of FDSs after their closure. Depending on the status of stabilization, the use of the land can vary from using only the surface (e.g., parks, playgrounds) to more measures, such as buildings, which can be determined by using monitoring results from landfill gas quality, smell, temperature, color, amount of leachate and stability and height of the landfill. It was pointed out by Fukuoka city with the example of the utilization of a former FDS - Imazu landfill in Japan, which is utilized as land for training centers, an athletic park, playground, and a garden.

Whilst the introduction of the Fukuoka Method has proved beneficial to the management and operation of the Htein Bin FDS, as well as mitigating its negative environmental impacts, the community mobilization component has shown the immediate and long-term sustainable benefits of a more circular approach to SWM, based on the 3Rs (Reduce Reuse, Recycle) principle.



Community mobilization on community level SWM © UN-Habitat

8. RECOMMENDATIONS

The following are key recommendations from the evaluation, considering that UN-Habitat's development operations in Myanmar were temporarily suspended and reformulated, in accordance with UN Country Team UN Engagement guidelines. They center on what worked well and what did not work regarding the continuation or scaling up of the project and similar projects, as well as improvement of future cooperation agreements.

- 1. Encourage civil society, NGOs and SMEs to develop and implement programme and projects in solid waste management.** Due mainly to the current political climate, civil society, NGOs, and SMEs should be encouraged to develop and implement programmes/projects in Solid Waste Management awareness raising and sustainable practices. As there may be some challenges regarding future funding of such programmes/projects, it should be considered what role UN-Habitat and/or other donors can provide.
- 2. Showcase the achievements and impacts of Fukuoka method at Htein Bin FDS.** The importance of developing high quality dissemination and visibility products, such as the short documentary film highlighting the approaches, achievements and impacts of the Fukuoka Method at Htein Bin FDS and including project deliverables on the UN-Habitat ROAP and UN-Habitat Myanmar websites should be fully considered when developing project concepts. The dissemination and visibility practices from this project should be considered as best practice and included in UN-Habitat guidance, where possible and in consideration for UN engagement principles in Myanmar.
- 3. The 'hybrid' mechanism of implementing this project of combining physical works, capacity building and knowledge exchange should be applied to future projects as best practices and countries with similar characteristics should be involved in knowledge exchange and learning.** The combination of technical assistance in implementing physical works and capacity building and knowledge exchange and learning (such as the knowledge exchange visit to Thailand) delivered by on-site and virtual methods, were acknowledged

as highly satisfactory features of the project.

This 'hybrid' mechanism should be considered as best practice for ways to deliver future projects. Countries with similar characteristics should be involved in knowledge exchange and learning.

- 4. Improve the YCDC UECCD environmental monitoring system by involving universities and analytical institutions that have such expertise of monitoring procedures.** As highlighted by one of IPs and three respondents in the evaluation survey, accurate objective long-term environmental monitoring (and evaluation of the results) of leachate, groundwater, surface water and landfill gas is required at the Htein Bin FDS to demonstrate that the landfill is performing as designed and not causing environmental pollution to the receiving environment and impacting the surrounding local community. The YCDC UECCD environmental monitoring system is not considered to be adequate and therefore they should develop links with universities and analytical institutions to strengthen its environmental monitoring system and procedures. UN-Habitat should consider whether additional support is required to maintain environmental monitoring at the site.
- 5. Give sufficient time for awareness raising in waste minimization, increase fee for waste collection to enable adequate collection and provide trainings to empower communities.** The project also raised awareness and understanding of SWM principles, through community mobilization, which encouraged the local community (Hlaing Thar Yar township) surrounding the Htein Bin FDS to practice waste minimization, including analysis of current waste management system in one selected target informal settlement; conducting awareness trainings to community volunteers, as well as waste pickers and creating and initiating the waste segregation and disposal mechanism in the target communities. However, the IP highlighted that sufficient time over an extended period is required to raise awareness in waste minimization, fees are extremely low to maintain waste collection adequately and training needs to be focused and relatively short in duration.

6. Future technical assistance and capacity building should embody a more circular approach to waste management. It should be considered what kind of further support could be provided in the SWM sector considering the community mobilization component of the project, which shows the immediate and long-term sustainable benefits of a more circular approach to SWM, based on the 4Rs

(Reduce, Reuse, Recycle and Recover) principle. Future technical assistance and capacity building should embody a more circular approach to waste management. Moreover, based on the approach and results of the project subject to the evaluation, UN-Habitat should consider supporting nearby or other countries with similar characteristics, issues to Myanmar.



Completed landfill cell of Fukuoka method at Htein Bin FDS © UN-Habitat

APPENDICES

Appendix 1: TOR for the Evaluation

TERMS OF REFERENCE FOR END TERM PROJECT EVALUATION FOR THE URGENT IMPROVEMENT SOLID WASTE MANAGEMENT IN YANGON CITY

ORGANIZATIONAL LOCATION:	UN-Habitat Myanmar
DUTY STATION:	Home-based (with possible travel to Yangon, Myanmar)
FUNCTIONAL TITLE:	External Evaluation Consultant
PROGRAMME	Project for the Urgent Improvement of Solid Waste Management in Yangon City
GRADE:	
DURATION:	1 Month
START/END DATE	
SUPERVISOR	Chief, Evaluation Unit, UN-Habitat HQs

1. INTRODUCTION AND ORGANIZATIONAL SETTING

UN-Habitat, the United Nations Human Settlements Programme, is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities. It is the focal point for urbanization and human settlement matters within the UN system. Pursuant to its mandate, UN-Habitat aims to achieve impact at two levels. At the operational level, it undertakes technical cooperation projects at global, regional and country levels. At the normative level, it seeks to influence governments and non-governmental actors in formulating, adopting, implementing and enforcing policies, norms and standards conducive to sustainable human settlements and sustainable urbanization.

This Terms of Reference (TOR) concerns the independent end-term evaluation of the "Project for the urgent improvement of solid waste management in Yangon City", Myanmar. The project is funded by the Government of Japan with total budget of US\$5,631,000. It was initially planned to start in April 2019 and be completed in March 2021. Due to Covid-19 pandemic and difficult operating environment caused by the political event on 1 February 2021 in Myanmar, the project was delayed and extended twice at no cost extension until March 2023.

2. BACKGROUND AND CONTEXT

In Yangon City, there are two large open dumping Final Disposal Sites (FDS). The Htein Bin FDS is the largest in the city. It is spread over 150 acres of land of which 70 acres are already used. It receives about 1,080 tons of waste every day. The site is located in the township of Hlaing Tharya. Pollution Control and Cleaning Department (PCCD) of the Yangon City Development Committee (YCDC) is responsible for Solid Waste Management (SWM) in the municipal areas.

On 21 April 2018, fire outbreak erupted at Htein Bin dump site. It spread quickly consuming more than half of the dump. The blaze was fueled by methane produced by decaying organic and other waste, as reported by PCCD. It was brought under complete control after three weeks, in May 2018. Eight hundred personnel from the Myanmar Fire Services Department (MFSD), Yangon City Development Committee (YCDC) and Yangon Military Command were deployed to fight the fire which was finally brought under control using 1,850 gallons (about 8,182 liters) of special foam imported from Thailand.

Smoke from fire resulted in a noticeable deterioration in air quality in areas near the dump site and dozens of people, including children, were hospitalized with respiratory problems. Rehabilitating the fire gutted areas within the site required urgent response.

3 DESCRIPTION OF THE PROJECT TO BE EVALUATE

In Yangon city, there are several problems associated with SWM. Some of them include rapid increase in volume of waste generation but also limited know-how and capacity on suitable technologies adopted to the local condition, limited resources including finance and expertise to invest for new technologies, and limited research and practical application on new technologies. Due to these serious challenges, there was an urgency to deal with waste management as there was risk of fire breaking out again in the hot summer of 2019.

In response to problems created by fire outbreak in the Htein bin dumpsite, UN-Habitat, Fukuoka City and Solid Waste Management Advisors Network Fukuoka (SWAN-Fukuoka) used the Fukuoka Method which refers to mechanisms where leachate (wastewater) is swiftly removed from waste materials. The process leads to faster decomposition of waste material, improves quality of the wastewater and reduces emission of methane gas. The method emerged from joint research by Fukuoka University (who are the major members of SWAN-Fukuoka) and Fukuoka City, Japan, in the 1970s, on the structure for sanitary landfills that present no environmental problems.

3.1 Objectives and outcomes of the project

The objective of the Project is to contribute to reduce the risk of future fire hazard and environmental hazard by the establishment of resilient, safe and sustainable waste management systems for Htein Bin dump site of the Yangon city through the implementation of the Fukuoka Method of SWM.

The project is implemented through two components:

Component 1: Stabilization and rehabilitation of existing dumpsite, and

Component 2: Construction of the Fukuoka Method semi-aerobic landfill.

During the project implementation, the project was monitored and progress reports were submitted to the donor. This final evaluation of the project will be undertaken by an independent external evaluation consultant to appraise the whole performance of the project.

4. PURPOSE, OBJECTIVES AND SCOPE OF THE EVALUATION

UN-Habitat is commissioning this evaluation to be conducted by external consultant and managed by the Independent Evaluation Unit. The evaluation is mandated by both the donor and UN-Habitat. It was included in the cooperation agreement of the project. It is also in-line with UN-Habitat Evaluation Policy (2013) and the Revised UN-Habitat Evaluation Framework (2016) which requires that UN-Habitat programmes and projects of over USD 1 million should be evaluated by external consultant by the end of the intervention.

4.1 The purpose

The evaluation serves purposes of accountability, learning and decision making. It is intended to strengthen accountability by providing the Government of Japan (the donor), the project team, UN-Habitat management, other implementing partners (Fukuoka City, SWAN and PCCD), and other key stakeholders with a credible evidence of what the project achieved in terms of the planned results with the resources used.

Also, in keeping with UN-Habitat's commitment to helping programmes and project learn and improve, the evaluation serves the purpose of contributing to enhanced learning to understand what worked well, what did not, operational experience, opportunities and challenges. The sharing of evaluation findings from this evaluation will inform UN-Habitat and international and local implementing partners and other stakeholders on what worked well and why or what did not work and feed into decision-making processes for continuation or scaling up of this pilot project or similar projects, as well as improvement of future cooperation agreements.

4.2 Objectives

The specific objectives of the evaluation are:

- (i) Assess the design, implementation and achievement of results at the objective, outcomes and output levels of the project. This will entail analysis of actual versus planned results in the project document.
- (ii) Assess the project's performance in terms of relevance, efficiency, effectiveness, sustainability, coherence and emerging impacts caused by the project.

- (iii) Assess appropriateness of working modalities, coordination, partnerships, and management; and assess the effects of Covid-19 pandemic and political event on 1st February 2021 in Myanmar on the project.
- (iv) Assess the quality of implementation, adequacy of resources, financial management/ feasibility, and how they impacted on the effectiveness of the project.
- (v) Assess how social inclusion issues of gender equality, youth, human rights, disability as well as social and environmental safeguards were integrated and impacted by the project.
- (vi) Taking into account intended users of the evaluation, identify lessons learned and provide recommendations for scaling up the pilot project or improving future programming of similar projects

4.3 Scope

In terms of scope, the evaluation period will be from the start of the project in April 2019 up to completion in March 2023, when most of the activities have been conducted and outputs been delivered. Geographically, it will cover the project site in the in Yangon City. The evaluation will be evidenced-based and assessing as objectively as possible the six OECD/DC evaluation criteria of relevance, coherence, efficiency, effectiveness, impact outlook, and sustainability of the Project in the Yangon City.

5. EVALUATION QUESTIONS BASED ON EVALUATION CRITERIA

Relevance:

- To what extent is the project consistent with beneficiaries' requirement, country needs, national development goals, and partners' and donors' policies and UN-Habitat and contributes to low carbon development?
- Was the implementation strategy in line with and responsive to SDG 11 and New Urban Agenda (NUA)?
- To what extent was the programme and its objectives relevant to the needs and priorities of the participating country and city and responded to their urban development plans?
- To what extent did the identification, design and implementation process of activities and pilot initiatives involve beneficiaries?

Efficiency

- How well were economically resources/inputs (funds, expertise, time, etc.) efficiently utilized to achieve the expected outcomes?
- Did UN-Habitat demonstrate to have adequate capacity to design and implement the Project?
- Were institutional arrangements adequate for implementing the Project and for delivery of expected outputs and outcomes?
- How did the Covid-19 pandemic and political event on 1st February 2021 in Myanmar affect the project implementation?

Effectiveness

- To what extent has the project been effective in achieving its objectives and outcomes? What results have been achieved and which ones have not been achieved?
- How effectively was the programme engaging with countries and cities to achieve desired outcomes of the project?
- What types of products and services did the project provide to beneficiaries that contributed to achieving the results and objectives of the project.
- To what extent have monitoring and reporting on the implementation of the project been timely, meaningful and adequate? Did UN-Habitat and other implementing partners credibly monitored the implementation of the programme, using the indicators of achievements on outcomes to provide evidence on performance and flag any necessary adjustments to improve delivery of the project?
- Did the partner organizations work together effectively? Were partnership structure effective in achieving the desired results?
- What are the levels of awareness amongst beneficiaries regarding the contribution of the funding partner, visibility materials in the field and other communication material?

Coherence

- To what extent was the project coherent with other interventions of similar nature funded by Japan in the country?
- To what extent is the project having connections with other interventions of the UN-Habitat relating to solid waste management?

Sustainability:

- To what extent did the project build capacity and ownership of stakeholders that contribute to sustainability?
- To what extent did activities and pilot projects engage beneficiaries in design, implementation and building ownership of the beneficiaries?
- To what extent will the projects and programmes supported by the donor be replicated or scaled up?
- How is access to financing for further developments secured?
- To what extent was capacity developed and what mechanisms are put in place to ensure sustainability of the results and benefits achieved?
- Impact Outlook:
- To what extent did the project attain its objective and anticipated impact to partners and targeted beneficiaries, whether stakeholders or cities?
- What positive and/or transformative changes have occurred because of the project?

Cross-cutting issues:

- To what extent are the social inclusion issues of gender equality, youth and human rights as well as social and environmental safeguards considerations integrated in project design, implementation, monitoring and reporting on the project?
- Are there any outstanding examples of how these issues were successfully applied in the project?

6 APPROACH AND METHODOLOGY OF THE EVALUATION**6.1 Approach**

The evaluation should employ a mix of approaches and methods. A results-based approach (Theory of Change Approach) should be applied to demonstrate how the

project was supposed to be implemented to achieve its results under conditions and assumptions needed for the changes to take place. Also, the Context Input Process Product (CIPP) approach should be used to assess the project's implementation structures, management systems and procedures, collaboration, coordination, and partnerships. In addition, the evaluation should be inclusive, participatory and consultative with key partners and stakeholders, including It should be conducted in a transparent way in line with the Norms and Standards of evaluations in UN system.

6.2 Methods

The objectives and evaluation questions will provide the analytical framework for the evaluation. A variety of methods will be used to collect data from various sources. These methods include:

- Review of relevant documents. The consultants will devote the first weeks to review relevant documents and draw data related to the evaluation questions. Relevant documentation will include 1) individual project documents, workplan, log frame including indicators, 2) project progress reports, 3) Partner Agreements (e.g. Agreement of Cooperation) and narrative and financial reports, and deliverables under the Agreements provided by the Partner, 4) other reports of implemented activities, including field monitoring reports, drone photo reports. The document review will inform the evaluator what data is available and provide an overview of project design and performance. It will also identify specific issues to follow-up by surveys or interviews.

Key informant interviews and consultations with key stakeholders. Interviews will be conducted to obtain qualitative information on the evaluation issues to enable the evaluators address the issues of relevance, efficiency, effectiveness of the project. Interviews shall be conducted with stakeholders of the partner organisations and beneficiaries.

Surveys. If necessary, in order to obtain quantitative information on stakeholder's views, questionnaires to different target audiences to give views on various evaluation issues can be deployed. Please note on the primary languages spoken by different stakeholders

Field visits. A field mission will be undertaken to Yangon – Myanmar, and possibly to some selected field projects

(Htein Bin landfill and local communities around the landfill). This travel is optional and subject to obtaining travel visa and any other requirements.

7. STAKEHOLDER INVOLVEMENT

Without compromising the independence and impartiality of the evaluation, it is expected that this evaluation will be participatory, involving key stakeholders. Stakeholders will be kept informed of the evaluation process including design, information collection, and evaluation reporting and results dissemination to create a positive attitude for the evaluation and enhance its utilization. Relevant UN-Habitat and Government of Japan representatives may participate in the evaluation process through a responding to survey questionnaires, interviews or focus group discussions.

8. EVALUATOR'S SKILLS AND EXPERIENCES

Qualifications and Work Experience

The evaluation consultant is expected to have:

Extensive evaluation experience and should have the ability to present credible findings derived from evidence and prepare conclusions and recommendations supported by the findings.

Specific knowledge and understanding of UN-Habitat and its mandate.

- years of project management experience in results-based management working with development projects/ programmes, proven experience in Program Planning; implementation, training and Coordination with UN, INGOs, Donors and Government Departments etc. Experience of working in Myanmar will be an advantage.
- Experience in working with projects in the United Nations system.
- Advanced academic degree in Solid Waste Management, climate change, Social Studies, Development Studies, Engineering, Public Administration or any other field relevant to the assignment is required.
- Experience in training programmes with demonstrated skills in report/proposal writing will be an added advantage. Experience of having worked

with multiple partners, agencies would be desirable.

- Fluent in English (understanding, reading and writing) is a requirement.

8.2 Analysis and Reporting

The Consultant is to complete deliverables in a presentable form within the given time frame. The deliverables shall capture 1) all works of the project and its partners, including achievements of the project against its planned activities, workplan and logframe with the indicators of achievement; 2) analysis and assessment of impact of COVID-19 and political event on 1 February 2021 in Myanmar to the project to achieve the outcomes; and 3) lessons learned, best practices, and success stories and forward-looking recommendations that are strategic, programmatic and managerial for decision-making considerations.

Competencies

Professionalism: He/She is able to conduct evaluation in accordance with norms and Standards of the evaluation in the UN system. Shows pride in work and in achievements; demonstrates professional competence and mastery of subject matter; is conscientious and efficient in meeting commitments, observing deadlines and achieving results; is motivated by professional rather than personal concerns; shows persistence when faced with difficult problems or challenges; remains calm in stressful situations. Takes responsibility for incorporating gender perspectives and ensuring the equal participation of women and men in all areas of work.

Communication: Speaks and writes clearly and effectively and have written credible evaluation reports listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style and format to match audience; demonstrates openness in sharing information and keeping people informed.

Teamwork: Works collaboratively with colleagues to achieve organizational goals; solicits input by genuinely valuing others' ideas and expertise; is willing to learn from others; places team agenda before personal agenda; supports and acts in accordance with final group decision, even when such decisions may not entirely reflect own position; shares credit for team

accomplishments and accepts joint responsibility for team shortcomings.

Other desired competencies/skills include:

- Promotes UN's core values and ethical standards (professionalism, integrity, respect for diversity)
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability
- Capability to engage in team-based management, experience of leading policy workshops and being a resource person
- Ability to formulate and manage work plans
- Sensitivity to and responsiveness to all partners
- Experience of working in Myanmar will be an advantage

9. EVALUATION MANAGEMENT AND RESPONSIBILITIES

The evaluation will be conducted by an external consultant(s) with a sustainable development background and extensive evaluation experience. The evaluation consultant will describe expected data analysis and instruments to be used in the evaluation inception report. Presentation of the evaluation findings should follow a standard format of the UN-Habitat Evaluation report (to be provided).

Impartiality is an important principle of evaluation because it ensures credibility of the evaluation and avoids conflict of interest. For this purpose, officers responsible for design and implementation of the project will not manage the evaluation process. The Independent Evaluation Unit will manage the evaluation process, ensuring that the evaluation is conducted by suitable evaluator(s), providing technical support and advice on methodology, explaining evaluation process and standards, and ensuring they are respected, ensuring contractual requirements are met, approving all deliverables (TOR, Inception Report, Draft and Final Evaluation Report), sharing the evaluation results, supporting use and follow-up of the implementation of

the evaluation recommendations.

The Urgent Improvement of Solid Waste Management in Yangon City project team will be responsible for supporting the evaluation team by providing information and documentation required as well as providing contacts of stakeholders to be consulted to provide evaluation information. UN-Habitat Myanmar Office will provide logistical support, facilitating interviews with stakeholders, and perform of any other necessary supporting tasks.

The Evaluation Reference Group will be established as a consultative arrangement to maximize the relevance, credibility, and use of the evaluation. The group will comprise representatives of the donor and UN-Habitat representatives to oversee the evaluation process,

Responsibilities of the ERG will include:

- i. Assist in identifying other stakeholders to be consulted during the evaluation process;
- ii. Participating in meetings of the reference group;
- iii. Provide input and quality assurance on the key evaluation products: TOR, inception and draft evaluation report; and
- iv. Participate in validation meeting of the final evaluation report.

10. PROVISIONAL WORK SCHEDULE AND RENUMERATION

Item	Description	Timeframe
1	Vacancy announcement and Recruitment of the consultant	February 2023
2	Inception phase, including formal document review, development of inception report	February 2023
3	Data collection phase and report writing	February to March 2023
4	Final Evaluation Report	March to April 2023

11. DELIVERABLES/OUTPUTS

The three primary deliverables for this evaluation are:

Inception Report with evaluation work plan. Once approved, it will become the key management document for the evaluation, guiding evaluation delivery in accordance with UN-Habitat's expectations throughout the performance of contract. Should be submitted to the Independent Evaluation Unit.

Draft Evaluation Reports. The evaluator will prepare evaluation report draft(s) to be reviewed by UN-Habitat. The draft should follow UN-Habitat's standard format for evaluation reports and include rating of the evaluation criteria with justification (The standard format will be provided by the Evaluation Unit). Should be submitted to the Independent Evaluation Unit.

Final Evaluation Report. Final Evaluation Report should incorporate the feedback provided on the Draft Evaluation Report and should be prepared in English and follow the UN-Habitat's standard format of an evaluation report. The report should not exceed 50 pages (including Executive Summary). In general, the report should be technically easy to comprehend for non- evaluation specialists. Should be submitted to Independent Evaluation Unit.

12. RESOURCES AND REMUNERATION

The paid months for the consultancy is one month. However, the evaluation will be conducted over a period of two months, from February to March 2023. Payments will be based on deliverables over the consultancy period. The evaluation consultant will be paid a professional fee based on the level of expertise and experience as follows.

- 30% of payment upon approval of the final Inception Report
- 40% upon submission of the draft evaluation report
- 30% upon finalization of the evaluation report

DSA will be paid only if travelling on mission. All travel costs will be covered by UN-Habitat.

13. How to Apply

Submission of Applications:

Interested candidates (should submit their application by email with Subject: "Final Evaluation of the Project for the Urgent Improvement of Solid Waste Management in Yangon City" to: Mr. Eric.Kaibere E-mail: Eric.Kaibere@un.org ; and copying recruitment@unhabitat-mya.org

The application should comprises a one-page cover letter explaining the applicant's interest and suitability for the evaluation and a CV with a Passport Photograph and updated United Nations Personal History Form (P 11).

Only shortlisted candidates will be contacted for interview.

Appendix 2: Logical Framework and Performance Monitoring Framework

Project Title: Project for the Urgent Improvement of Solid Waste Management in Yangon City								
Project Duration: 1 April 2019 – 31 March 2023 (48 months)								
Project Budget: US\$ 5,500,000								
Result Statements	Key Performance Indicators	Baseline	Targets (including time frame)	Data Sources to verify Indicators	Data Collection Methods (on indicators)	Assumptions	Frequency of data collection	Responsibility
Project Objective: To contribute to reduce the risk of future fire hazard and environmental hazard by the establishment of resilient, safe and sustainable waste management systems								
Expected Accomplishments (EAs)								
EA1. Human and environmental risks due to further fire-outbreak are reduced	Existing dumpsite is rehabilitated and stabilized	<ul style="list-style-type: none"> Total acre (area) affected by the fire (50 hectares) are not stabilized Environmental condition (TBC by the baseline survey on environmental pollution level) 	<ul style="list-style-type: none"> All the affected areas are rehabilitated. Environmental pollution level in the existing dumpsite to be improved 	<ul style="list-style-type: none"> Report on Environmental Assessment Interview with UECCD Design plans BoQ Progress reports Project Completion Report 	<ul style="list-style-type: none"> Physical assessment Reports review Survey (interviews) with YCDC/UECCD and project staff 	<ul style="list-style-type: none"> YCDC/UECCD will smoothly cooperate during process of approvals and involvement of the project 	<ul style="list-style-type: none"> Quarterly 	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD
EA2. Technical capacity for the management and operation of solid waste management at the dumpsite is increased	YCDC/UECCD staff are trained on Fukuoka method of SWM	<ul style="list-style-type: none"> Limited knowledge on the ground experience and practice on rehabilitation, construction and proper landfill management 	<ul style="list-style-type: none"> 60 PCCD staff 3 LNGOs in Myanmar 	<ul style="list-style-type: none"> Progress report Project Completion Report Training materials Training report 	<ul style="list-style-type: none"> Interview with YCDC/UECCD and project staff Report review 	<ul style="list-style-type: none"> YCDC/UECCD management considers capacity development of dumpsite staff is important and staff will be able to actively participate 	<ul style="list-style-type: none"> Quarterly 	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD
EA3. Fukuoka Method technical know-how transferred to YCDC/UECCD	The Fukuoka Method constructed	0	<ul style="list-style-type: none"> 1 ha plot site has been constructed by Fukuoka City and YCDC/UECCD in March 2019 1 publication of Fukuoka method SWM manual (Myanmar/EN versions) 	<ul style="list-style-type: none"> Detail design and workplans Bill of Quantities Contracts/Agreements Progress reports Project Completion Report 	<ul style="list-style-type: none"> Monitoring/progress report/review Interviews with YCDC/UECCD and project staff Physical assessment 	<ul style="list-style-type: none"> All approvals (including agreements and contracts) are in time, so the construction take places as per work-plan 	<ul style="list-style-type: none"> Quarterly 	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD Fukuoka City Fukuoka city consortium Environ. Bureau SWAN

<p>EA4. Socio-economic risks of the families of the waste pickers and their families are reduced</p>	<p>Waste pickers and their families have access to safer working-environment and their families are not affected by the new Fukuoka Method</p>	<p>0</p>	<p>330 households</p>	<ul style="list-style-type: none"> Project progress reports Minutes of meetings Attendance List End-line survey 	<ul style="list-style-type: none"> Consultation meetings with communities Awareness raising trainings on waste reduction, waste recycling Clean-up campaigns Training on waste segregation and home composting 	<p>Waste collectors are benefited from the project implementation activities</p>	<p>Monthly monitoring and supervision</p>	<p>UN-Habitat and local implementation partners (Thant Myanmar)</p>	
OUTPUTS for:									
<p>EA1/01. Emergency rehabilitation and stabilization of the Htein Bin dumpsite</p>	<p>Htein Bin site stabilized without exposing risk to surrounding residents</p>	<p>Total area affected by the fire (40 acres)</p>	<p>Total area affected by fire rehabilitated</p>	<ul style="list-style-type: none"> Design and work plans Progress reports Project completion report Contracts and agreements 	<ul style="list-style-type: none"> Physical assessment Survey (interview with YCDC/UECC and project staff) Report/document review 	<p>YCDC/EUCCD will smoothly cooperate during process of approvals and involvement of the project</p>	<p>Quarterly</p>	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD Fukuoka City and its consortium SWAN 	
<p>EA1, EA2, EA3, EA4/02. Provision of technical support to the Yangon City Development Committee (YCDC)</p>	<p>YCDC/UECCD staff with knowledge and skills acquired about the Fukuoka Method</p>	<p>YCDC/UECCD staff are trained</p>	<ul style="list-style-type: none"> 20 YCDC/UECCD key staff to be trained 6 YCDC/UECCD staff trained in training in Fukuoka method 	<ul style="list-style-type: none"> Progress report Project Completion Report Training report/training materials 	<ul style="list-style-type: none"> Interview YCDC/UECCD staff and project staff Reports review 	<p>YCDC/UECCD staff will be able to actively participate</p>	<p>YCDC/UECCD staff will be able to actively participate</p>	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD Fukuoka City and its consortium SWAN 	
<p>EA2, EA3/03. Construction of the Fukuoka Method landfill</p>	<p>The Fukuoka Method constructed</p>	<p>NA</p>	<ul style="list-style-type: none"> 5 ha landfill site constructed and the Fukuoka Method in B3 area in 2021 and 2022 3.5 ha landfill constructed and the Fukuoka Method in B4 area in 2023 	<ul style="list-style-type: none"> Detail design and work plans Progress reports Contracts and agreements 	<ul style="list-style-type: none"> Physical assessment Interview with YCDC/UECCD and project staff Report/document review 	<p>All approvals are in time, so the construction take places as per work-plan</p>	<p>Quarterly</p>	<ul style="list-style-type: none"> UN-Habitat YCDC/UECCD Fukuoka City and its consortium SWAN 	

Project Title: Project for the Urgent Improvement of Solid Waste Management in Yangon City**Project Duration:** 1 April 2019 – 31 March 2023 (48 months)**Collaborating Branches/Regions:** UN-Habitat Programme Division; Urban Basic Services, Urban Planning and Design, Research and Capacity Building; ROAP**Project Budget:** US\$ 5,500,000

Result Statements	Key Performance Indicators	Baseline	Targets (including time frame)	Data Sources to verify Indicators	Data Collection Methods (on indicators)	Assumptions	Frequency of data collection	Responsibility
EA3, EA4/O4. Community mobilization (awareness and understanding) on SWM addressed to waste pickers and pilot communities in surroundings of Htein Bin dump site	Communities are aware of SWM, and are putting into practice new knowledge and skills	0	330	<ul style="list-style-type: none"> • IEC materials/ Manuals • Project progress reports • Project Completion Report of the implementation partner (Thant Myanmar) 	<ul style="list-style-type: none"> • Consultation meetings • Community Awareness trainings • SWM learning materials 	Waste pickers are also benefited from the systematic SWM, increasing their income from waste collection and compost selling	Final quarter of the project	UN-Habitat

KEY ACTIVITIES for:**01/A1:** Rapid site assessment to introduce corrective measures.

The activity consisted of a site visit to assess the extent of the area damaged by the fire outbreak, and to determine how extensive the stabilization work will be required.

01/A2: Design of the rehabilitation and improvement of the dump site.

Based on the assessment, the project prepared the drawing layout of the dumpsite to install the Fukuoka Method, the drawing layout was accompanied by bills of quantities (BoQ).

02/A3: Review the existing waste management mechanism and identification of areas of improvement. This activity consisted in identifying the most important functional elements of existing SWM (generation, storage, collection, transfer, processing and recovery, disposal, and administration and control) especially those connected to the present problems of environmental pollution and management of the existing dumpsite.

02/O3/A4: Introduce improvement in treatment of leachate

This activity provided technical assistance to improve the environment in Htein Bin introducing leachate treatment facility together with installation of the ventilation and exhaust gases which will improve the air and leachate quality.

02/O4/A5: Provide training to dump site staff, operators, and waste pickers

To avoid and minimize the harmful effects of waste, one of the approaches is to raise awareness and understanding, this activity will be helpful to take collective actions for proper management of waste. A low-key approach to implementation was adopted due to the political constraints during the period of implementation.

01/O2/O3/A6: Coordination mechanisms and training

Technical capacity building (on-the-job training and overseas training) to become familiar with establishing mechanisms to implement the Fukuoka Method and the processes to operate, monitor and evaluate the project.

01/O2/O3/O4/A7: Planning of measures for environmental protection.

Detailed design of landfill (semi-aerobic) and leachate treatment facility (which included bill of quantities, BoQ). This activity was supported by the Fukuoka Method experts on detailed advice and recommendations on the design.

03/A8: Construction works

this activity included the procurement of qualified and established construction company to implement the construction works. The construction company was selected by a technical committee consisting of all project stakeholders.

03/O4/A9: Operation and monitoring.

This activity consisted of coordination to operate and monitor the implementation of the project.

Appendix 1: List of Documents Reviewed for the Evaluation

1. UN-Habitat. UN-Habitat Evaluation Manual, 2018
2. UN-Habitat. Programme Document - Project for the Urgent Improvement of Solid Waste Management in Yangon City, 2018
3. Theory of Change – Htein Bin FDS, January 2019
4. Agreements of Cooperation: Fukuoka City, SWAN-Fukuoka and amendments
5. UN-Habitat. Project for the Urgent Improvement of Solid Waste Management in Yangon City, Project Implementation Proposal for No-Cost Extension, 2022-2023
6. UN-Habitat. Project for the Urgent Improvement of Solid Waste Management in Yangon City, Progress Report, April 2019 – November 2020, December 2020
7. UN-Habitat. Project for the Urgent Improvement of Solid Waste Management in Yangon City, Project Update, 1 January – 1 April 2022
8. UN-Habitat. Project for the Urgent Improvement of Solid Waste Management in Yangon City, Project Update, 1 May – 30 September 2022
9. SARB & Associates. Financial Audit Report, Project: Project for the Stabilization and Rehabilitation of existing dumpsite (Htein Bin) and Construction of the Fukuoka Method land fill (technology transfer) within the Programme Urgent Improvement of Solid Waste Management in Yangon City IP: Fukuoka City Period: 01 January 2022 to 31 December 2022, March 2023
10. Project Meeting Minutes: 13.12.2021; 18.01.22; 18.02.22; 09.03.22; 25.04.22; 11.05.22; 20.07.22; 15.10.22; 12.12.22
11. UN-Habitat. Project for the Urgent Improvement of Solid Waste Management in Yangon City, Final Report (2019 - 2023), July 2023
12. Designs for Htein Bin FDS Cell B3: Embankment, Embankment Cross-Section, B3 Leachate Collection System, B3 Construction Plan
13. Designs for Htein Bin FDS Cell B4: Design drawings
14. Designs for leachate ponds
15. Ventilation pipe designs
16. Environmental monitoring specifications and results
17. Various visibility and publicity materials on the project, prepared on behalf of UN-Habitat, including Project Brochure, 2019, Short film documentary

Appendix 2: List of Semi-structured interviewees

Name	Organisation	Key Issues	Type of Evaluation / Date
Implementing Agency/Partners			
Mr. Bijay Karmacharya	Ex-UN-Habitat, Regional Office for Asia and the Pacific, Myanmar	Main contact person/overall supervision for project (April 2019 - August 2022)	Online interview 29.06.2023
Ms. Catarina Camarinhas, Programme Management Officer	UN-Habitat, Regional Office for Asia and the Pacific, Myanmar	Main contact person/overall supervision for project (September 2022 - March 2023)	Online interview 30.06.2023
Ms. Nanami Akimoto, Project Manager	Ex-UN-Habitat, Regional Office for Asia and the Pacific, Myanmar	Second project manager (February 2021 - February 2023)	Online interview 27.06.2023
Mr. Hiroshi Takabayashi, Programme Management Officer	Ex-UN Habitat, Regional Office for Asia and the Pacific, Myanmar	First project manager (April 2019 - January 2021)	Online interview 18.07.2023
Ms. Kyu Thin Cho	UN-Habitat Myanmar Country Programme Office	Coordination with PCCD, support procurement and communication with supplier/contractor	Online interview 26.06.2023
Ms. Sachiyo Hoshino Special Adviser to the Regional Representative	UN-Habitat, Regional Office for Asia and the Pacific	Provided advice for coordination with Fukuoka City and SWAN-Fukuoka	Online interview 11.07.2023
Mr. Imran Malik, PMO	UN-Habitat Myanmar Country Programme Office	In charge of all administrative issues including finance, procurement, HR and office management	Online interview 06.07.2023
Professor Yasushi Matsufuji, Emeritus Professor	Fukuoka University, Japan	One of the founders of Fukuoka method. Provide overall technical advice	Online interview 11.07.2023
Mr. Kimoto	Fukuoka City and its consortium partners, Japan	Provided overall advice, responsible for the construction of the Fukuoka pilot site in Htein Bin	Replied to questionnaire on 28.07.2023
Mr. Takashi Umeki	Fukuoka City and its consortium partners, Japan	Main counterpart in communicating with Fukuoka City (design, work plan, implementation, etc.)	Replied to questionnaire on 28.07.2023
Mr. Katsuya Noda	Fukuoka City and its consortium partners – Taisei KK	Main counterpart in daily management of the project. Advisor for YCDC from Fukuoka City	Replied by questionnaire on 28.07.2023
Mr. Bhushan Agrawal, Head of Audit team	SARB Associates, India	Auditors of project	Online interview 13.07.2023
Mr. Friedor Jeske, Director	Thant Myanmar, Yangon, Myanmar	Conducted the community mobilization component of the project	Online interview 12.07.2023
Local Community			
Ms. Hsu Myat Thiri, Township Coordinator	UN-Habitat Myanmar Country Programme Office		Online interview 24.07.2023
Mr. U Kyaw Win Ms. Daw Mya Win	Ward 20, Hlaing Thar yar Township	Community representatives	

Appendix 3: Semi-Structured Interviews Guidance and Questionnaires

Urgent Improvement of Solid Waste Management in Yangon City

This evaluation survey is developed for the purpose of evaluating the UN-Habitat - “Urgent Improvement of Solid Waste Management in Yangon City” (the project).

Today’s interview is part of the external evaluation of the project, which was implemented by the UN-Habitat, Independent Evaluation Unit. This external evaluation is initiated by UN-Habitat as the implementing agency (IA) of this project considering condition of the Agreement for Cooperation and will provide an independent and neutral viewpoint on the project’s achievements and deliverables, together with recommendations to be considered by UN-Habitat when planning for the next cycle of technical assistance activities.

My name is David Lyth, and I was selected to conduct the external evaluation on behalf of UN-Habitat.

The purpose of the evaluation is: to assess the relevance, effectiveness, efficiency, coherence, sustainability, and impact of the project. The evaluation will assess the overall progress towards achieving the overall objectives and expected outcomes of the project and will also consider the extent to which the project has built the capacity of the nominated final beneficiaries and target groups. Cross-cutting issues (social inclusion issues of gender equality, youth, and human rights as well as social and environmental safeguards) will also be addressed.

Our interview will last approximately 45-60 minutes. The information you provide will be used solely for evaluation purposes and will be handled considering principles of confidentiality.

Before we continue, do you have any questions? Let’s begin by establishing the context of your participation in the project.

Questions for Implementing Agency/Partners (i.e., UN-Habitat, Embassy of Japan, Fukuoka City and partners)

Implementing Agency/Partner of the project (UN-Habitat, Embassy of Japan, Fukuoka City and its consortium partners, etc.)

Name:	
Male:	
Female:	

Relevance

Was the project and its objectives relevant to national goals, country and City needs, beneficiaries’ requirements, policies, strategies, urban development plans, and UN-Habitat goals, i.e., contributing to low carbon development?

Was the implementation strategy in line with and responsive to SDG 11 and New Urban Agenda (NUA)?

Do you consider enough planning and needs assessment activities were conducted for the project’s design?

How were the needs of the project identified and developed, and were they properly reflected? What criteria were used in selecting the beneficiaries?

Where/are there contingency plans designed in the project to take into consideration possible problems and difficulties that the project managers might face during its implementation?

Effectiveness

Have the project’s objectives, and planned outcomes and outputs (as set out in the project’s log frame) been adequately achieved and utilised?

Within the context of the UN’s current engagement principles in Myanmar, how effectively did the project

engage with countries and cities to achieve desired outcomes of the project?

Did the partner organizations work together effectively? Was the partnership structure effective in helping to achieve the project's results?

Do you feel the beneficiaries and target groups have acquired new skills which they can utilize in their work?

To what extent has monitoring and reporting on the implementation of the project been timely, meaningful and adequate? Did UN-Habitat and other implementing partners credibly monitor the implementation of the programme, using the indicators of achievements on outcomes to provide evidence on performance and flag any necessary adjustments to improve delivery of the project?

What are the levels of awareness amongst beneficiaries regarding the contribution of the funding partner, visibility materials in the field and other communication material?

At this stage, what are the lessons learned from the implementation of this project?

Efficiency

Did you observe any challenges/ obstacles/ problems to the successful implementation of the project and how did you address them? Lessons learned? **Consider, organizational/administrative; political (Governmental, stakeholders); policy/regulatory; capacity issues; budgetary; other linked to the specific activities you are involved with.**

Have resources and funds been used efficiently, leveraging in-house and other UN expertise, technical assistance, and other resources to optimize the project outcomes?

- Correlation between costs and results
- Percentage and cost of personnel time allocated to programme management
- Adequacy of management expenses vs. operational expenses

- Which other UN (and other) agencies collaborated in the project team? How has the partnership with other UN agencies for implementing the project worked? Any problems?
- What are the project team's routine responsibilities, apart from the management of this project? Are there any issues with their other UN-Habitat responsibilities?

Did UN-Habitat demonstrate to have adequate capacity to design and implement the project?

Were institutional arrangements adequate for implementing the project and for delivery of expected outputs and outcomes?

How did the Covid-19 pandemic and political event on 1st February 2021 in Myanmar affect the project implementation?

Do you consider that the reporting (internal and external) and monitoring was sufficient and of good quality? What could be done differently or better?

Coherence

Was the project coherent with other interventions of similar nature funded by Japan in the country?

Does the project have connections with other interventions of the UN-Habitat relating to solid waste management?

Sustainability

In your opinion, to what extent did the project build capacity of the Beneficiary and stakeholders? What mechanisms are put in place to ensure sustainability of the results and benefits achieved?

How did the project engage beneficiaries in the design, implementation and building ownership of the beneficiaries?

In your opinion will the project stakeholders' engagement and cooperation be likely to continue?

Do you have any suggestions and/or recommendations for further support in strengthening the technical capacities to further improve waste management in your organization/ country (other than that already planned by UN-Habitat, Government of Japan)?

Can and will the project be replicated or scaled up in Yangon and/or Myanmar?

How would financing be secured? Would it be useful if UN-Habitat supported such initiatives?

Impact outlook

Did the project attain its objective and anticipated impact on partners and targeted beneficiaries, whether stakeholders or cities?

What positive and/or transformative changes have occurred because of the project?

Cross-cutting issues

Were the social inclusion issues of gender equality, youth and human rights as well as social and environmental safeguards considerations adequately integrated into the design, implementation, monitoring and reporting on the project, were relevant?

How were these issues successfully applied in the project? Provide some examples.

Questions for Beneficiary/ Local Community

Main Beneficiary/Local Community	
Name:	
Male:	
Female:	

Relevance

What do you know about the above-mentioned project?

Were you given the chance to express your needs and/or the needs of your institution during the project's design/implementation? Activities preparation? How were you involved in the project?

To what extent are you satisfied with the project's design? Is it aligned with national goals, country and city needs, beneficiaries' requirements, policies, strategies, urban development plans, and UN-Habitat goals, i.e. contributing to low carbon development? Was the implementation strategy in line with and responsive to SDG 11 and New Urban Agenda (NUA)?

Do you know how the needs of the project were identified and developed. Were they properly reflected? What criteria were used in selecting the beneficiaries?

Are you aware of any contingency plans designed in the project to take into consideration possible problems and difficulties that the project managers might face during its implementation?

Effectiveness

In your opinion, were the project's objectives, and planned outcomes and outputs (as set out in the project's log frame) adequately achieved and utilized?

How effectively did the project engage with countries and cities to achieve desired outcomes of the project?

Did the partner organizations work together effectively? Do you think the partnership structure was effective in helping to achieve the project's results?

Do you feel the beneficiaries and target groups have acquired new skills which they can utilize in their work?

What are the levels of awareness amongst beneficiaries regarding the contribution of the funding partner, visibility materials in the field and other communication material?

At this stage, what are the lessons learned from the implementation of this project?

Efficiency

Did you observe any challenges/ obstacles/ problems to the successful implementation of the project, if so, how were they addressed?

Consider, organizational/administrative; political (Governmental, stakeholders); policy/regulatory; capacity issues; budgetary; other linked to the specific activities you are involved with.

In your opinion, have resources and funds been used efficiently, leveraging in-house and other UN expertise, technical assistance, and other resources to optimize the project outcomes?

Were institutional arrangements adequate for implementing the project and for delivery of expected outputs and outcomes?

How did the Covid-19 pandemic and political event on 1st February 2021 in Myanmar affect the project implementation?

Coherence

Did you observe any collaboration with other entities in the UN system and other international organizations in the country? If so, how coherent was the collaboration with other entities in the UN system and other international organizations?

To what extent was the project coherent with other interventions of similar nature funded by Japan in the country?

How does the project compare with other similar efforts from other actors in the UN System (if any)?

Sustainability

In your opinion, to what extent did the project build capacity of the Beneficiary and stakeholders? What mechanisms are put in place to ensure sustainability of the results and benefits achieved?

How did the project engage beneficiaries in the design, implementation and building ownership of the beneficiaries?

In your opinion will the project stakeholders' engagement and cooperation be likely to continue?

Do you have any suggestions and/or recommendations for further support in strengthening the technical capacities to further improve waste management in your organization/ country (other than that already planned by UN-Habitat, Government of Japan)?

Can and will the project be replicated or scaled up in Yangon and/or Myanmar?

How would financing be secured? Would it be useful if UN-Habitat supported such initiatives?

Impact outlook

Do you feel the project attained its objective and anticipated impact to partners and targeted beneficiaries, whether stakeholders or cities?

What positive and/or transformative changes have occurred because of the project?

Cross-cutting issues

Were the social inclusion issues of gender equality, youth, and human rights as well as social and environmental safeguards considerations adequately integrated into the design, implementation, monitoring and reporting on the project, were relevant?

How were these issues successfully applied in the project? Provide some examples.

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