

Environmental and Social Safeguards Monitoring Report

Semi-annual Report
January-June 2019

MYA: Pro-Poor Community Infrastructure and Basic Services

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Prepared by Tractebel Inc. in association with Myanmar International Consultants Co. for Department of Urban and Housing Development, Ministry of Construction, Government of the Republic of Myanmar, and the Asian Development Bank.

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Abbreviations

ADB	Asian Development Bank
C&P	Consultation and Participation
CDC	Community Development Committee
CDD	Community Driven Development
COV	Community Organising Volunteer
EA	Executing Agency
ECC	Environmental Compliance Certificate
ECD	Environmental Conservation Department
EMP	Environmental Management Plan
FGD	Focus Group Discussion
GIM	Grant Implementation Manual
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HHs	Households
IA	Implementing Agency
IC	Implementation Consultants
IEE	Initial Environmental Examination
IP	Indigenous Peoples
IR	Involuntary Resettlement
JFPR	Japan Fund for Poverty Reduction
MCDC	Mandalay City Development Committee
MOC	Ministry of Construction
MONREC	Ministry of Natural Resources and Environmental Conservation
MTR	Mid-Term Review
MYRM	Myanmar Resident Mission (ADB)
PIU	Project Implementation Unit
PMU	Project Management Unit
REA	Rapid Environmental Assessment Checklist
SERD	ADB Southeast Asia Regional Department
SMR	Semi-Annual Safeguards Monitoring Report
SPS	ADB Safeguards Policy Statement (2009)
TL	Team leader
YCDC	Yangon City Development Committee

1 Introduction

1.1 Background

- 1 The Government of Myanmar is currently implementing the Pro-Poor Community Infrastructure and Basic Services Improvement Project (ADB Grant 9177-MYA). The project is funded through a grant from the Japan Fund for Poverty Reduction (JFPR), which is financed by the Government of Japan.
- 2 The project will improve living conditions in poor areas of Yangon and Mandalay and result in better planning and management of urban infrastructure services. Community participation is an intrinsic element of the project. An early action was the facilitation of Community Development Committees in the target townships and these have been central in the consultation process. It is also intended that some of the sub-project works can be undertaken through the procurement of community-based organisations as contractors.

1.2 Basic Data

- 3 The key data for the Grant implementation is shown in Table 1.1 below.

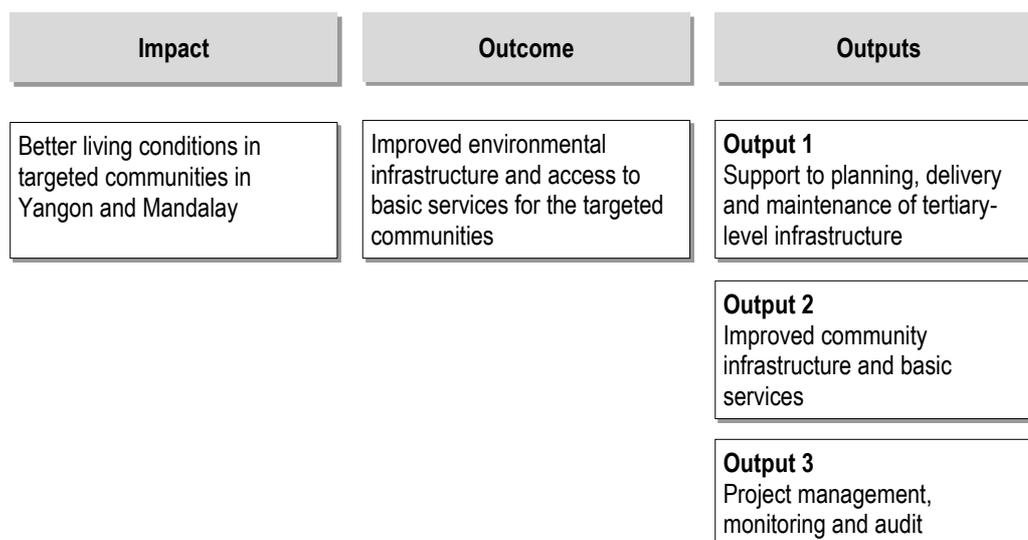
Table 1-1 Basic Data

ADB Grant number:	ADB Grant 9177-MYA (Grant funded by Japan Fund for Poverty Reduction)
Project Title:	Pro-Poor Community Infrastructure and Basic Services Improvement Project
Beneficiary:	Republic of the Union of Myanmar
Executing Agency:	Ministry of Construction
Implementing Agency:	Yangon City Development Committee and Mandalay City Development Committee
Date of Effectiveness:	4 June 2014
Closing Date:	31 December 2018 – extended to 31 December 2019

1.3 The Project

1.3.1 Project Impact, Outcome and Outputs

- 4 The project objective is to reduce poverty and vulnerability in selected underserved areas of Yangon and Mandalay, by reducing the detrimental impacts of poor urban environmental conditions and limited access to urban services. If successful, the project should assist in improving the opportunity for the targeted population to participate in local and national economic development. The target areas for the project are determined in the Grant Implementation Manual (GIM) and are two specific townships in each of the two cities of Yangon and Mandalay. These are Dala and Hlaing Tharyar in Yangon, and Chanmyatharzi and Pyigyidagon in Mandalay.
- 5 The impact, outcome, outputs of the project are summarised in Figure 1.1 as follows.

Figure 1.1 Impact, Outcome and Outputs

1.4 Sub-Projects

6 The Project includes a number of sub-projects, and these are summarised in Table 1.2.

Table 1-2 Sub-Projects

City/Township	Wards	Sub-Projects	Scope of Sub-Projects
Yangon			
Hlaing Tharyar	7, 10	Tertiary roads, culverts and drain	<ul style="list-style-type: none"> ▪ 2.8 km* tertiary concrete roads with street lights and speed bumps ▪ 12 culverts ▪ 93 m drain
		Solid Waste Management	<ul style="list-style-type: none"> ▪ 6 steel tanks ▪ 208 HDPE bins (120 litre) ▪ 7 motorcycle carts
Dala	Aunt Gyi West, 6, 11/14	Water Supply	<ul style="list-style-type: none"> ▪ 6 water treatment plants (reverse osmosis) with associated tube wells ▪ Fencing and access to 4 other ponds
		Solid Waste Management	<ul style="list-style-type: none"> ▪ 2 waste collection stations ▪ 50 1m³ steel bins with concrete bases ▪ 73 HDPE bins (120 litre) ▪ 3 motorcycle carts ▪ 1 compactor truck (7m³)
Mandalay			
Chanmyatharzi	Myayinander	Tertiary Roads	<ul style="list-style-type: none"> ▪ 2.1 km tertiary concrete roads with street lights and speed bumps ▪ 8 culverts
		Solid Waste Management	<ul style="list-style-type: none"> ▪ 31 steel bins (1m³) with concrete bases ▪ 1 compactor truck (7m³) ▪ 1 motorcycle cart**
Pyigyidagon	Thinpangone, Sa	Tertiary Roads	<ul style="list-style-type: none"> ▪ 3.9 km tertiary concrete roads with street lights and speed bumps ▪ 43 culverts ▪ 0.3 km roads, and 0.1 km footpaths in school**
		Solid Waste Management	<ul style="list-style-type: none"> ▪ 61 steel bins (1m³) with concrete bases ▪ 2 compactor trucks (7m³) ▪ 2 motorcycle carts**

* Includes additional roads in Hlaing Tharyar

** Additional works / goods

1.5 Institutional Arrangements

- 7 The executing agency (EA) of this Project is the Ministry of Construction (MOC). The implementing agencies (IAs) are the Yangon City Development Committee (YCDC) and the Mandalay City Development Committee (MCDC).
- 8 The Project Management Unit (PMU) was established initially in Nay Pyi Taw but subsequently moved to Yangon, within the Department of Urban and Housing Development. The PMU has the responsibility for overall Project implementation and management including financial disbursement, procurement, safeguards and monitoring and reporting.
- 9 At the City level the Project Implementation Units (PIUs) were created to coordinate the implementation of Project activities in the participating cities and townships.
- 10 At the Ward level Community Development Committee (CDC) leaders and some individual members have been assigned to take part in Project communication and liaison activities. In addition Community Organizing Volunteers (COVs) were designated to coordinate project activities with the Ward and sub-committees on solid waste management.
- 11 Sub committees have been organized by Ward and were given training on project implementation and monitoring of community based solid waste management (CBSWM), and water treatment facility (WTF). These sub committees are specifically tasked to monitor the performance and outcomes of the sub-projects.
- 12 A community fund management system has also been drafted by the IC and reviewed by the PMU, PIU, and CDC members where their inputs were incorporated in the draft document. This document has yet to be finalized by the IC and approved by the PIU for its use.

1.6 Social Impacts

1.6.1 Screening, Categorisation and Documentation

- 13 The project is Category C for involuntary resettlement, which means it has no involuntary impacts on residents' land or property. It is also Category C for indigenous people, which means it is not expected to have any adverse impacts on indigenous people. Under the terms of the Grant, funds cannot be used for purchasing of land or for payment of compensation for involuntary impacts.
- 14 Initial screening was undertaken in 2016 and early 2017, and these identified a large number of potentially affected households in Mandalay. However, the project design was subsequently changed from drainage to road improvement and the potential involuntary impacts reduced to zero.
- 15 In February 2018 a further safeguard mission was undertaken¹ and this reconfirmed the Category C classification for all subprojects.
- 16 The project is categorized as having some gender element (SGE) which means significant gender impact, which is likely to directly improve women's access to the sub-projects. Great advantage will be directed towards women and girl children who are generally responsible to fetch and carry water, and women are primary responsible to take care of the health needs of the family. Benefits that men and women may receive, will significantly contribute to improvement on health due to improved water facilities and clean water.

¹ Melody Ovenden from ADB and the National Social Development and Gender Specialist conducted due diligence on involuntary resettlement and IP from February 17th to 18th 2018

1.6.2 Anticipated Social Impacts

- 17 The project is expected to achieve mostly positive social impacts and the negative impacts should be limited and temporary. The road projects in Mandalay and Hlaing Tharyar will provide improved access to basic services and facilitate easier mobility in the wards and in street blocks, will reduce noise and dust in the residential areas, and will also reduce wear and tear on residents' vehicles. The solid waste management and water sub-projects will result in improved environmental conditions thereby contributing to the improvement of the health of poor and vulnerable households. Overall, the subprojects are expected to benefit an estimated number of some 7,000 households, of which 5,000 households are in the target wards of Yangon and 2,000 households are in the target wards of Mandalay. (These figures include the households of the street blocks that will directly benefit from civil works, water treatment and solid waste bins and vehicles, but not the wider ward populations potentially served by compactor trucks).

1.7 Environmental Impacts

1.7.1 Screening, Categorisation and Documentation

- 18 An Environmental Assessment and Review Framework (EARF) was prepared for the project by ADB. The project has been classified as Category B for environment following the ADB's Safeguard Policy Statement 2009 (SPS) as potential adverse environmental impacts are site-specific, temporary and few if any of them are irreversible. The sub-project sites are within a highly modified suburban environment and are not adjacent to or within any environmentally sensitive area such as cultural heritage site, protected area, wetland, buffer zone of protected area, or special area for protecting biodiversity.
- 19 Accordingly, Initial Environment Examinations (IEEs) were prepared for Yangon and Mandalay, including an Environmental Management Plan (EMP) for each of the four townships. These were submitted to MOC and ADB on 15th November 2017.
- 20 Under Myanmar's Environmental Impact Assessment Procedure (MONREC Notification No.616/2015), an IEE type project means a Project is judged by the Ministry of Natural Resources and Environmental Conservation (MONREC) to have some adverse impacts, but of lesser degree and/or significance than those for EIA Type Projects. It means generally those projects which are limited in scope or size, have well known environmental and social impacts that for the most part are temporary, local and reversible and have impacts which can be mitigated and managed by well-proven and available technologies and practices.
- 21 MONREC requested the submission of the respective EMPs to the Environment Conservation Departments (ECDs) in Yangon and Mandalay for the purposes of obtaining an Environmental Compliance Certificates (ECCs) for the townships and sub-projects. The EMPs were submitted by the IC to MOC on 15th November 2017 for approval and forwarding to YCDC and MDCD. The EMP for Dala was revised following the removal of the public toilets sub-project and re-submitted to MOC on 5th December 2017. They were subsequently submitted to the ECDs on 14th December 2017. The ECDs (in Nay Pyi Taw) issued Letter of Confirmation (LoC) to each of the submitted EMPs; Yangon sub-project was issued on 19 April 2018 and for Mandalay was issued on 24 April 2018. The LoC is eligible and considered as ECC as the ECDs has yet to issue an ECC to any project.

1.7.2 Anticipated Environmental Impacts

- 22 The IEE identified the potential environmental impacts associated with the design, construction and operation of the suburban road improvement, community water treatment facilities, drainage, and solid waste management sub-projects. The type of impacts expected include localised vegetation clearance, minor earthworks such as excavation, spoil disposal and preparation of the tertiary roads prior to pouring concrete, and very small-scale construction works. These impacts are assessed to be of the same scale as similar work currently undertaken by YCDC and MDCD as part of road improvement works within the same townships. Mitigation measures include the development of a spoil disposal plan, using and operating suitable machinery that comply with the emission and noise

reduction regulations, having a solid waste and hazardous waste materials management plan and a health and safety plan in place.

- 23 These potential impacts can be managed and brought to acceptable levels through the implementation and effective monitoring of the EMP by the contractor, and through project supervision.

1.8 Consultation, Participation and Disclosure

- 24 The sub-projects were initially identified through a process of community participation and prioritisation. Project progress, any subsequent changes to project designs, and any issues or concerns have been dealt with through community meetings and via ward officers and CDC leaders and members. More recently Community Organising Volunteers (COVs) have also been identified to act as focal points for the project within the communities.

- 25 Consultation activities during the period of this report are summarised in Table 1.3 below.

Table 1-3 Key Consultations During the Reporting Period

Date	Meeting / Activity	Participants
6 Feb	Meeting at Dala 11/14 Ward to confirm the locations of steel bins prior to construction of concrete bases.	11/14 ward Solid Waste Management Committee members
18 Feb	Meeting at Dala Aunt Gyi West, 6 and 11/14 wards to organize for the operation training on water treatment facilities.	Ward administrator, water committee members
19 Feb	Meeting at Dala Aunt Gyi West, 6 and 11/14 wards to determine and confirm from the water committee the designate persons for the positions of operator, helper, accountant, treasurer and staff for each water treatment facility.	Ward administrator, water committee members
20 Feb	Operational Training and demonstration on water treatment (facilities) in Aunt Gyi West ward.	Ward administrator, water committee members
22.Feb	Operational Training and demonstration on water treatment (facilities) in 11/14 ward.	Ward administrator, water committee members
25 Feb	Operational Training and demonstration on water treatment (facilities) in ward 6.	Ward administrator, water committee members
26 Feb	Training and demonstration on use of fire extinguisher by Dala Fire Brigade officer and staffs at Aunt Gyi West ward.	Ward administrators, water committee members
27 Feb	Program on the turnover of Waste Collection Stations at Dala Aunt Gyi West, 6, and 11/14 wards.	Ward administrators, water committee members, PMU, PIU
06 Mar	Meeting to discuss the distribution of water bottles in the community at Aunt Gyi West ward.	Ward administrators, water committee members
07 Mar	Meeting to discuss the distribution of water bottles in the communities at 11/14 ward & ward-6.	Ward administrators, water committee members

- 26 As part of the Stakeholder Communication Strategy, visual materials were used to publicise and explain the project to residents. Public Information Booklets (PIBs) were printed and distributed in January and February 2018.
- 27 The CDC leaders and COVs participated in designing posters with illustrated information messages aimed at raising level of awareness and promoting behavioural change. These posters were placed at strategic areas visible to the public in Q.3 2018.

1.8.1 Grievance Redress Mechanism

- 28 A Grievance Redress Mechanism (GRM) has been established and agreed with MOC and ADB. The GRM is designed to receive, evaluate and facilitate the resolution of residents' concerns, complaints and grievances during project implementation.
- 29 A central GRM Committee was established in June 2017 with membership from DUHD, YCDC and MCDC. Ward-level GRM Committees were established in all target wards in Q1 2018. They were given training on GRM mechanism and in documentation of grievances.
- 30 The GRM process was included in the project information booklets (PIBs) which were circulated to the target communities in Q1 2018. Focus group discussions were also undertaken to explain the GRM mechanics in the PIB to community members.
- 31 Some of the CDC members are performing dual roles as both members of GRM Committee and sub-committee for implementation and monitoring of SWM and water treatment in Dala. As such, there is evidence of demonstrated participation and active involvement of CDC members and GRM committees in the sub-project activities.

1.9 Implementation Progress

- 32 The status of civil works implementation is summarised by contract in Table 1.4 below.

Table 1-4 Status of Civil Works Contracts

Contract	Status of Civil Works (as at 30 June 2019)
Hlaing Tharyar Township, Roads, culverts and drainage	Contract signed on 27 th February 2018. Original and additional works completed.
Pyigyidagon & Chanmyathazi Township, Roads and culverts	Contract signed on 15 th March 2018. Original and additional works completed.
Dala Township, Water Treatment Facilities	Contract signed on 12 th June 2018. Original contract completed. Additional works on-going.
Dala Township , Waste Collection Stations	Contract signed 7 th September 2018. Contract completed including additional works.
Dala Township, Concrete bases for steel waste bins	Contract signed 6 th March 2019. Contract completed.
Chanmyathazi Township , Concrete bases for steel waste bins	Contract signed 26 th December 2018. Contract completed.
Pyigyidagon Township , Concrete bases for steel waste bins	Contract signed 26 th December 2018. Contract completed.

- 33 The status of goods implementation is summarised by contract in Table 1.5 below.

Table 1-5 Status of Goods Contracts

Contract	Status of Goods (as at 30 June 2019)
SWM HDPE Bins	Contract signed on 17 th October 2018. Contract completed.
SWM Steel Tanks and Bins	Contract signed on 17 th October 2018. Original contract and additional items completed.
SWM Equipment - Vehicles	Contract signed on 16 th November 2018. Original contract and additional items completed.

2 Social Safeguard Monitoring

2.1 Monitoring and Reporting

- 34 As described above, due to the constraints of the Grant terms, the project must meet the criteria of Category C for involuntary resettlement and indigenous people. This means that there is no scope for involuntary impacts.
- 35 Under ADB Guidelines Category C projects do not necessarily require Semi-Annual Safeguard Monitoring Reports (SMRs) to be submitted. However, for this particular project it makes sense to monitor and report on a regular basis. This is the first ADB project to be decentralised to the Myanmar Resident Mission (MYRM), the project includes civil works in residential areas, and it is a pro-poor project with strong community participation. For these reasons the SMR procedure will be followed in principle, although maybe not in detail.
- 36 Monitoring of all social aspects mentioned below have been and will be undertaken throughout construction to ensure that compliance is maintained.

2.2 Social Safeguard Compliance

- 37 All sub-projects have been designed to avoid involuntary impacts. Sub-projects (including the roads in Mandalay, changed from drainage) were screened between late 2016 and March 2017, and are confirmed as Category C.
- 38 The project provided training to all parties involved in the civil works regarding safeguard compliance, including Government, contractors, and the communities themselves.
- 39 The project is Category C for indigenous peoples (IPs), and is therefore expected not to have adverse impacts on IPs.
- 40 There are relatively small ethnic minority populations in the target wards, and as there will be no involuntary impacts, these indigenous people will not be more adversely affected than any other residents.
- 41 A corrective measure to include the participation of vulnerable households (elderly, female headed households, IPs and youth) in CDC membership was undertaken in September 2017.

2.3 Issues Arising

2.3.1 Actions Required

- 42 Several issues requiring action were raised in the previous SMR (Jul-Dec 2018). These have been and being addressed during the current monitoring period and are summarised in **Annex A**.

2.3.2 Incidents and Complaints

- 43 There was no submitted, or recorded complaint arisen during the reporting period. As incidents and complaints do not necessarily fall specifically within social or environmental categories, they are dealt with together in Section 4.

3 Environmental Safeguard Monitoring

3.1 Monitoring and Reporting

- 44 For the purpose of monitoring the environmental impacts of civil works EMP Checklists have been prepared for each contract. These are based on the tables in the EMPs for each of the townships.
- 45 IC staff monitor EMP compliance on a daily and weekly basis. The national environmental expert visits the sites each month and submits completed EMP checklists at the end of each month for inclusion in the IC's Monthly Report.
- 46 The contractors for the three NCB Civil Works contracts are required to prepare their own Contractor Environmental Management Plans (CEMPs) and to undertake their own monitoring during construction. All three firms submitted their CEMPs accordingly, along with copies of their operational health and safety policies. The CEMPs were reviewed and cleared by the project Implementation Consultant.

3.2 EMP Awareness Training

- 47 EMP awareness training was provided by ADB for staff from DUHD, MOC, YCDC and MCDC on 9th and 10th January 2018.
- 48 EMP orientation was provided by project Implementation Consultant to the contractor of Hlaing Tharyar Roads contract and Mandalay Roads contract (both Ultra Co. Ltd.) on 12th March 2018.
- 49 EMP orientation was provided by project implementation consultant to the contractor (Authentic Construction Co. Ltd.) of Dala Water Treatment Facilities contract on 3rd July 2018.

3.3 Environmental Safeguard Compliance

- 50 No significant environmental non-compliance issues have been observed thus far in either Hlaing Tharyar, Mandalay, or Dala. There were minor issues in all locations in terms of small quantities of waste scattered around the sites. The contractors were reminded that they must keep the sites free from indiscriminate waste disposal. It has also been observed that not 100% of workers are wearing all the personal protection clothing at all times. The contractors have been reminded of this requirement also.
- 51 In Dala subproject site, there were concerns on disturbing the pond water during the construction of ponds stairs and supposed to be retaining walls for the concrete cylinder water tanks. Engineering measures were undertaken and simple construction methods were applied to not promote any contamination to the ponds.

3.4 Issues Arising

3.4.1 ADB Mission Comments

- 52 Comments raised following the ADB mission in November 2018 included some relating to environmental concerns. These and the continuing responses and update to them are shown in **Annex B**.

3.4.2 Incidents and Complaints

- 53 Only a few incidents have arisen during the reporting period. As incidents and complaints do not necessarily fall specifically within social or environmental categories they are dealt with together in Section 4.

4 Complaints and other Issues

4.1 Record of Incidents

- 54 As mentioned in Section 1, a Grievance Redress Mechanism (GRM) is in place in all wards and has been explained to community leaders and members. Normally, Incidents are recorded and reported as required to MOC and ADB. However for this reporting period as mentioned, there were no recorded or submitted incidents aside from the fatal accident that happened in Dala subproject site. The details are described on the following section.

4.2 Fatal Accident

- 55 In the previous SMR (Jul-Dec 2018) a fatal accident was mentioned. This has been addressed during the current monitoring period and the related events are summarized on the following subsections. The timeline is shown in **Annex D**.

4.2.1 The Accident

- 56 It was Wednesday, 19 December 2018. Several construction workers were cleaning and preparing the treatment facilities in Ahnawyahtar Pond (Dala) for the test run of treatment equipment schedule on the next day. It is when the driver of Authentic Company ("contractor"), U Thay Naing (aka) Tayoke Gyi voluntarily helped-out to hand-over a putty plate tool to one worker at top of the cylindrical concrete water tank. He fell together with the portable ladder he used and hit his head on the concrete pavement (road). He did not gain consciousness after the accident and was declared dead at early morning the next day (20 December 2018) after a head surgery at Yangon General Hospital.

4.2.2 Measures Undertaken

- 57 On the same day (20 Dec 2018) the ADB and MOC instructed the contractor to halt the works until further notice. Simultaneously, the contractor managed and financed the funeral services, Buddhist rites and burial of the deceased until 25th December 2018. Financial assistance and contributions were also extended by the contractor to the widowed family.
- 58 On 26 December 2018, the contractor submitted an Accident Investigation Report to PMU-MOC describing the occurrence of the accident and how it was managed by the company (Authentic). PMU-MOC submitted said report to ADB on 08 January.
- 59 Following PMU's submission, on 10 January ADB advised to conduct further assessment as well as recruitment of an Occupational Health and Safety (OHS) Expert who shall conduct due diligence requirements and provide recommendations.
- 60 Compensations from the Social Security Board were received by the family of the deceased on 17 January and 16 March with corresponding amounts of MMK 298,900 and 7,648,900 respectively. Availment of these amounts were due to the significant assistance of the contractor to the bereaved family. The list of total compensations and donations received by the family of the deceased is included in **Annex D**.

4.2.3 Provision of OHSE

- 61 Also on 17 January, a national OHS Expert was engaged (via short term individual contract) by the project Implementation Consultant to provide adequate and proper investigation, analysis, report and recommendation to the fatal incident. The recruited OHS consultant was U Kun Zaw Thein, a practicing health and safety trainer from a private company in Yangon.
- 62 On 23 January, the OHSE conducted site assessment and investigation on the accident area together with the IC Team and the contractor. Following the site investigation, the OHSE submitted to PMU-MOC an Accident Investigation Report and Recommendations for CEMP Improvements.

4.2.4 ADB Intervention

- 63 Whilst on the review of the OHSE Report, the ADB conducted a Safeguard Review Mission on 31 January led by the Project Officer, U Kyaw Thu. The mission in Dala was also attended by PMU officers, IC Team, the OHSE, the contractor and community representatives.
- 64 Following the mission, on 01 February, findings and recommendations were provided by ADB Team to all concerned parties, through an Aide Memoire. The particular recommendations are for the contractor to submit an updated CEMP incorporating the recommended improvements, implement corrective actions, and conduct safety awareness and trainings.

4.2.5 Further Actions and Compliance

- 65 Right after the ADB Safeguard Review Mission (on 3rd and 4th of February), the contractor immediately performed the corrective action plans to comply with ADB and OHSE recommendations. The CEMP was improved as according to OHSE comments, and also conducted classroom trainings and on-site demonstrations to improve on safety awareness particularly on use of ladders.
- 66 On 5 February, the OHSE submitted a report on the compliance of the contractor to the "Recommendations for the CEMP Improvements" and "Corrective Action Plan".
- 67 On 6 February, in a meeting with the widow and contractor, together with the Dala community representatives a Certificate of Placation was issued by the (Aunt Gyi West) Ward Executive Officer (to the Contractor) stating ineligibility of further complaints and declaring total settlements of disputes and issues, if any. A police case was also concluded to be invalid at this stage.

4.2.6 Resumption of Works

- 68 On the same day, 6 February, a Notice to Resume all remaining works was issued to the contractor.
- 69 The following day, 7 February, all works at site officially resumed and in the same day, the PMU submitted the (final) fatal accident report to ADB.

5 Summary and Conclusions

5.1 Overall Conclusions

- 70 Generally social and environmental safeguards are being well monitored and no significant issues have arisen. On the whole there is a significant level of cooperation and support from the communities that is certainly assisting the contractors in their work.
- 71 The accident in Dala was an isolated case, however unfortunate and fatal. It proves that occupational health and safety measures should always be present and never neglected in any instance.
- 72 The contractors previously and currently on site have fallen slightly short in some aspects of safeguard compliance, but this is probably to be expected as Myanmar companies are not very familiar with this type of internationally-funded tertiary infrastructure in dense residential areas.

5.2 Issues Requiring Action

- 73 There are few issues requiring action, and few areas in which improvements will be sought. These are shown in Table 5.1 below.

Table 5-1 Issues Requiring Action and Areas for Improvement

Issues	Actions Required
Awareness on waste management in particular to the practice of communities on the proper disposal of waste in line with the provision of waste stations, steel tanks and bins.	<ul style="list-style-type: none"> ▪ PIU to execute a community ordinance to establish proper disposal and collection of domestic waste ▪ Provision of awareness raising and campaign program by EA
Management of the community fund proceeds from water treatment facilities and community-based waste management	<ul style="list-style-type: none"> ▪ PIU to monitor sales management on treatment facilities and further improve the financial and collection management system
Continuing instances of workers not wearing personal safety clothing and equipment at Dala	<ul style="list-style-type: none"> ▪ Contractor to be continuously reminded of the need for all workers to wear PPE.
Prevalent resistance on use of pond water by the communities in treatment facilities at Dala Mahar Khandawgyi and Kantharyar East. The contractor was even instructed to remove the piping system meant to draw water from the ponds.	<ul style="list-style-type: none"> ▪ PIU to convince the community to allow the use of pond water for treatment and execute a community ordinance to establish the treatment of water from either pond or tube well source.

Annexes

- A Issues and Actions from 6th SMR
- B Status Update on the Environment Issues Raised by ADB MTR Mission, Nov 12th – 16th
- C EMP Compliance Tables
- D Fatal Accident – Time Line and List of Compensation

Annex A – Issues and Actions from 6th SMR (July-December 2018)

Issues from 6th Monitoring Report	Actions and Recommendations
There is resistance from some residents to participate in wards where community based solid waste management will be implemented due to cost of services.	<ul style="list-style-type: none"> ▪ The PIU committed to support the improvements on waste management and establish a system to deal with the needed funding and sustainability measures. ▪ Perform FGDs and campaigns with township, ward officers and communities to instil development and appreciation to improved waste management
Readiness of the CDC working team to undertake management of the community fund proceeds from water treatment facilities and community-based waste management	<ul style="list-style-type: none"> ▪ IC and PMU together with PIU underwent series of discussion with CDCs and designated persons were provided for each related role on fund collection and management. ▪ PIU to continue institutionalize the community fund management guidelines.
Further instances reported of workers not wearing personal safety clothing and equipment.	<ul style="list-style-type: none"> ▪ Contractors continuously being reminded of the need for all workers to wear PPE. ▪ IC continuously performing monthly monitoring on environmental compliance that includes health and safety ▪ Contractors to be warned for not complying.
The accident in Dala highlights the need for education of all employees on safety procedures, even those not directly involved on site.	<ul style="list-style-type: none"> ▪ The contractor conducted safety awareness trainings following this incident and as per recommendations from the OHSE ▪ All contractors should strictly follow the health and safety guidelines included in the CEMP ▪ IC, PMU and PIU to closely monitor compliance to safety measures.

Annex B : Status Update on the Environment Issues Raised by ADB MTR Mission, Nov 12th – 16th (From Midterm Review Mission 14-17 May 2018)

*** Only 1 active subproject remaining starting May 2019 – the Dala Water Treatment Facilities. All original contracts completed by April 2019, remaining on-going is portion of additional works in Dala.

No.	Findings/Issues	Recommendations	Target Date and Responsibility	Status/Update
1.	Human Resource			
	The Mission observed that there is no assigned Environmental, Health and Safety Officer on Contractor side to implement and monitor the Environmental Management Plans.	Designate/hire Environmental, Health and Safety Officers (One for Mandalay and one for Yangon), and provide the formal assignment letter to IC team and PMU.	Contractor by end November 2018	<ul style="list-style-type: none"> ▪ Contractors have nominated people responsible on site
2.	Reporting System			
	a). There is no recording and reporting on the status of EMP implementation and monitoring by the Contractor b). There is no Incidents Reporting system defined.	a). Daily and weekly reports to be prepared by contractor and submitted to IC team weekly. b). Formulate the Incidents Reporting system and update it in the project's IEEs.	a). Contractor. Commencing from November 2018.	<ul style="list-style-type: none"> ▪ All contractors submitted weekly reports as well as monthly reports, and ceased after completion of original contracts. ▪ Incident report format formulated and used in monthly reports
3.	Updating EMPs in project's IEEs			
	The Mission found out that the National Contractors have very limited capacity on the Environmental safeguards, and have no capacity at all to prepare the Contractors' Environmental Management Plans (CEMPs). It was observed that the requirement of preparing the CEMPs by the contractors in the project's IEEs will be excluded.	Formulate the detail plans such as Occupational Health and Safety Plan and Incidents Reporting Protocol, and update these in the EMPs of the project's IEEs. The updated EMPs will be implemented by contractors.		<ul style="list-style-type: none"> ▪ OHS and responsibilities included in CEMPs
4.	Occupational Health and Safety			
	Risks to electric shocks due to improper connection of electric wires from the source	b). Electric wires and connections should be properly installed.	Contractor on ongoing basis	Electric powered Motor Pump replaced with Diesel powered.
5.	Traffic and Public Safety			
	a). Absence of proper barriers, illuminations, warning signs before and at the construction sites, the stock piles and temporary spoil dumping sites	a). Install proper barriers, illuminations, and no access signs at all construction areas the stock piles and temporary spoil dumping sites. Install sufficiently visible construction warning signs at and before construction sites.	a). Contractor.	<ul style="list-style-type: none"> ▪ Safety and traffic management were improved ▪ Compliance were monitored

Annex C: EMP Compliance Tables

Note: EMPs were prepared for the three NCB Civil Works contracts, Hlaing Tharyar Roads, Culverts and Drainage, Mandalay Roads and Culverts, and Dala Water Treatment. For Dala Waste Stations and the concrete bases, all shopping contracts, environmental monitoring was undertaken alongside the EMP monitoring and reported in monthly reports.

**Yangon, Hlaing Tharyar Roads, Culverts and Drainage MOC-DUHD/NCB/CW-01
EMP Compliance Monitoring in Wards 7 and 10**

*** All original and additional works completed on April 2019

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
Earthworks in road and culvert excavation	<ul style="list-style-type: none"> ▪ Limit machinery and earthworks to the defined pavement width and culvert sites 	In practice it has been impossible for contractor to stay within carriageway width due to the need for formworks at the sides of the concreted areas. Road shoulders will also be outside the carriageway.
	<ul style="list-style-type: none"> ▪ Minimize damage to tree roots where these are within the road pavement area wherever practicable 	Very few incidents of trees within carriageway. If necessary, the roadside tree cutting is implemented/supervised by YCDC.
Earthworks in road and culvert excavation	<ul style="list-style-type: none"> ▪ All machinery to be in sound condition and free from any leaks of lubricants and fuel 	Company used Excavator x 1, Compactor x 1 and Dumper x 3. All the machinery is in proper condition.
Disposal of surplus spoil	<ul style="list-style-type: none"> ▪ Ensure spoil disposed of only in approved sites. ▪ Contractor to provide details of means and location of spoil disposal within each township 	Contractor has provided location of spoil disposal site at No. 364/B, Too Chaung Village Field, Yangon Northern District, Htantabin Township.
Operation of construction machinery and vehicles generating emissions	<ul style="list-style-type: none"> ▪ Maintain construction equipment, clean all filters and use clean diesel ▪ Any machinery generating visible smoke is not permitted. ▪ Avoid unnecessary machine operation, turn machinery off when not in immediate use to avoid build up of toxic fumes. ▪ Advise residents when prolonged machinery operation is planned. 	No smoke emissions observed during operation of the machinery.
Construction activities during the dry season may cause dust nuisance	<ul style="list-style-type: none"> ▪ Apply water on exposed soil from water trucks or sprinklers. ▪ Limit or suspend construction activity along residential streets during periods of strong winds. ▪ Limit truck movement during periods of strong winds. 	The construction is taking place in the rainy season, so there is generally no need to use water for dust control.
	<ul style="list-style-type: none"> ▪ Apply water to roads to reduce visible dust levels due to construction activities. ▪ Use water from water storage ponds only with the express permission of the engineer and CDC 	The contractor is using water from Myoma Nyein Pond for sand compacting.
	<ul style="list-style-type: none"> ▪ Spoil disposal sites compacted to reduce exposure of loose debris from wind, if required 	
Solid waste generation	<ul style="list-style-type: none"> ▪ All construction and general waste generated by the project will be removed daily from the site by the contractor and disposed of in a designated YCDC waste disposal area. ▪ Liquid wastes are not to be disposed of within the residential areas. ▪ Provision of appropriate waste storage containers for worker's construction and hazardous liquid wastes. ▪ Municipal type waste from construction workers will be collected daily and disposed of in locations where YCDC provides regular collections. ▪ Hazardous waste such as oily rags or chemical containers, will be neutralized as far as possible, kept as dry as possible to reduce 	YCDC pick up the rubbish by truck, and the final disposal is at Htein Pin Dump Site in Htan Ta Pin Township.

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
	<ul style="list-style-type: none"> likelihood of leachate and will be disposed of at an approved YCDC disposal site. ▪ Contractors will ensure that there is no onsite burning of waste at all times. ▪ Proper removal and disposal of any significant residual materials, wastes and contaminated soils prior to construction site handover. 	
Waste water and sewage	<ul style="list-style-type: none"> ▪ Install a portable toilet facility with an appropriate self-contained sewage tank for use by construction workers. ▪ Facility to be removed at the completion of the construction works 	All temporary facilities demobilized by end March 2019.
	<ul style="list-style-type: none"> ▪ Washing of machinery and equipment, concrete trucks is not permitted within the wards 	No washing of equipment has been seen in the project areas.
Storage and handling of hydrocarbons; emergency or accidental spills of hydrocarbons	<ul style="list-style-type: none"> ▪ No hazardous chemicals and hydrocarbons will be stored within the township boundary. ▪ All fuels and lubricants to be supplied by designated fuel trucks or service vehicles 	No hazardous chemicals have been used thus far.
	<ul style="list-style-type: none"> ▪ Develop Hazardous Waste Management Plan to cover hazardous materials and oil storage and spills. 	This is covered in contractor's environmental management manual.
	<ul style="list-style-type: none"> ▪ All spills will be cleaned up immediately as part of emergency response plan. ▪ Spill clean-up materials are available at each storage site. ▪ Maintain a register of all hydrocarbon spills 	Sand is available as spill clean-up material at each storage site.
Refuelling of machinery and servicing of equipment	<ul style="list-style-type: none"> ▪ Use drip trays during refuelling or servicing ▪ Provide safety equipment and training for all fuel handlers ▪ Machinery maintenance and servicing is not permitted with residential streets. ▪ All waste oil, filters to be removed from the sites. 	<p>Impractical to service machinery outside block as there are no locations within several km that are not dense urban areas.</p> <p>Contractor was aware of need to minimise the potential for detrimental impacts.</p>
	<ul style="list-style-type: none"> ▪ Refuelling of machinery is not permitted within residential areas. 	<p>Impractical to refuel outside block as there are no locations within several km that are not dense urban areas.</p> <p>Contractor was aware of need to minimise the potential for detrimental impacts.</p>
Demobilisation of contractor and rehabilitation of temporary site	<ul style="list-style-type: none"> ▪ Removal of all construction material, used or unused, and residual solid waste 	Some constructed debris found remaining on site after demobilisation and contractor was quickly notified to properly remove.
Use of water	<ul style="list-style-type: none"> ▪ Temporary construction facility to provide sufficient quantities of potable water supply for workers. ▪ Manage water use during periods of dry weather from designated water ponds ▪ Do not use water from storage ponds for dust suppression ▪ Machinery and equipment not to be cleaned near water storage ponds 	<p>Contractor has provided 20 litre bottles of drinking water for the workers and water from tube well was used for washing and bathing.</p> <p>The construction was undertaken in the rainy season, so that there is no need to use water for dust control. The company used water from Myoma Nyein pond for sand compacting.</p>
Traffic Management	<ul style="list-style-type: none"> ▪ Construct road along one side at a time 	The roads are too narrow to facilitate this construction sequence.
	<ul style="list-style-type: none"> ▪ Provide warning signs to prevent interaction with vehicles and machinery ▪ Involve CDC to liaise with residents and contractor 	The warning signboard, company signboard and project information signboards were placed at work sites and suggested to use tape to prevent accidents at night.
Transport of construction materials; operation of machinery	<ul style="list-style-type: none"> ▪ Immediately repair any damage caused to community or private facilities. ▪ Ongoing community consultation regarding traffic movements 	Minor incidents of damage have been dealt with adequately.
	<ul style="list-style-type: none"> ▪ Compensation to be paid for any damage 	It has not been necessary for the company to pay any compensation.
Presence of construction workers in communities.	<ul style="list-style-type: none"> ▪ Social orientation conducted for all construction personnel at start of construction with the input from CDC 	Orientation provided for contractor project management staff for dissemination to workers.

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
	<ul style="list-style-type: none"> ▪ Ward protocols agreed; worker awareness as part of mobilization. ▪ Workers to respect ward and landowner boundaries, observe codes of conduct and avoid damage to properties and resources. 	No MOU but good relationships established at the start of the works between the contractor staff and local residents.
	<ul style="list-style-type: none"> ▪ Employ local persons where practicable 	The contractor used 5-15 local daily workers, within this reporting period.
	<ul style="list-style-type: none"> ▪ Maximise the use of goods and services from local communities, where practicable 	Some materials like timber, bamboo and plastic sheets were bought from local shops.
Construction activities will occur within the ward boundary; operation of machinery within block roads	<ul style="list-style-type: none"> ▪ Contractor to provide health and safety policy 	Contractor has submitted a copy of the company's Health and Safety Manual to MOC and YCDC.
	<ul style="list-style-type: none"> ▪ Provide driver safety awareness program for all drivers as well as community to reduce the likelihood of vehicle accidents or contact with people, structures. 	The company provided awareness training for all drivers at the beginning of construction phase and the Project Engineer gives briefing weekly.
	<ul style="list-style-type: none"> ▪ Hazard identification and risk assessments to reduce risk of harm and injury, prevent spills of hazardous substances. ▪ Prepare Work Method Statements for each activity ▪ Keep residents away from working machinery. ▪ Ensure reversing signals are installed on construction vehicles or provide flagmen as required to ensure safe operations ▪ Mark dangerous areas with reflective tape or other effective means to identify hazardous areas during the hours of darkness ▪ Provide safe access around work sites to keep public away from harm. Work on one side of the road at a time to provide access for residents. ▪ Provide cautionary signs in all operational areas use safety barriers and fences as required. 	The civil works are being undertaken in dense residential areas so the public cannot be totally excluded from the general works areas. However, all relevant safety precautions were placed. Suggested to use safety barriers at work site, particularly at night time.
	<ul style="list-style-type: none"> ▪ Provide compensation for damaged property or structures 	Some incidents of minor damage were compensated very quickly by contractor.
Operation of construction plant and equipment creating noise and vibration	<ul style="list-style-type: none"> ▪ Construction vehicles with functional noise suppressors. 	No noise complaints received from residents.
	<ul style="list-style-type: none"> ▪ Contractor will develop a daily work schedule of operations with CDC to identify hours and days of no work due to religious and cultural activities. ▪ Limit noisy construction activities to day time hours, i.e. construction activities prohibited between 6pm and 6am 	Contractor has agreed to work only between 8am and 6pm. The company assigned U Soe Min Thu, Project Engineer, as EMP monitoring officer. He used weekly progress registration with ledger.
	<ul style="list-style-type: none"> ▪ Advise residents to close windows and doors during construction 	
	<ul style="list-style-type: none"> ▪ Provide all workers with appropriate personal protection equipment (PPE - earmuffs etc) 	Most of the project staff and workers wear PPE equipment and were advised to use PPE for all at the working time. The company assigned U Aung Kyaw Soe, Supervisor, as HSE officer and he conducted weekly progress with register.

Mandalay, Chanmyatharzi & Pyigyidagon Roads and Culverts MOC-DUHD/NCB/CW-02 EMP Compliance Monitoring, Myayinander Ward, Sa Ward, Thinpangone Ward

*** All original and additional works completed on April 2019

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
Earthworks in road and culvert excavation	<ul style="list-style-type: none"> ▪ Limit machinery and earthworks to the defined pavement width and culvert sites 	In practice it has been impossible for contractor to stay within carriageway width due to the need for formworks at the sides of the concreted areas. Road shoulders will also be outside the carriageway.
	<ul style="list-style-type: none"> ▪ Minimize damage to tree roots where these are within the road pavement area wherever practicable 	Very few incidents of trees within carriageway. If necessary, the roadside tree cutting is implemented/supervised by MDCD, and school administrators at BEHS20.
Earthworks in road and culvert excavation	<ul style="list-style-type: none"> ▪ All machinery to be in sound condition and free from any leaks of lubricants and fuel 	The machinery (Excavator x 3, Roller x 2, Mixer x 2, Water Boxer x 1 and Dumper x 3) is all free from leakage.
Disposal of surplus spoil	<ul style="list-style-type: none"> ▪ Ensure spoil disposed of only in approved sites. ▪ Contractor to provide details of means and location of spoil disposal within each township 	The contractor reused the disposal of spoil for concrete road and cover slab form work.
Operation of construction machinery and vehicles generating emissions	<ul style="list-style-type: none"> ▪ Maintain construction equipment, clean all filters and use clean diesel ▪ Any machinery generating visible smoke is not permitted. ▪ Avoid unnecessary machine operation, turn machinery off when not in immediate use to avoid build-up of toxic fumes. ▪ Advise residents when prolonged machinery operation is planned. 	<p>No smoke emissions observed during operation of the machinery.</p> <p>On the construction of road network inside the BEHS20, all works took place before and after school classes.</p>
Construction activities during the dry season may cause dust nuisance	<ul style="list-style-type: none"> ▪ Apply water on exposed soil from water trucks or sprinklers. ▪ Limit or suspend construction activity along residential streets during periods of strong winds. ▪ Limit truck movement during periods of strong winds. 	The construction is taking place in the rainy season, so there is generally no need to use water for dust control.
	<ul style="list-style-type: none"> ▪ Apply water to roads to reduce visible dust levels due to construction activities. ▪ Use water from water storage ponds only with the express permission of the engineer and CDC 	In wet season no need to apply water for dust control in construction.
	<ul style="list-style-type: none"> ▪ Spoil disposal sites compacted to reduce exposure of loose debris from wind, if required 	
Solid waste generation	<ul style="list-style-type: none"> ▪ All construction and general waste generated by the project will be removed daily from the site by the contractor and disposed of in a designated YCDC waste disposal area. ▪ Liquid wastes are not to be disposed of within the residential areas. ▪ Provision of appropriate waste storage containers for worker's construction and hazardous liquid wastes. ▪ Municipal type waste from construction workers will be collected daily and disposed of in locations where YCDC provides regular collections. ▪ Hazardous waste such as oily rags or chemical containers, will be neutralized as far as possible, kept as dry as possible to reduce likelihood of leachate and will be disposed of at an approved YCDC disposal site. ▪ Contractors will ensure that there is no onsite burning of waste at all times. 	<p>MDCD pick up the rubbish by truck and then final disposed at Taung In-Myauk In Dump Site, Amarapura Township.</p> <p>In BEHS20 all rubbish is temporarily dumped at a designated area and MDCD pick up by truck then dispose at the same dump site.</p>

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
	<ul style="list-style-type: none"> Proper removal and disposal of any significant residual materials, wastes and contaminated soils prior to construction site handover. 	
Waste water and sewage	<ul style="list-style-type: none"> Install a portable toilet facility with an appropriate self-contained sewage tank for use by construction workers. Facility to be removed at the completion of the construction works 	Toilets have been provided and have been improved following comments from ADB and IC team. Grey water is drained adequately. Septic tank has not required emptying thus far.
	<ul style="list-style-type: none"> Washing of machinery and equipment, concrete trucks is not permitted within the wards 	No washing of equipment has been seen in the project areas.
Storage and handling of hydrocarbons; emergency or accidental spills of hydrocarbons	<ul style="list-style-type: none"> No hazardous chemicals and hydrocarbons will be stored within the township boundary. All fuels and lubricants to be supplied by designated fuel trucks or service vehicles 	No hazardous chemicals have been used thus far.
	<ul style="list-style-type: none"> Develop Hazardous Waste Management Plan to cover hazardous materials and oil storage and spills. 	This is covered in CEMP
	<ul style="list-style-type: none"> All spills will be cleaned up immediately as part of emergency response plan. Spill clean-up materials are available at each storage site. Maintain a register of all hydrocarbon spills 	Sand is available as spill clean-up material at each storage site.
Refuelling of machinery and servicing of equipment	<ul style="list-style-type: none"> Use drip trays during refuelling or servicing Provide safety equipment and training for all fuel handlers Machinery maintenance and servicing is not permitted with residential streets. All waste oil, filters to be removed from the sites. 	Impractical to service machinery outside block as there are no locations within several km that are not dense urban areas. Contractor is aware of need to minimise the potential for detrimental impacts.
	<ul style="list-style-type: none"> Refuelling of machinery is not permitted within residential areas. 	Impractical to refuel outside block as there are no locations within several km that are not dense urban areas. Contractor is aware of need to minimise the potential for detrimental impacts.
Demobilisation of contractor and rehabilitation of temporary site	<ul style="list-style-type: none"> Removal of all construction material, used or unused, and residual solid waste 	All rubbish and construction debris removed and properly disposed.
Use of water	<ul style="list-style-type: none"> Temporary construction facility to provide sufficient quantities of potable water supply for workers. Manage water use during periods of dry weather from designated water ponds Do not use water from storage ponds for dust suppression Machinery and equipment not to be cleaned near water storage ponds 	Contractor provided 20 litre bottles of drinking water for the workers. The contractor dug a tube well at workers camp site, with 100 feet depth and the water is not suitable for drinking but can be used for washing and bathing and stored the water in 2 proper fibre containers. The company has (1) water boxer and carry water for construction from MCDC water tank at Nya Nya 20, Thinpangone Ward, Pyigyidagon Township and Fire Fighting water tank at Ma Ma -13 block, Yuzana Road, Myayinander Ward. The construction was undertaken in the rainy season, so that there is no need to use water for dust control.
Traffic Management	<ul style="list-style-type: none"> Construct road along one side at a time 	The roads are too narrow to facilitate this construction sequence.
	<ul style="list-style-type: none"> Provide warning signs to prevent interaction with vehicles and machinery Involve CDC to liaise with residents and contractor 	Company signboards, warning signboards and project information signboards were erected at all of the construction locations.
Transport of construction materials; operation of machinery	<ul style="list-style-type: none"> Immediately repair any damage caused to community or private facilities. Ongoing community consultation regarding traffic movements 	Minor incidents of damage have been dealt with adequately.
	<ul style="list-style-type: none"> Compensation to be paid for any damage 	It has not been necessary for the company to pay any compensation.

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
Presence of construction workers in communities.	<ul style="list-style-type: none"> ▪ Social orientation conducted for all construction personnel at start of construction with the input from CDC 	Orientation provided for contractor project management staff for dissemination to workers.
	<ul style="list-style-type: none"> ▪ Ward protocols agreed; worker awareness as part of mobilization. ▪ Workers to respect ward and landowner boundaries, observe codes of conduct and avoid damage to properties and resources. 	No MOU but good relationships established at the start of the works between the contractor staff and local residents.
	<ul style="list-style-type: none"> ▪ Employ local persons where practicable 	The contractor used from 5 to 15 casual labourers, within this reporting period.
	<ul style="list-style-type: none"> ▪ Maximise the use of goods and services from local communities, where practicable 	Some materials like timber, bamboo and plastic sheets were bought from local shops.
Construction activities will occur within the ward boundary; operation of machinery within block roads	<ul style="list-style-type: none"> ▪ Contractor to provide health and safety policy 	Company assigned U Pyi Phyo Aung, Engineer as EMP monitoring officer and U Naing Htun Aung, Engineer as HSE officer for environmental assessment. They registered the progress with ledger.
	<ul style="list-style-type: none"> ▪ Provide driver safety awareness program for all drivers as well as community to reduce the likelihood of vehicle accidents or contact with people, structures. 	Provided in May 2018
	<ul style="list-style-type: none"> ▪ Hazard identification and risk assessments to reduce risk of harm and injury, prevent spills of hazardous substances. ▪ Prepare Work Method Statements for each activity ▪ Keep residents away from working machinery. ▪ Ensure reversing signals are installed on construction vehicles or provide flagmen as required to ensure safe operations ▪ Mark dangerous areas with reflective tape or other effective means to identify hazardous areas during the hours of darkness ▪ Provide safe access around work sites to keep public away from harm. Work on one side of the road at a time to provide access for residents. ▪ Provide cautionary signs in all operational areas use safety barriers and fences as required. 	The civil works were undertaken in dense residential areas so the public cannot be totally excluded from the general works areas. However, all relevant safety precautions were placed.
	<ul style="list-style-type: none"> ▪ Provide compensation for damaged property or structures 	No incidents of significant damage have occurred.
Operation of construction plant and equipment creating noise and vibration	<ul style="list-style-type: none"> ▪ Construction vehicles with functional noise suppressors. 	No noise complaints received from residents.
	<ul style="list-style-type: none"> ▪ Contractor will develop a daily work schedule of operations with CDC to identify hours and days of no work due to religious and cultural activities. ▪ Limit noisy construction activities to day time hours, i.e. construction activities prohibited between 6pm and 6am 	Contractor generally has worked only between 8am and 6pm, and in BEHS20 was before and during school classes.
	<ul style="list-style-type: none"> ▪ Advise residents to close windows and doors during construction 	
	<ul style="list-style-type: none"> ▪ Provide all workers with appropriate personal protection equipment (PPE - earmuffs etc) 	Most of the project staff and workers wear PPE equipment and were advised to use PPE for all at the working time.

Yangon, Dala Water Treatment, MOC-DUHD/NCB/CW-03 EMP Compliance Monitoring in Aunt Gyi West Ward, Ward 11/14 and Ward 6

*** Original works completed by end March and remaining portion of additional works currently on-going.

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
Operation of construction machinery and vehicles generating emissions	<ul style="list-style-type: none"> ▪ Maintain construction equipment, clean all filters and use clean diesel ▪ Any machinery generating visible smoke is not permitted. ▪ Avoid unnecessary machine operation, turn machinery off when not in immediate use to avoid build-up of toxic fumes. ▪ Advise residents when prolonged machinery operation is planned. 	No smoke emissions observed during the operation of machinery.
Construction activities during the dry season may cause dust nuisance	<ul style="list-style-type: none"> ▪ Apply water on exposed soil from water trucks or sprinklers. ▪ Limit or suspend construction activity along residential streets during periods of strong winds. ▪ Limit truck movement during periods of strong winds. 	The main construction took place in rainy season and nearby ponds so that there was no need to use water for dust control.
	<ul style="list-style-type: none"> ▪ Apply water to roads to reduce visible dust levels due to construction activities. ▪ Use water from water storage ponds only with the express permission of the engineer and CDC 	The contractor used water from ponds for concrete mixture. Contractor was advised that the waste water from the mixture shouldn't flow into ponds.
	<ul style="list-style-type: none"> ▪ Spoil disposal sites compacted to reduce exposure of loose debris from wind, if required 	
Solid waste generation	<ul style="list-style-type: none"> ▪ All construction and general waste generated by the project will be removed daily from the site by the contractor and disposed of in a designated YCDC waste disposal area. ▪ Liquid wastes are not to be disposed of within the residential areas. ▪ Provision of appropriate waste storage containers for worker's construction and hazardous liquid wastes. ▪ Municipal type waste from construction workers will be collected daily and disposed of in locations where YCDC provides regular collections. ▪ Hazardous waste such as oily rags or chemical containers, will be neutralized as far as possible, kept as dry as possible to reduce likelihood of leachate and will be disposed of at an approved YCDC disposal site. ▪ Contractors will ensure that there is no onsite burning of waste at all times. ▪ Proper removal and disposal of any significant residual materials, wastes and contaminated soils prior to construction site handover. 	YCDC pick up the rubbish by truck and the final disposal is at YCDC dump site. The workers collect and clean all the construction waste every day before leaving the construction sites.
Waste water and sewage	<ul style="list-style-type: none"> ▪ Install a portable toilet facility with an appropriate self-contained sewage tank for use by construction workers. ▪ Facility to be removed at the completion of the construction works 	The 2 sub-contractors hired 2 houses for 14 labourers. The fire extinguishers are in place at all labourer's houses. Suggested that the first aid kits should be placed at work sites. The labourers used existing toilets with septic tank at the rental houses. However, during this period of construction, the workers quarters were not commissioned anymore as not necessary.
	<ul style="list-style-type: none"> ▪ Washing of machinery and equipment, concrete trucks is not permitted within the wards 	The contractor has been warned to be careful when works are being carried out close to the ponds, including mixing of concrete etc.
Storage and handling of hydrocarbons; emergency or	<ul style="list-style-type: none"> ▪ No hazardous chemicals and hydrocarbons will be stored within the township boundary. ▪ All fuels and lubricants to be supplied by designated fuel trucks or service vehicles 	No hazardous chemicals have been used thus far.

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
accidental spills of hydrocarbons		
	<ul style="list-style-type: none"> ▪ Develop Hazardous Waste Management Plan to cover hazardous materials and oil storage and spills. 	The contractor has submitted an improved Contractor's Environmental Management Plan (CEMP) and is following thus far.
	<ul style="list-style-type: none"> ▪ All spills will be cleaned up immediately as part of emergency response plan. ▪ Spill clean-up materials are available at each storage site. ▪ Maintain a register of all hydrocarbon spills 	Sand is ready as spill clean-up material at each storage site.
Refuelling of machinery and servicing of equipment	<ul style="list-style-type: none"> ▪ Use drip trays during refuelling or servicing ▪ Provide safety equipment and training for all fuel handlers ▪ Machinery maintenance and servicing is not permitted with residential streets. ▪ All waste oil, filters to be removed from the sites. 	Impractical to service machinery outside block as there are no locations within several km that are not dense urban areas. Contractor is aware of need to minimise the potential for detrimental impacts.
	<ul style="list-style-type: none"> ▪ Refuelling of machinery is not permitted within residential areas. 	Impractical to refuel outside block as there are no locations within several km that would be more acceptable as refuelling areas. They purchase fuel in small 5 gallon barrels and take care to avoid spillage.
Demobilisation of contractor and rehabilitation of temporary site	<ul style="list-style-type: none"> ▪ Removal of all construction material, used or unused, and residual solid waste 	Will be checked when any additional works are completed.
Use of water	<ul style="list-style-type: none"> ▪ Temporary construction facility to provide sufficient quantities of potable water supply for workers. ▪ Manage water use during periods of dry weather from designated water ponds ▪ Do not use water from storage ponds for dust suppression ▪ Machinery and equipment not to be cleaned near water storage ponds 	Contractor is providing 20 litre bottles of drinking water for the workers and water from YCDC pipe line was used for washing and bathing. The construction started in the rainy season, thus no need to use water for dust control. The contractor used water from pond for concrete mixing.
Traffic Management	<ul style="list-style-type: none"> ▪ Drilling and pipe laying to occur at one tube well location at a time 	The warning signboard and project information signboards were placed at work sites and reflective safety cones and road blocks were used for safety at night.
	<ul style="list-style-type: none"> ▪ Provide warning signs to prevent interaction with vehicles and machinery ▪ Involve CDC to liaise with residents and contractor 	No damage to public property has occurred during construction.
Transport of construction materials to RO plant site; operation of machinery	<ul style="list-style-type: none"> ▪ Immediately repair any damage caused to community or private facilities. ▪ Ongoing community consultation regarding traffic movements 	No compensation has been paid by company.
Presence of construction workers in communities.	<ul style="list-style-type: none"> ▪ Social orientation conducted for all construction personnel at start of construction with the input from CDC 	Contractor conducted social orientation with CDC and community one month ahead of the beginning of construction.
	<ul style="list-style-type: none"> ▪ Ward protocols agreed; worker awareness as part of mobilization. ▪ Workers to respect ward and landowner boundaries, observe codes of conduct and avoid damage to properties and resources. 	No MOU but good relationships between the contractor staff and local residents were established at the start of the works
	<ul style="list-style-type: none"> ▪ Employ local persons where practicable 	The contractor has 5-15 local labourers
	<ul style="list-style-type: none"> ▪ Maximise the use of goods and services from local communities, where practicable 	Some materials like timber, bamboo and plastic sheets were bought from the local community-owned shops.
Construction activities will occur within the ward boundary; operation of machinery within block roads	<ul style="list-style-type: none"> ▪ Contractor to provide health and safety policy 	Contractor submitted the company's Health and Safety policies as an annex to the CEMP.
	<ul style="list-style-type: none"> ▪ Provide driver safety awareness program for all drivers as well as community to reduce the 	The contractor conducts informal meeting every night with all company staff, subcontractors,

Project Activities & Potential Causes of Environmental Impacts	Mitigation Measures	Status/Remarks
	likelihood of vehicle accidents or contact with people, structures.	labourers in charge and drivers and discussed for next day work schedule.
	<ul style="list-style-type: none"> ▪ Hazard identification and risk assessments to reduce risk of harm and injury, prevent spills of hazardous substances. ▪ Prepare Work Method Statements for each activity ▪ Keep residents away from working machinery. ▪ Ensure reversing signals are installed on construction vehicles or provide flagmen as required to ensure safe operations ▪ Mark dangerous areas with reflective tape or other effective means to identify hazardous areas during the hours of darkness ▪ Provide safe access around work sites to keep public away from harm. Work on one side of the road at a time to provide access for residents. ▪ Provide cautionary signs in all operational areas use safety barriers and fences as required. 	The civil works are being undertaken in residential areas so the public cannot be totally excluded from the general works areas. However, all relevant safety precautions are in place. Whilst safety procedures are generally being followed, an accident occurred on site in December. Procedures relating to non-construction workers entering the sites need review.
	<ul style="list-style-type: none"> ▪ Provide compensation for damaged property or structures 	No damage to private property was caused by the construction company.
Operation of construction plant and equipment creating noise and vibration	<ul style="list-style-type: none"> ▪ Construction vehicles with functional noise suppressors. 	No noise complaints received from residents
	<ul style="list-style-type: none"> ▪ Contractor will develop a daily work schedule of operations with CDC to identify hours and days of no work due to religious and cultural activities. ▪ Limit noisy construction activities to day time hours, i.e. construction activities prohibited between 6pm and 6am 	Contractor has agreed to work only between 8am and 5 pm. Working time is 08:00 AM to 12:00 Noon and 13:00 PM to 17:00 PM.
	<ul style="list-style-type: none"> ▪ Advise residents to close windows and doors during construction 	No noise complaints received from residents. The company assigned U Aung Thet Htoo, Project Manager, as EMP monitoring officer and he used ledger for noting progress.
	<ul style="list-style-type: none"> ▪ Provide all workers with appropriate personal protection equipment (PPE - earmuffs etc) 	Most of the project staff and workers have been wearing PPE equipment. Contractor is immediately notified if non-compliance to this safety measure is found. The company assigned an HSE officer.

Annex D : Fatal Accident – Timeline and List of Compensations**Fatal Accident - Timeline**

DATE	ACTIVITY	Primary persons / entities involved
➤ The Fatal Accident		
19 Dec 2018	Day when the fatal accident happened. Affected person / victim: U Thay Naing Oo (K) Tayoke Gyi – Company Driver, Authentic Construction He fell together with the ladder while climbing up to hand-over a putty plate (hand-tool) to a worker at top of the cylindrical concrete water tank	Authentic Construction Company
➤ Measures undertaken		
19 Dec 2018	The affected person was quickly provided with medical attention. Rushed to the Dala General Hospital and subsequently to Yangon General Hospital (YGH).	Authentic Company
20 Dec 2018	The victim was declared dead by the YGH after an operation to the head; at 04.20AM; Subsequently, all construction works were temporarily suspended as per advised by PMU-MOC and ADB, until further notice.	Authentic Company; PMU; IC
20 th to 25 th Dec 2018	Wake, Buddhist rites, financial assistances and burial period. All were provided and borne by Authentic Company	Authentic Company
26 Dec 2018	Accident Investigation Report submitted by Authentic Construction to PMU-MOC	Authentic Company
8 Jan 2019	Incident Report submitted by PMU-MOC	PMU; IC
10 Jan 2019	ADB responded to the report of PMU-MOC; Instructions were provided, including further assessment and recruitment of an OHS Expert	ADB; PMU; IC
17 Jan 2019	Social Security Board paid amount of MMK 298,900 to widow of deceased.	Authentic Company
➤ OHSE Intervention		
17 Jan 2019	A national OHS expert was engaged (short term contract) by IC to provide adequate and proper investigation, analysis, report and recommendation on the fatal incident. The OHS Expert: U Kun Zaw Thein	IC; OHSE
23 Jan 2019	Site assessment and evaluation of the OHSE	IC; OHSE

DATE	ACTIVITY	Primary persons / entities involved
29 Jan 2019	Accident Investigation Report and Recommendation to CEMP Improvements – submitted by the OHSE to IC and PMU-MOC	IC; OHSE; PMU
➤ ADB Intervention		
31 Jan 2019	ADB MYRM Safeguard Mission	ADB; PMU-MOC; YCDC; IC; Authentic
1 Feb 2019	Findings and recommendations provided to IC and PMU-MOC by ADB Aide Memoire – ADB Safeguard Review Mission	ADB; PMU; IC; OHSE; Authentic
➤ Further Actions and Compliance		
3 rd and 4 th Feb 2019	Authentic compliance to corrective action plans as recommended during the Mission.	Authentic Company
05 Feb 2019	OHSE submitted Report on the compliance of Authentic to the Recommendations for CEMP Improvements and Corrective Actions Plan	IC; OHSE; PMU
06 Feb 2019	Certification of Placation issued for both parties (Widow and Authentic Company) by Aunt Gyi West Ward Executive Officer	Authentic Company
➤ Resumption of Works		
6 Feb 2019	Notice to Resume issued to Authentic	PMU; IC
7 Feb 2019	Works officially resumed at Dala subproject site	PMU; IC; Authentic
7 Mar 2019	PMU-MOC submitted (complete) Incident Report to ADB	PMU; IC; ADB

List of Compensation Received by the Family

	Particulars	Amount (MMK)	Providing Entity	Date Received	Received by
1	Hospital and incidental expenses	not declared	Authentic Company	Dec 2018	
2	Wake and burial expenses	not declared	Authentic Company	Dec 2018	
3	Buddhist rituals and prayers	not declared	Authentic Company	Dec 2018	
4	Cash compensation	3,000,000	CEO and HR of Authentic Company	Dec 2018	Thandar Soe - Wife
5	Cash contributions	1,555,000	Friends and colleagues at Authentic Company head office	Dec 2018	Thandar Soe - Wife
6	Cash contributions	97,500	Friends and colleagues at Authentic Company production office	Dec 2018	Thandar Soe - Wife
7	Full salary for December 2018	245,250	Authentic Company	Dec 2018	Thandar Soe - Wife
8	Cash contributions	232,000	Friends and colleagues at Hlaing Tharyar warehouse	Dec 2018	Thandar Soe - Wife
9	Insurance Money	298,900	Social Security Board Office, Kamaryut Township	17-Jan-19	Thandar Soe - Wife
10	Insurance Money	7,648,900	Social Security Board	16-Mar-19	Thandar Soe - Wife
	Total cash received	13,077,550			