

Environmental Monitoring Report

Semi-Annual Environmental Monitoring Report (January – June 2017)
September 2017

VIE: Ha Noi Metro Rail System Project (Line 3: Nhon – Ha Noi Station Section)

Prepared by Ha Noi Metropolitan Railway Management Board for Ha Noi People's Committee and the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 01 June 2017)

| | | |
|---------------|---|---------------------|
| Currency Unit | – | Viet Nam Dong (VND) |
| VND1.00 | = | \$ 0.000046 |
| \$1.00 | = | VND 22,702 |

ABBREVIATIONS

| | | |
|-----------------|---|--|
| ADB | - | Asian Development Bank |
| AFD | - | Agence Francaise Development |
| CEMP | - | Contractor Environmental Management Plan |
| CENMA | - | Hanoi Centre for Environmental and Natural Resource Monitoring and Analysis |
| DGTresco | - | French Treasury |
| DEALIM | - | DAELIM industrial Co., LTD |
| CP | - | Construction Package |
| CO | - | carbon monoxide |
| EATC | - | Environmental Analyzing and Technique JSC |
| EIAB | - | European Investment Bank |
| EIA | - | Environmental Impact Assessment |
| ERB | - | Emergency Response Plan |
| FFEM | - | Fonds Français pour l'Environnement Mondial |
| HANCOR | - | Hanoi Construction Corporation |
| HPC | - | Hanoi Peoples' Committee |
| MONRE | - | Ministry of Natural Resource and Environment |
| MOT | - | Ministry of Transport |
| MRB | - | Hanoi Metropolitan Railway Management Broad |
| NO ₂ | - | nitrogen dioxide |
| GOV | - | Government |
| GRM | - | Grievance Redress Mechanism |
| QCVN | - | Viet Nam National Environmental Standards |
| PIC | - | Project Implementation Consultant |
| PMU1 | - | Project Management Unit 1 |
| PPE | - | Personal Protective Equipment |
| SO ₂ | - | sulfur dioxide |
| SPS | - | Safeguard Policy Statement |
| TIC | - | Total Installed Cost |
| TOR | - | Terms of references |
| URENCO | - | Urban Environmental Company |

WEIGHTS AND MEASURES

| | | |
|-------------------|---|----------------------------|
| dB(A) | – | Decibel (weighted average) |
| ha | – | hectare |
| kg/d | – | kilogram per day |
| km | – | kilometer |
| km ² | – | square kilometer |
| m | – | meter |
| m ² | – | square meter |
| m ³ | – | cubic meter |
| m ³ /d | – | cubic meters per day |
| m ³ /s | – | cubic meters per second |
| mg/m ³ | – | milligrams per cubic meter |
| mm | – | millimeter |

NOTE

- (i) In this report, "\$" refers to US dollars.

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I. INTRODUCTION

A. Project background

1. Hanoi Pilot Urban Railway Line No.3 (Nhon – Hanoi Railway Station) Project is the first piloted project in developing the Mass Transit Model in urban area of Hanoi. The project comprises 12.4 km long section that goes from Nhon along the National Road 32 and into the urban area of Hanoi. The evaluated section has a total length of 8.4km with 8 stations, whereas the underground section has a length of 3.5 km including 4 underground stations, plus a 500 m long transition section.

2. The project is divided into nine construction packages (CP-01 to CP-09). The first five are mainly related to the execution of the civil works (CP-01: Evaluated section- line; CP-02: Evaluated stations; CP-03: Underground section and stations; CP-04: Depot infrastructure and CP-05: Depot architectural works) and the other four (CP-06 - CP-09) cover the supply and installation of the power supply, tracks, rolling stock, equipment, etc. The Project is co-financed by loans of, respectively, 250 million euros (EUR) from the French Treasury (DGTresor), 220 million EUR from the Asian Development Bank (ADB), 110 million EUR from the Agency Française de Development (AFD) and 73 million EUR from the European Investment Bank EIB. The counterpart financed by the Hanoi People Committee (HPC) is equivalent to 130 million EUR. These figures sum 783 million EUR that was the original total investment cost based on the feasibility study of 2009. The last Total Investment Cost (TIC) of the Project was calculated in an amount of 1,176 million EUR in 2011, and approved by the HPC in June 2013 with 900 million EUR coming from Official Development Assistance (ODA) source and 276 million EUR being the Vietnamese counterpart funds.

3. Socially the project will be a benefit to the population in the project area. The population, located in the western area of Ha Noi will, by using the metro, avoid traffic congestion and reduce traffic safety hazards (especially traffic accidents); reduce health-related problems (especially respiratory problems) due to air pollution and dust; and save time and benefit from a good transportation alternative to go to Ha Noi Centre.

4. Beside the benefits, the project also has potential negative impacts on the local environment during both construction and operation stages. The updated Environmental Impact Assessment (EIA) was cleared in 2013, which included the Environmental Management Plan (EMP). Five mobilized contractors (CP-01, CP-02, CP-04, CP- 05 and CP-03 mobilized in February 2017) were required to prepare Contractor's EMP (CEMP) for detailing their mitigation action plans to address construction impacts specific to site conditions. The CEMPs of CP-01, CP-02, CP-04 and CP-05 were approved prior to construction start; the CEMPs of CP-03 was prepared by the CP-03 contractor, and submitted by MRB on 28 July 2017 and was under review by ADB when this report was prepared.



Figure 1. The project map

5. This environment monitoring report is in line with the TOR for the environmental consultant for the transition period.¹ The report documents the implementation of Environmental Impact Assessment (EIA) and Contractor Environmental Management Plans (CEMP) of three civil work packages. The report was prepared through reviewing the external monitoring report prepared by the external environmental consultant in July 2017; and monthly, periodical reports of all relevant stakeholders such as SYSTRA (project implementation consultant, PIC), Hanoi Metropolitan Railway Management Board (MRB, the implementing agency), and three ongoing works contractors (CP01, 02 and 05). This report presents the results of the environmental management performance and internal monitoring activities for the period of January to June 2017. The report covers the following:

- Status of compliance with ADB environmental loan covenants and with the environmental requirements of the Government of Viet Nam during the report period;
- Status of implementation of the environmental mitigation measures during the report period based on the EIA and CEMPs, including documentation of complaints received and corresponding action/resolution; and
- Results of the environmental monitoring of air quality, noise, vibration and surface water quality conducted by the three contractors.

B. Project Implementation Progress

On-going Site Works

6. The environmental monitoring mission focused on the construction packages of the Project as CP01 – Elevated section- Line; CP02 – Elevation Station; CP03 – Underground Works, Line and Stations; CP04 – Depot Infrastructure; and CP05 – Depot Building. The scope of each contract package is summarized in Table 1.

Table 1. Scope of construction packages

| Package | Scope of work | Contractor | Start Date | Duration of contract |
|---------|---|-----------------|------------|----------------------|
| CP01 | Elevated rail section: comprises the construction of elevated viaduct structure from the Depot to the National Road 32, Ho Tung Mau, Xuan Thuy, Cau Giay and interfaces with the underground section at the beginning of Kim Ma street | DEALIM | 04/7/2014 | 30 months |
| CP02 | Elevated station: The package comprises 8 elevated stations which are arranged equally along the elevated rail line section of Metro line 3, each station shall constitute a component under this package, which included: civil work and structure; steel structure architecture and finisher; low voltage and plumbing and drainage | POSCO | 27/05/2014 | 57 months |
| CP03 | Tunnel and underground stations: it comprises all the underground works that contain a ramp, 2 | HYUDAI & GHELLA | 06/02/2017 | 60,5 months |

¹The contract of the environmental monitoring consultant (IDOM) ended in September 2015, and the new Project Management Consultant is planned to be mobilized in the fourth quarter of 2017. During the period from November 2015 to June 2017 environmental monitoring activities of the Project have been conducted with the assistance of ADB.

| Package | Scope of work | Contractor | Start Date | Duration of contract |
|---------|---|------------|------------|----------------------|
| | parallel tunnels and 4 stations | | | |
| CP04 | Infrastructure of Depot: it involves complete underground and basic infrastructure of Depot | VINCONEX 2 | 22/10/2010 | Finished |
| CP05 | Architecture works of Depot: it comprises constructing all buildings in the Depot | HANCORP | 12/01/2013 | 61 months |

7. Works on packages CP01 (elevated section) and CP02 (elevated stations) have been implemented generally satisfactorily, with the assessed physical progress being 67% for CP01, 38,07% for CP02, and 41,65% for CP05 as of June 2017. The delay in obtaining a permit from railway authorities for erection of U-girders within the railway crossing is affecting the CP01 works schedule. Actual progress of CP02 is still behind schedule. Works on depot package CP05 are now temporarily stopped in June 2017 to wait the final decisions on its work plan. No construction works of CP04 occurred during January to June 2017. The CP03 contract (tunnel and underground stations) was signed on 30th October 2015, with contract duration of 49 months, but the contractor mobilized in February 2017 only (due to delays in site hand-over). During the report period, the CP-03 initiated detailed engineering design. Construction works have not yet started, but are expected to start in August 2017 (including works for preparing sites such as erecting fences and information boards, facilities and tree removal, establishment of work area).

8. The progress of three ongoing civil work packages (CP01, CP02 and CP05) up to June 2017 are summarized in the table below:

Table 2. Work Progress as of June 2017

| Contractor | Progress as of 30 June 2017 | Construction activities From Jan to Jun 2017 | Location of construction |
|--|-----------------------------|---|--|
| CP01 – Elevated section – Line | | | |
| DAELIM | 67 % | Bored pile | From P92 to P97 (Remaining piles) |
| | | Substructure activity | Access bridge, Y bridge, P229-P238, P244-246, P281-P286, P310-P342, Ring Road Bridge, Cross Over 4 bridges and P359-P381 |
| | | U Girder erection Erection of U girder has been temporarily stopped since 10/03/2017 | P184 – P194 (Dich Vong Ward); P131 to P133 |
| | | Superstructure activity | Cross Over 2, Nhue bridge, 2 nd Ring Road Bridge |
| | | Construction of Ram to Depot and to Underground | The Depot (Tay tuu Ward) |
| CP02 – Elevated section – Station | | | |

| | | | |
|------------------------------------|--------------------|---|--|
| POSCO | 38.07 % | - Casting Concrete of beams, Pier Cap - Middle part of concourse slab casted from station 01 to 05 - All pier caps are casted and concourse slab for stations 6 and 7, platform level construction is under preparation - For station 7, middle part of slab is being casted | Station 1 to station 7 (Minh Khai, Phuc Dien, Phu Dien, Mai Dich, Dich Vong Hau, Dich Vong and Quan Hoa Wards) |
| | | - Retaining wall construction completed in May 2017 - Construction of underground tank - Double T beam erection | Station 8 (Ngoc Khanh Ward) |
| CP04 – Depot infrastructure | | | |
| VC 2 | Contract finalized | - Construction activity has finished | The Depot (Tay Tuu Ward) |
| CP05 – DEPOT building | | | |
| HANCORP | 41.65% | - Steel fabrication for building No17-19 - Above grade (Superstructure) of OCC building, masonry brick of staircase N01 is completed for 1 st floor on 18 th May 2017 - No major work items were done in June 2017 | The Depot (Tay Tuu Ward) |

Construction Activities during the Previous Reporting Period

9. Construction activities during the months covered by the third semi-annual monitoring report (January to December 2016) included bored pile, substructure activity and U girder erection of CP01; construction of pier cap, casting concrete of beams for station 1 to 7 and shored excavation, casting concrete of piles, caps for station 8 of CP02; foundation of building 28-29, construction of OCC building and Building N06.

Planned Construction Activities for the Next Reporting Period

10. In next six months (August to December 2017), the construction will focus on U girder erection, substructure activity, superstructure and removing fence and clearing the sites to complete construction works of CP01; construction and casting of pile cap for station 8 and construction of concourse slabs and platform for other stations of CP02; and construction of buildings of CP05. Construction of the tunnel under CP03 is anticipated to start with the preparation of site such as fence, tree cutting and removal, facilities removal in August 2017.

II. INSTITUTIONAL SETUP AND RESPONSIBILITIES FOR EMP IMPLEMENTATION AND SUPERVISION

A. Institutional responsibilities for environmental management

11. The roles and responsibilities of the different project stakeholders in EMP implementation and monitoring are described in Table 3.

Table 3. Institutional responsibilities for environmental management

| Organization | EMP Responsibility committed in updated EIA (2013) | Current Implementation status |
|--------------|--|---|
| HPC/MRB | <p>Project owner with overall responsibility for project construction and operation.</p> <p>Ensure that sufficient funds are available to properly implement the EMP.</p> <p>Ensure that EMP provisions are implemented for the entire Project regardless of financing source.</p> <p>Ensure that Project implementation complies with the GOV and ADB's environmental policy principles and requirements</p> | <p>Being complied with</p> |
| | <p>Project implementing agency with designated overall responsibility for project construction and operation including environmental performance.</p> <p>Submit semi-annual monitoring reports on EMP implementation to ADB and MONRE.</p> <p>Engage external expert(s) to undertake annual independent verification of monitoring information submitted to ADB and to determine if various EMP provisions are being implemented in thorough and timely manner and in accordance with budget identified within the EMP.</p> <p>Submit annual external environmental monitoring reports to ADB.</p> <p>Ensure that tender and contract documents include the EMP.</p> <p>Liaison with Department of Defense and Vietnamese Army on UXO issues.</p> <p>Ensure that EMP provisions are strictly implemented during pre- construction, construction and operation phases of the project.</p> | <p>Being complied with</p> <p>The annual monitoring report for Jan-Dec 2016 was approved by both ADB and MRB in Jan 2017.</p> <p>This semi-annual monitoring report covers the period Jan-Jun 2017.</p> <p>The external environmental monitoring report was drafted for 2016 in June 2017 and is under review by MRB. It is yet to be submitted to ADB. The report will be submitted to MONRE for information.</p> |
| | <p>Establish a grievance redress mechanism (GRM) as described in the EIA.</p> <p>Establish an Environmental Management Unit (EMU) staffed by qualified and experienced environmental officer and occupational health and safety officer.</p> | <p>Being complied with.</p> <p>A Grievance, Receiving, Screening and Settling Unit (GRSSU) was established at the MRB per Decision No.63/QD-DSDT-VP dated 22 May 2017.</p> <p>A draft final GRM has been developed in consultation with ADB and submitted to HPC for clearance and approval on 3 July 2017 (an update of the status of GRM establishment shall be provided in the next semi annual report).</p> <p>An EMU has not been established, but MRB has signed a contract with an experienced environmental specialist in April 2017, in charge of environment and safety issues at MRB.</p> |

| | | |
|---|--|---|
| | <p>Undertake monitoring of the implementation of the EMP (mitigation and monitoring measures) with assistance from PIC.</p> | <p>Being complied with</p> <p>The newly appointed environment officer conducts weekly inspections of the construction sites. There are four groups (G1, G2, G3 and G5) in charge of construction packages as CP01, CP02, CP03 and CP05 conduct daily inspections of construction sites, including environment and safety. The members of these groups mostly are civil engineers.</p> <p>The environment consultant has conducted weekly sites visits and participated monthly joint-meetings among MRB, Contractors and PIC in the framework of preparing this monitoring report.</p> |
| <p>Project Implementation Consultant (PIC) – SYSTRA</p> | <p>Undertake environmental effects monitoring during pre-construction and construction phases for depot, viaduct and tunnel components</p> | <p>Complied with</p> <p>There is a change in actual contract of PIC. Based on the contract, PIC does not take responsibility to implement the effect monitoring program.</p> <p>GENMA conducted this monitoring from 2012 to Feb 2015. From 2015 to June 2016, contractors of CP01, 02 and 05 have been conducting the environmental effects monitoring.</p> <p>The latest environmental effects monitoring reports were prepared in June 2017 by three contractors (CP01, 02 and 05)</p> |
| | <p>Undertake environmental training for EMU, HRB/PMU staff as required in the EMP</p> | <p>Partly complied with</p> <p>There is a change in actual contract of PIC. Based on the contract, PIC does not take responsibility to conduct environmental trainings.</p> <p>IDOM (PMSC) conducted trainings in 1st and 2nd July 2013. No training was conducted since then.</p> |
| | <p>Monitor the environmental performance of contractors in terms of implementation of mitigation measures for pre-construction and construction phase as specified in the EMP.</p> <p>Monitor over-all implementation of various EMP provisions.</p> <p>Review and approve the specific environmental management plans (e.g., Spoils Disposal Plan, Dust Control Plan, Noise Control Plan, etc.) to be prepared by contractors as specified in the EMP</p> | <p>Being Complied with</p> <p>PIC carries out daily site inspection in term of contractor's mitigation measures implementation, reviews and revises contractor's monthly internal monitoring reports incorporated with a checklist on EMP implementation.</p> <p>PIC also has reviewed and issued "No objection" for 05 CEMPs to submit to MRB and ADB.</p> <p>CEMP of CP03 was submitted to PIC on the end of May 2017 and is</p> |

| | | |
|--|--|--|
| | | under review and revision. |
| | Prepare monthly environmental monitoring reports on EMP implementation. | Being complied with. PIC has provided an additional short section of environmental management in their monthly monitoring reports for each construction package. The section shows the status of environmental reports they received in month, the findings from daily site inspections and respective corrective actions. |
| Project Management Support Consultant (PMSC) | Ensure that the PIC is implementing its responsibilities specified in the EMP such as conduct of environmental effects monitoring; monitoring of environmental performance of contractors; implementation of environmental training for EMU, HRB/PMU staff; over-all monitoring of EMP implementation; and preparation of monthly environmental monitoring reports for submission to HRB Assist HRB/PMU/EMU in preparing semi-annual environmental monitoring reports for submission to ADB. The semi-annual reports shall be based on the monthly reports prepared by the PIC as well as PMSC's own observations/inspections to assess progress of EMP implementation during pre-construction and construction phases. | Complied with up to Sep 2015 (in view that the contract of PMSC-IDOM was ended. ADB is providing support to bridge the gap until the PMSC Phase 2 is mobilized. The Project expects a new PMSC will be mobilized no later than the end of 2017. |
| | Review and approval of specific environmental management plans prepared by contractors prior to commencement of site works. | Complied with The PIC has taken responsibility for these tasks. |
| <u>Contractors:</u> CP01: DAELIM; CP02: POSCO; CP03: HGU JV CP04: VINACONEX CP05: HANCORP | Appoint and environment, health and safety officer to oversee timely and proper implementation of mitigation and monitoring measures specified in the EMP Implement and provide sufficient funding and human resources for proper and timely implementation of required mitigation measures in the EMP for pre-construction and construction phases Prior to start of site works, prepare environmental management action plans in the form of specific management plans (Dust and Noise Control Plan, Spoils Disposal Plan, Traffic Management Plan, | Complied with |

| | | |
|-----------------|--|--|
| | etc.) specified in the EMP. Such plans shall be submitted to the PSC for approval. | |
| | Undertake land subsidence and settlement monitoring program specified in the EMP during the pre-construction and construction phase (TBM contractor only) and submit monthly reports to PIC and HRB/PMU/EMU | Being complied with CP03 contractor (Joint Venture of Hyundai and Ghella) has been carrying out a land subsidence and settlement survey for the site of station 9. |
| External Expert | <p>Undertake independent annual reviews to verify the monitoring information submitted by HPC/HRB to ADB on the implementation of the environmental management plan (EMP). The external expert shall also assess if various EMP provisions are being implemented as required.</p> <p>Review and verify the accuracy, breadth, depth, and relevance of information provided by HRB to ADB with regard to EMP implementation</p> <p>Determine if EMP provisions (mitigation, monitoring, reporting, etc.) are being conducted in thorough and timely manner and in accordance with budget identified within the EMP.</p> <p>Submit environmental monitoring report to ADB and HPC.</p> | Being complied with The external monitoring report for 2016 has been submitted in July 2017 that is under review and revision. |
| MONRE | Approval of GOV EIA in accordance with Law on Environment Protection 2005 | Complied with |
| | Environmental monitoring and supervision during construction and operation | Not complied with. No environmental inspection was conducted by MONRE from the construction commencement to June 2017. |
| Ha Noi DONRE | <p>Monitoring environmental performance of project throughout construction and operation</p> <p>Participate in resolution of community complaints on environmental impacts of the project during construction and operation</p> | Not complied with. No environmental inspection was conducted by Ha Noi DONRE from the construction commencement to June 2017 |

Responsibilities of Parties in Environmental Monitoring and Supervision

12. No major changes of the environmental monitoring and supervision structure of the Project occurred since the last report. MRP has assigned an environmental officer at PMU1 to be in charge of monitoring environmental and safety issues. The current organizational structure for the implementation of environmental monitoring and supervision is presented in Figure 1.

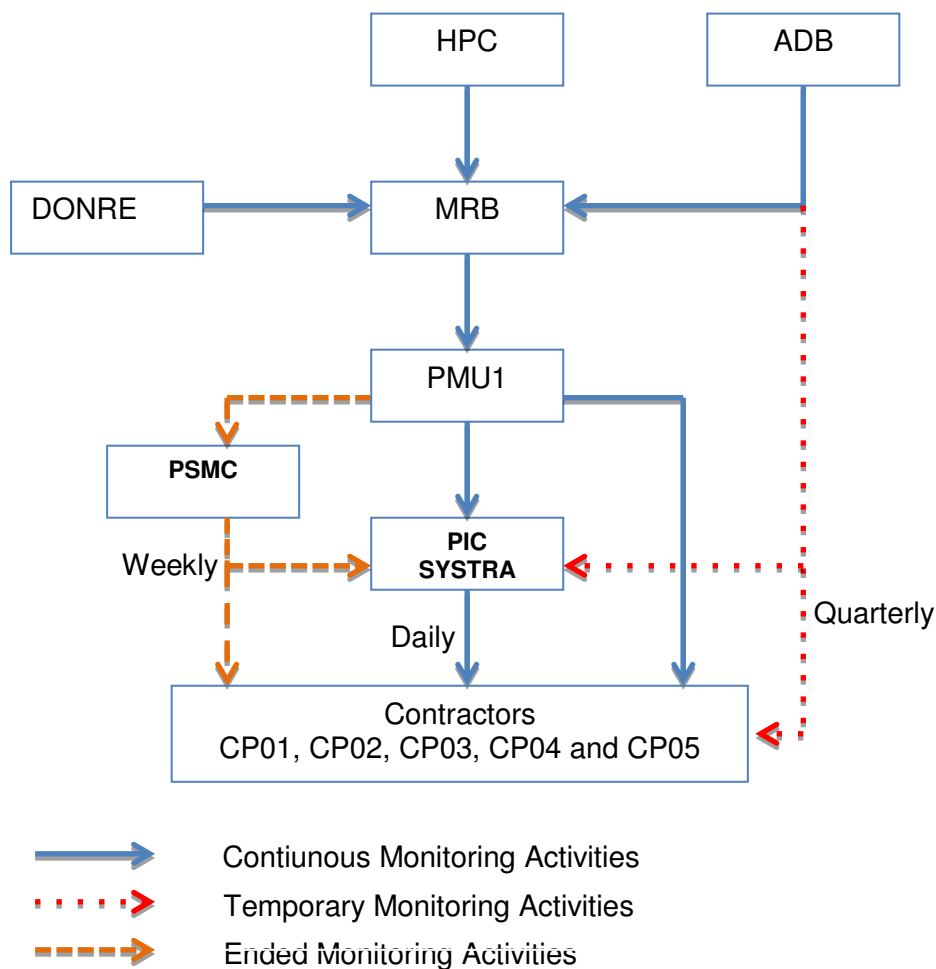


Figure 2. Environmental and safety monitoring structure

Environmental Reporting System

13. In accordance with the approved EMP, monthly, semi-annual and annual monitoring reports on EMP compliance as well as quarterly environmental quality monitoring reports must be prepared by relevant stakeholders. The detail status of current reporting is described in Table 4. The reporting process is illustrated in Figure 3.

Table 4. Project environmental reporting system assessment

| Agency | Required reports in approved EIA | To Whom | Current status of Reportage |
|--------------|---|---------|---|
| PIC (Systra) | Monthly environmental monitoring reports on environmental performance of contractors. | MRB | <p>Being complied with</p> <p>In the last annual monitoring report, PIC prepared monthly reports on Project quality and progress in which only a short section on health, safety environment was included and the section did not include any substantive information. Systra agreed at that time to include a more comprehensive section on EMP implementation until the PMS Phase 2 Consultant is mobilized.</p> <p>Since Feb 2017, PIC has included an additional section for environmental management in their monthly reports that has showed the most important information related to environmental management of contractor level.</p> |

| | | | |
|-------------|---|-----|--|
| | Quarterly reports on results of environmental quality monitoring | MRB | Being complied with CENMA prepared quarterly environmental quality monitoring reports from Sep 2012 to Feb 2015. Since November 2015, contractors have been preparing semi-annual environmental quality monitoring reports. The last environmental quality monitoring was undertaken in June 2017 by three contractors (CP01,02 and 05). PIC has been reviewing these reports and issuing No objection to the reports. |
| PMSC (IDOM) | Assist MRB to prepare semi-annual environmental monitoring reports (SEMR) | MRB | Complied with Consultancy services of IDOM ended in September 2015. Since then, SEMRs have been temporarily prepared by ADB consultants. |
| MRB | Semi-annual environmental monitoring reports (SEMR) | ADB | Being Complied with The previous annual environmental monitoring report for 2016 was prepared and approved by ADB in Jan 2017. This report covers Jan-Jun 2017. |
| | Annual external environmental monitoring report | ADB | Being complied with The external monitoring report for the year of 2016 has been submitted to ADB in July 2017 and is under review and revision. |
| Contractors | N/a | MRB | Preparing monthly internal environmental and safety monitoring reports and semi-annual environmental quality monitoring reports, reviewed by PIC and then submitted to MRB. The last monthly reports of CP01 was for June 2017. The last semi-annual reports of CP02 was submitted in April 2017. |

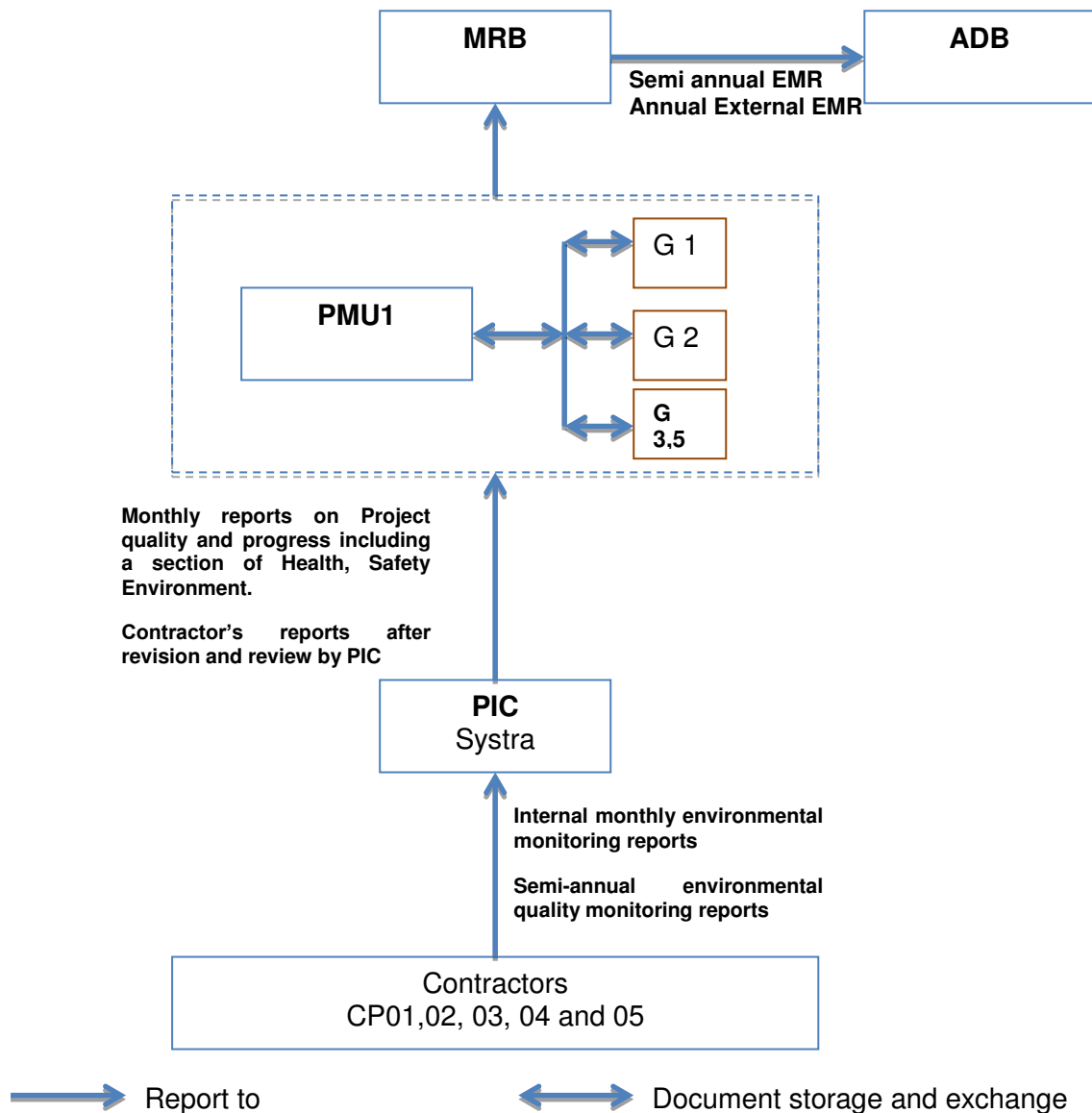


Figure 3. Current reporting process

Note: under PMU1, groups have been established to manage all packages of the project such as a group in charge of CP01, another in charge of CP02, etc. and these groups have responsibility of storing documents, resolving problems related the contractors or consultants under their management.

Staff resources for EMP implementation

14. **Contractors.** During the reporting period, the contractors have established HSE management units in charge of environment and safety to ensure implementation of the CEMP. Site inspections for safety issues are conducted daily by safety engineers of contractors; the contractors have always at least one safety engineer at site during construction time. All environmental and safety staff of contractors have been trained on a HSE course and have certificates on labour safety supervision issued by authorized agencies.

15. **Project Implementation Consultant (PIC).** The PIC has assigned one international HSE specialist that has continually been providing support to the MRB through close inspection of implementation of the environmental and safety compliance at site. However, in view of large and long construction site (about 12

km) and very strict requirements on safety, the specialist's focus has been on safety issues mainly, with less attention to EMP compliance monitoring.

16. **MRB.** Assigned an experienced environmental specialist as the specific officer for environmental management since April 2017, this officer has conducted regular site inspections, the review of environmental reports prepared by contractors, PIC and other all tasks related to environmental and safety issues. The environmental officer has more than 9 years of experience working as research and consulting staff to prepare environmental assessments and monitoring reports in which 3 years working for ADB, WB and ODA projects. MRB has still requested the members of technical group (G1, G2, G3 and G5) in Department 1 (PMU1) to supervise the EMP implementation in parallel with monitoring package quality, progress. All findings from their monitoring shall be reported to the environmental officer for corrective actions. EMP compliance monitoring is paid more attention than during the period of the last report.

17. A list of persons in charge of environmental and safety activities of stakeholders also is provided as in the succeeding table:

Table 5. List of main persons specifically in charge on environmental and safety issues

| Name | Position | Background |
|--|-------------------------|---|
| CP02 contractor – Posco | | |
| Pak Deok Do | Safety Manager | Civil Engineer |
| Nghiem Xuan Duc | HSE Manager | Labor safety Engineer |
| Nghiem Xuan Anh | Environmental staff | Master in Environmental Science |
| 04 staffs | Safety Engineers | Different backgrounds but all were trained on HSE monitoring on construction sites. |
| CP01 contractor – Daelim | | |
| Vu Van Thuy | HSE Manager | Civil Engineer |
| Nguyen Thi Thu | HSE document control | Bachelor in Economy |
| Tran Minh Quang | HSE Nurse | Doctor |
| Do Minh Chien | HSE night shift manager | Safety Engineer |
| 12 staffs | Safety Engineers | Different backgrounds but all were trained on HSE monitoring on construction sites. |
| CP05 – Hancorp | | |
| Nguyen Thanh Son | HSE Engineer | Civil Engineer |
| Project Implementation Consultant (PIC) | | |
| Benoit ST-LAURENT | Safety Engineer | HSE Engineer |
| MRB – PMU1 | | |
| Tran Trung Thuan | Environmental Officer | Master in Environmental Science |
| Bui Quang Anh | Safety Engineer | Marine and bridge construction |

B. Incorporation of Environmental Requirements into Project Contractual Arrangements

18. The updated EMP (2013) was incorporated in the bidding documents of civil works during the procurement stage. The contractors were required to consider the requirements of the EMP when submitting their bids. The contractors also were required to prepare their own construction EMP (CEMPs). These CEMPs were reviewed and revised by PIC and MRB, and submitted to ADB for clearance and approval. The status of CEMP approval is presented in Table 6.

Table 6. The status of CEMP

| No | Status | CP01 | CP02 | CP03 | CP04 | CP05 |
|----|---|-------------------|-------------------|----------------|-------------------|-------------------|
| 1 | Send PIC for review | 06/09/2014 | 13/01/2014 | 20/02/2017 | 15/12/2013 | 21/02/2013 |
| 2 | Issue No objection by PIC | 10/09/2014 | 05/02/2014 | 08/05/2017 | 28/12/2013 | 07/03/2013 |
| 3 | MRB Review and agree to submit CEMP to ADB for clearance and approval | 4/6/2016 | 02/04/2014 | 28/07/2017 | 22/01/2014 | 08/04/2013 |
| 4 | ADB's receipt | 20/10/2014 | 03/04/2014 | 28/07/2017 | 19/01/2013 | <u>08/04/2013</u> |
| | 1 st comments | 18/12/2014 | 30/06/2014 | | <u>01/02/2013</u> | |
| | 2 nd comments | 23/01/2014 | 15/10/2014 | | | |
| | 3 rd comments | 01/06/2016 | 21/10/2014 | | | |
| | 4 th comments | <u>15/12/2016</u> | <u>15/12/2014</u> | | | |
| 5 | ADB's approval | Approved | Approved | Not Yet | Approved | Approved |

19. The CEMP of CP03 contractor was submitted to ADB at the end of July 2017 and is under review by ADB. The status of CP03's CEMP shall be updated in the next report.

III. COMPLIANCE WITH ENVIRONMENT RELATED PROJECT COVENANTS

20. Table 7 shows the status of compliance with ADB's loan covenants relating to environment, health and safety during this report period.

Table 7. Status of Compliance with ADB Loan Covenants

| Schedule | Para No. | Description | Remarks/Issues (Status of Compliance) |
|------------|----------|--|---|
| Schedule 5 | 3 | Capacity Support for HRB. The Borrower shall ensure that the capacity development program for strengthening HRB's capacity is implemented in time to ensure the timely and successful implementation of the Project. It is expected that the said capacity building program will be financed under a separate cover. | Partially complied with. The PMS Phase 1 consultant was mobilized on 1 April 2014. Capacity building courses commenced in May 2014. MRB's capacity has increased through several training courses completed on FIDIC, contract management, safeguards, ODA management and gender. The PMS Phase 1 contract was ended and the consultant demobilized. The PMS Phase 2 consultant is expected to be mobilized in Q4 2017. ADB has financed individual consultants to fill the gap between PMS Phase 1 and Phase 2 to ensure continuous project management support to MRB, especially on social and environmental safeguards. . |
| Schedule | 6 | Governance and Anticorruption. HPC shall, | Partially complied with. |

| Schedule | Para No. | Description | Remarks/Issues (Status of Compliance) |
|------------|----------|---|--|
| 5 | | <p>cause HRB to, ensure that during the project implementation: (a) relevant provisions of ADB's Anticorruption Policy (1998, as amended to date) are included in all bidding documents for the project; (b) contracts, financed under the project, include provisions specifying the right of ADB to audit and examine the records and accounts of HRB, contractors, suppliers, consultants, and other service providers as they relate to the project; (c) period inspection of contractors is undertaken to ensure that fund withdrawal and settlement procedures are followed; and (d) a Project website is established within 12 months of the effective date, accessible by the general public, to disclose information about various matters concerning the project, including general project information, procurement, project progress, and contact details in the English and Vietnamese languages. The website will also provide a link to ADB's Integrity Unit for reporting to ADB any grievances or allegations of corrupt practices arising out of the project and project activities. With regard to procurement, the website shall include information on the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of contract awarded, and the list of goods and works procured.</p> | <p>A project website was established, but information disclosure needs improving, especially on the project's updated progress and the GRM, to provide the stakeholders, including the affected people with clearer picture of the project. This need is highlighted given the persistent resettlement grievances at the depot and recently, the stations of underground section as well as upcoming tree cutting and relocation in corridor alongside of the underground section.</p> <p>The requirement of updating GRM information on the project website has not been implemented yet.</p> <p>A communications strategy has been formulated for the project. ADB has mobilized communications consultants to provide support to MRB / HPC to implement the strategy, including improving the project website and strengthen communications on the project's on-going construction work, social and environmental safeguards.</p> |
| Schedule 5 | 7 | <p>Grievance Redress Mechanism. HPC shall ensure that within 60 days from the effective date, a complaint and problem management task force, acceptable to ADB, is established and functioning effectively to: (a) review and document eligible complaints of project stakeholder; (b) proactively address grievances; (c) provide the complainants with notice of the chosen mechanism/action; and (d) prepare periodic reports to summarize the number of complaints received and resolved, and final outcomes of the grievances and chosen actions and make these reports available to ADB upon request. Eligible complaints include those related to the project, any of the service providers, any person responsible for carrying out the project, complaints on misuse of funds and other irregularities, and grievances due to any safeguard issues, including resettlement, environment, ethnic minorities, and gender.</p> | <p>Being complied with.</p> <p>The requirement of establishing a GRM acceptable to ADB has had significant improvements from the last report as the Grievance, Receiving, Screening and Settling Unit (GRSSU) was established at MRB per Decision No.63/QD-DSDT-VP dated 22 May 2017 and a draft final Grievance Redress Mechanism have been prepared and submitted to HPC for clearance and approval on 3 July 2017.</p> |
| Schedule 5 | 8 | <p>Environment. HPC shall, and shall cause HRB to, ensure that: (a) the project is designed, constructed, and operated in accordance with the environmental laws and</p> | <p>Being complied with.</p> <p>(a) Complied with.</p> <p>(b) Complied with. Contractors, PIC and MRB have assigned qualified</p> |

| Schedule | Para No. | Description | Remarks/Issues (Status of Compliance) |
|------------|----------|---|---|
| | | <p>regulations of the Borrower, SPS, EIA, and EMP; if there is any discrepancy between the Borrower's laws and regulations, and SPS, then SPS shall apply; (b) the institutional arrangements for effective implementation of environmental safeguards including the grievance redress mechanism (as described in EIA) are in place before commencement of works construction; (c) environmental approvals are submitted to ADB; (d) works contracts are supervised and monitored in accordance with EMP; (e) the mitigation measures as specified in EIA and EMP, are fully implemented in a timely manner and are incorporated into the bidding documents and works contracts, and compliance of contractors to the provisions of the EMP is ensured; (f) if any unanticipated environmental impacts become apparent during project implementation, a corrective action plan is prepared and approved by ADB; (g) the EMP is implemented in full to address the environmental aspects during the construction of the project, including actions to be taken for auditing, measuring and monitoring the environment and safety conditions of the work, and responding to breaches in environmental or safety requirement; (h) if there are any additional components or changes in the project resulting in adverse environmental impacts and are not within the scope of EIA, new or supplementary environment assessment report, consistent with the SPS, is prepared and approved by the relevant agencies of the Borrower and ADB; (i) semiannual reports on implementation of the EMP are submitted to ADB on a timely basis; (j) project components to be funded by the Borrower and other financiers adopt the provisions of EIA and EMP and comply with SPS; and (k) HPC engages and retain qualified and experienced external experts, acceptable to ADB, to review and verify the environmental monitoring information provided by HPC or HRB to ADB with regard to EMP implementation. The external experts shall not be involved in day-to-day supervision of the project. Monitoring shall be undertaken annually and corresponding report shall be submitted to ADB on a timely basis.</p> | <p>environment and safety staffs. (c) Complied with. (d) Complied with. Site inspections are being conducted daily by PIC. Each contractor has their own internal environmental and safety supervision staff. ADB has financed the recruitment of individual consultants for internal monitoring to bridge the gap between PMS-1 and PMS-2. (e) – (h) Complied with. (i) Being complied with. 04 semi-annual environmental monitoring reports and an annual report were submitted to ADB up to the end of 2016. This report covers the monitoring period of Jan-Jun 2017 (j) Complied with. (k) Being complied with. An external expert has been recruited by ADB to prepare the annual external EMR. An external annual EMR for the year of 2016 has been submitted to MRB in July 2017 and is under review.</p> |
| Schedule 5 | 10 | <p>Applicability of ADB's Safeguard Policy to Entire Project. The Borrower shall ensure that the portions of the project to be financed by EIB, DGT, and AFD abide by all the requirements under SPS.</p> | <p>Being complied with.</p> |

| Schedule | Para No. | Description | Remarks/Issues (Status of Compliance) |
|------------|----------|--|---|
| Schedule 5 | 12 | Health risks. In coordination with the local health bureaus, HPC shall, and shall cause HRB to, ensure that (a) the HIV/AIDS prevention plan is implemented in accordance with its terms; (b) the works contractors disseminate information and conduct awareness training on the risks and prevention measures of HIV/AIDS and other communicable diseases to their employees, temporary laborers and family members, and subcontractors during project implementation; (c) measures to prevent other communicable diseases are implemented within the construction sites, as specified in the EMP, and (d) these requirements are included in the works contracts, monitored and reported semiannually to ADB through HPC. | Being complied with. Relevant clauses have been included in the bidding documents, works contracts and consulting services contracts. |
| Schedule 5 | 13 | Labor Standards. HPC shall, and shall cause HRB to, ensure that the construction contractors (a) provide timely payment of wages and safe working conditions to all workers; (b) pay equal wages to the women and make employees for equivalent labor; (c) do not employ child labor as required by the relevant laws and regulations of the Borrower; (d) the contractors involved in the project implementation maximize the employment of local people, particularly women and ethnic minorities, who meet the job and efficiency requirements for project construction, operation and maintenance; and (e) such workers are provided with adequate on-the-job training and safety training. | Being complied with. Relevant clauses have been included in the bidding documents, works contracts and consulting services contracts. All workers are provided with adequate safety training. |

IV. ENVIRONMENTAL MITIGATIONS MEASURES IMPLEMENTED IN THE REPORTING PERIOD

Monitoring of Compliance with the EMP

21. The inspection methodology utilized involved the visual inspection of the work areas and relevant sites, the conduct of formal and informal interviews with workers, residents, stakeholders and affected persons (APs), and field observations supplemented with photographic documentation.

Schedule of Environmental Monitoring

22. The site inspections for CEMP compliance are conducted daily by PIC (Systra), joint meetings among MRB, PIC and Contractors have been organized whenever the environmental and safety issues were identified and corrective actions were requested. The compliance inspections of main contractors on subcontractors also have been conducted through internal meetings and daily site inspections by environmental and safety staffs. The monitoring activities relating to environment and safety are shown in Table 8.

Table 8. Environmental and Safety monitoring activities

| Mission/task | Date | Location of site visits | Conducted by Whom |
|--|---|--|---|
| Monitoring on Contractor's CEMP compliance | Daily | All sites of CP01, CP02 and CP05 | MRB's Environmental officer and Safety Engineers of PIC |
| Monitoring on Subcontractor's CEMP compliance | Daily | All sites of CP01, CP02 and CP05 | Environmental and Safety Engineers of Contractors |
| Monitoring on EMP implementation and compliance for Annual environmental report | 23 rd to 25 th May 2017 | On-going sites of CP01, all stations of CP02 and the Depot of CP05 Tree relocation area in Hung Yen province for the first round of relocating trees in the corridor alongside of Kim Ma Street | ADB Environmental Consultants (external and national) |
| Monitoring on EMP implementation and compliance for ADB review mission in Dec 2016 | 29 th – 31 th June 2017 | Ongoing sites of CP01, CP02 and the Depot of CP05 Two current disposal sites (Vinh Quynh Commune, Thanh Tri district and Van Noi Commune, Dong Anh District) | ADB National Environmental Consultant |


23. During two periods as listed in previous table from 23rd to 25th May and 29th and 31st Jun, 2017, construction site inspections (CP01, 02 and 05) were conducted by the national environmental consultant (NES) to validate and monitor the implementation of the works. The site visits were made together with the newly recruited environmental officer of MRB and the concerned Contractors. The site-visits suggested that the construction sites are generally tidy and well organized. All construction sites are fenced around by durable metal sheets, some places at the turning points or crossroads, the metal sheets are replaced by expanded metal fence to assure a clear view for all traffic means. With a few exceptions (see below), all the sites at height are equipped with façade netting, safety net fan and rail guard. The use of personnel protective equipment is satisfactory. Toilets/portables and garbage bins are provided at the construction areas. There are proper provisions for hazardous materials such as fuel and oil.


24. Also, during the period from 23rd to 25th May, NES in a joint site visit with the external environmental consultant, MRB's environmental officer, ADB's communication team and the contractor (Beepro) of tree cutting and relocation, visited the area for nursing the trees that were removed in the corridor alongside Kim Ma street in September 2016. The site visit only aimed to take a note on the tree's survival rate and current status of relocated trees by observing their appearance.

25. During 29th and 31st Jun, 2017, NES in a joint the site visit with MRB's environmental officer, the relevant contractors (CP01, CP02 and CP03) visited on-going disposal sites identified for the Project to assess the remaining capacities of these sites. The details of site visits are showed in the succeeding table.


Table 9. Findings during the site inspections

| Issues/Concerns/Findings | Pictures |
|--|----------|
| CP01 – Elevated section – Line Contractor: DAELIM | |

| Issues/Concerns/Findings | Pictures |
|--|--|
| <p>Issue: Wastewater management</p> <p>Description: After rains, excavated holes at sites were flooded and the contractor needed to pump water out that overflowed on the road surface before flowing into manholes.</p> <p>Location: Construction site of P 368 to P 375</p> <p>Time: June 2017</p> |  |
| <p>Issue: Risk to community safety</p> <p>Description: a sheet metal fence was broken and a part of this sheet protruded to traffic road and possibly cause injuries to motorcyclists or bikers.</p> <p>Location: at the site for Pier 113 – P119</p> <p>Time: May 2017</p> |  |
| <p>CP02 – Elevated section – Station Contractor: POSCO</p> | |


| Issues/Concerns/Findings | Pictures |
|--|--|
| <p>Issue: Risk to construction safety</p> <p>Description: construction site at height was not secured by rail hand guard or proper fences.</p> <p>Location: at the site for station number 6</p> <p>Time: May 2017</p> |  |

CP05 – Depot building

| | |
|--|--|
| <p>Issue: Risk to construction safety</p> <p>Description: construction site at height was not secured by rail hand guard or proper fences.</p> <p>Location: at the site for OCC building at the Depot</p> <p>Time: June 2017</p> |  |
|--|--|

Disposal sites

| Issues/Concerns/Findings | Pictures |
|--|---|
| <p>Issue: Solid waste management</p> <p>Description:</p> <p>The first picture shows Van Noi disposal site that was previously a brick pit under management of Viet Nam Industrial Commercial and Services Joint Stock Company at Vien Noi village, Van Noi commune, Dong Anh district. In June 2017, all excavated areas from the operation of a former brick factory were filled up by spoil except for a small pond of 900 m² with capacity to receive spoil about 5000 m³ and other small lowland areas with the total receiving capacity of 3500 m³. Thus, the total volume of spoil that Van Noi disposal could receive, is about 8500 m³</p> <p>The second picture shows Vinh Quynh disposal site with capacity of 797,000 m³ located in Vinh Quynh commune, Thanh Tri district, Hanoi city. Ecology and Environmental Technology Joint Stock Company is in charge of managing, maintaining and operating this construction waste disposal area. At June 2017, the receiving capacity of this disposal site was only 9,500 m³.</p> <p>Based on the construction progress of CP01, CP02 and CP05, as of June 2017, CP02, 05 were done with excavation works and had minor remaining volumes of spoil needing to disposal. Only CP01 had about 16,000 m³ of spoil needing to be hauled to these disposal sites.</p> <p>As comparison between the total spoil left and the receiving capacity of disposal sites, it could be concluded that the two existing disposal sites would have sufficient capacity to receive remaining spoil from the three on-going construction packages (CP 01, 02 and 05), but there will not available capacities to receive spoil from the incoming CP03.</p> <p>Location: Vinh Quynh and Van Noi Disposal sites</p> <p>Time: June 2017</p> |  |
| <p>Tree relocation area</p> | |

| Issues/Concerns/Findings | Pictures |
|---|--|
| <p>Issue: Tree relocation</p> <p>Description: In September 2016, 107 trees located in the corridor alongside the ramp to station 8 were relocated to a nursery garden with an area of 3ha in Dong Du Commune, Gia Lam District, Ha Noi. The survival rate of trees up to June 2017 is 91,6%, as 9 of 107 trees were dead.</p> <p>The nine dead trees are a mango tree, a <i>Khaya senegalensis</i>, a Phoenix, a <i>Cassia siamea</i> and five <i>Lagerstroemia speciosa</i>. Most dead trees are <i>Lagerstroemia speciosa</i> that have thinner tree skins than other trees. The contractor (Beepro) concluded that given thinner tree skin, these trees could not survive during winter after being trimmed and unrooted during relocation. The rate (90%) of dead <i>Lagerstroemia speciosa</i> of the first tree relocation campaign is an important lesson for the next tree relocation campaigns.</p> <p>The contractor provided 8 regular workers that are adequately trained to nurse and guard the relocated trees at the garden.</p> <p>98 relocated trees that still have young leaves growing up and developing, are still planned to be nursed at the garden at least one more year. But it remains unclear where these trees will be eventually relocated, and how the trees will cope with a second relocation.</p> <p>Location: at the garden in Dong Du commune, Gia Lam District, Ha Noi</p> <p>Time: May 2017</p> |  <p>The top photograph shows a group of trees in a nursery garden, each supported by a wooden stake. The trees have varying trunk thicknesses and some have visible signs of being recently relocated. The bottom photograph is a close-up of a dead tree trunk, which is thin and has a rough, textured bark. An orange arrow points to the dead trunk, with the text 'A dead dead Lagerstroemia speciosa' written in orange above it.</p> |

26. Table 10 summarizes the environmental measures that were implemented by the contractors and the environmental issues that were noted from January to June 2017. The assessment of effectiveness of the environmental management measures being implemented by the contractors based on degree of compliance with the

environmental management measures in approved CEMPs reflects the environmental conditions in various construction sites during the reporting period.

Table 10. EMP implementation assessment

| EMP/CEMP requirement | Assessment on Compliance with EMP/CEMPs | | |
|----------------------|--|---|--|
| | CP01 | CP02 | CP05 |
| Dust control Plan | <p>Being Complied</p> <p>Mitigation measures have been carried out on the sites such as during the dry days, periodically watering construction sites has been undertaken for dust control, all vehicles transported construction materials (sand, clay, cement, stones, etc.) have been covered to prevent dust dispersion. No signs of dust or complaints on air quality issues were recorded.</p> <p>The contractor has conducted ambient air quality monitoring programs in compliance with the CEMP.</p> | <p>Being Complied</p> <p>Mitigation measures have been carried out on the sites such as during the dry days, periodically watering construction sites has been undertaken for dust control, all vehicles transported construction materials (sand, clay, cement, stones, etc.) have been covered to prevent dust dispersion. No signs of dust or complaints on air quality issues were recorded.</p> <p>The contractor has conducted ambient air quality monitoring programs in compliance with the approved CEMP.</p> | <p>Being Complied</p> <p>Mitigation measures have been carried out on the sites, such as trucks are tightly covered with suitable material such as tarpaulin, construction spoils are stored in tanks to prevent dust dispersion. No signs of dust or complaints on air quality issues were recorded.</p> <p>The contractor has conducted ambient air quality monitoring programs in compliance with the approved CEMP.</p> |
| Noise control plan | <p>Being Complied</p> <p>Mitigation measures were taken on the sites following the CEMP;</p> <p>Several mitigation measures were Not Applicable due to the site conditions.</p> <p>No complaints on noise and vibration issues were recorded.</p> <p>The contractor has conducted noise and vibration monitoring programs complying with the CEMP.</p> | <p>Being Complied</p> <p>Mitigation measures were taken on the sites following the CEMP;</p> <p>Several mitigation measures were <i>Not Applicable</i> due to the site conditions.</p> <p>No complaints on noise and vibration issues were recorded.</p> <p>The contractor has conducted noise and vibration monitoring programs complying with the CEMP.</p> | <p>Being Complied</p> <p>Mitigation measures were taken place on the site;</p> <p>No complaints on noise and vibration issues were recorded.</p> <p>The contractor has conducted noise and vibration monitoring programs complying with the CEMP.</p> |
| Spoils disposal plan | <p>Being complied</p> <p>Some small heaps of excavation material still were left on the sites that should be hauled to the designated disposal site.</p> <p>DAELIM signed a contract with Hanoi URENCO and Environmental and</p> | <p>Being complied</p> <p>Mitigation measures were taken place on the sites followed the approved CEMP</p> <p>POSCO signed a contract with Hanoi URENCO and Environmental and</p> | <p>Being complied</p> <p>Mitigation measures were taken place on the sites followed the approved CEMP</p> <p>HANCORP signed a contract with Hanoi URENCO to haul and dispose spoil during</p> |

| EMP/CEMP requirement | Assessment on Compliance with EMP/CEMPs | | |
|---|--|--|---|
| | CP01 | CP02 | CP05 |
| | Ecological Technology Company to dispose excavation material in two landfill sites in Vinh Quynh and Dong Anh. | Ecological Technology Company to dispose excavation material in two landfill sites in Vinh Quynh and Dong Anh | construction phase. |
| Spill management plan | Being Complied All petroleum products are stored on the designated areas with concrete/steel sheet floor, roof and fire warning signs. No signs of oil spillage on the sites. | Being Complied All petroleum products are stored on the designated areas with concrete/steel sheet floor, roof and fire warning signs. No signs of oil spillage on the sites. | Being Complied All petroleum products are stored on the designated areas with concrete/steel sheet floor, roof and fire warning signs. No signs of oil spillage on the sites. |
| Traffic management plan | Being complied All required permits issued by DOT for traffic management plan have been obtained before the commencement of construction. Contractor has been complying with the plan in view of assigning traffic staffs and no traffic accidents related to construction activities. | Being complied All required permits issued by DOT for traffic management plan have been obtained before the commencement of construction. Contractor has been complying with the plan in view of assigning traffic staffs and no traffic accidents related to construction activities. | Not applicable |
| Occupational and Community health and safety plan | Being complied All construction sites are fenced by durable metal sheets, some places at the turning points or crossroads, the metal sheets are replaced by expanded metal fence to assure an clear view for all traffic means. All the sites at height are equipped with façade netting, safety net fan and rail guard. The use of personnel protective equipment is satisfactory. No accident recorded during the reporting period. | Partly complied All construction sites are fenced by durable metal sheets, some places at the turning points or crossroads, the metal sheets are replaced by expanded metal fence to assure an clear view for all traffic means. A site at height was not equipped with façade netting, safety net fan and rail guard. The use of personnel protective equipment is satisfactory. No accident recorded during the reporting period. | Partly complied All construction sites are fenced around by durable metal sheets, some places. A site at height was not equipped with façade netting, safety net fan and rail guard. Some workers still did not use personal safety belt as working at height. No accident recorded during the reporting period. |
| Emergency Response Plan | Being complied A hotline for emergency cases has been provided on information board at the | Being complied A hotline for emergency cases has been provided on information | Being complied A hotline for emergency cases has been provided on information board at the |

| EMP/CEMP requirement | Assessment on Compliance with EMP/CEMPs | | |
|----------------------|---|--|--|
| | CP01 | CP02 | CP05 |
| | gates of construction sites. An emergency response process was established with safety staffs. No emergency cases recorded during the reporting period. | board at the gates of construction sites. An emergency response process was established with safety staffs. No emergency cases recorded during the reporting period. | gates of construction sites. No emergency cases recorded during the reporting period. |

V. ENVIRONMENTAL EFFECT MONITORING

A. Monitoring plan and responsibilities

27. As described in the EIA, the responsibility for undertaking environmental effects monitoring during pre-construction and construction phases for depot, viaduct and tunnel components would belong to the PIC but there is a change in actual contract of PIC. Based on the contract, PIC does not take responsibility to implement the monitoring program. Instead of CENMA which had conducted this monitoring from 2012 to Feb 2015 and then from 2015 to June 2016, contractors of CP01, 02 and 05 have been conducting the environmental quality monitoring. The monitoring programs undertaken by the contractors from Jan to June 2017 are presented in the succeeding table.

Table 11. The monitoring program undertaken from Jan to June 2017

| Package | Parameters | Location | Time | Conducted by | |
|---------|---|--|----------|--------------|-----------|
| CP01 | - Air quality (NO ₂ , SO ₂ , CO) - Noise and vibration | Pier 10, 100, 180, 280 and 366 | Feb 2017 | DEALIM | |
| | - Underground water quality (all parameters in QCVN09-MT:2015/BTNMT) | NN1: Well of residential area near abutment No10 NN2: Well at the shop of Da Minh Ngoc, Ho Tung Mau street NN3: Well at Salon Auto 370 Cau Giay Street | | | |
| | - Air quality (NO ₂ , SO ₂ , CO) - Noise and vibration | Pier 10, 100, 180, 280 and 366 | Mar 2017 | | |
| | - Surface water quality (Temperature, pH, DO, turbidity, Cr ⁶⁺ , Cr ³⁺ , TSS, NO ₂ ⁻ , NO ₃ ⁻ , NH ₄ ⁺ , total Phosphorus, total Nitrogen, Cl ⁻ , F ⁻ , COD, BOD ₅ , Fe, Cu, Hg, Cd, Zn, Ni, As, Pb, total phenol, Total oil and grease, Coliform, E.coli) | NM1: at abutment No10 NM2: Nhue River at Dien Bridge NM3: Mai Dich Lake, opposite Mai Dich cemetery NM4: Mai Dich Lake near Mai Dich bridge NM5: To Lich river near Cau Giay bridge NM6: Thu Le Lake, opposite AIA building near abutment No336 | | | |
| | - Air quality (NO ₂ , SO ₂ , CO) - Noise and vibration | Pier 10, 100, 180, 280 and 366 | | | June 2017 |
| | - Surface water quality (Temperature, pH, DO, turbidity, Cr ⁶⁺ , Cr ³⁺ , TSS, NO ₂ ⁻ , NO ₃ ⁻ , NH ₄ ⁺ , total | NM1: at abutment No10 NM2: Nhue River at Dien Bridge NM3: Mai Dich Lake, opposite Mai Dich cemetery | | | |

| Package | Parameters | Location | Time | Conducted by |
|---------|---|--|-----------|--------------|
| | Phosphorus, total Nitrogen, Cl ⁻ , F ⁻ , COD, BOD ₅ , Fe, Cu, Hg, Cd, Zn, Ni, As, Pb, total phenol, Total oil and grease, Coliform, E.coli) | NM4: Mai Dich Lake near Mai Dich bridge NM5: To Lich river near Cau Giay bridge NM6: Thu Le Lake, opposite AIA building near abutment No336 | | |
| | - Underground water quality (all parameters in QCVN09-MT:2015/BTNMT) | NN1: Well of residential area near abutment No10 NN2: Well at the shop of Da Minh Ngoc, Ho Tung Mau street NN3: Well at Salon Auto 370 Cau Giay Street | | |
| CP02 | - Air quality (NO ₂ , SO ₂ , CO, PM10 and TSP) - Noise and vibration | Station 1 (Nhon), Station 3 (Phu Dien Station) and Station 5 (Le Duc Tho Station) | June 2017 | POSCO |
| | - Wastewater quality (SO ₄ ²⁻ , TSS, COD, BOD ₅ , Zn, Cr ³⁺ , oil and total coliform) | At all stations of the Project | | |
| CP05 | - Air quality (NO ₂ , SO ₂ , CO, PM10 and TSP) - Noise and vibration | K1: at gate located at Residential area along Road No.70 K2: Near Dormitory of HN Industry University | June 2017 | HANCORP |
| | - Surface water quality (Temperature, pH, DO, turbidity, Cr ⁶⁺ , Cr ³⁺ , TSS, NO ₂ ⁻ , NO ₃ ⁻ , NH ₄ ⁺ , total Phosphorus, total Nitrogen, Cl ⁻ , F ⁻ , COD, BOD ₅ , Fe, Cu, Hg, Cd, Zn, Ni, As, Pb, total phenol, Total oil and grease, Coliform, E.coli) | Pont in the Depot area. | | |

B. Environmental quality targets, sampling and analytical methods

28. The monitoring content included: (i) air quality; (ii) noise and vibration; (iii) surface water quality and (iv) underground water. The monitoring methodologies are summarised below:

Table 12. Analyzing Method for Air Quality

| No | Item | Method | Standard Compared |
|----|----------------|--------------------------------|---------------------|
| 1 | Temperature | TCVN 3752:2000 (ISO 8756:1994) | QCVN 05:2013/BTN MT |
| 2 | Humidity | TCVN 3752:2000 (ISO 8756:1994) | |
| 3 | Wind speed | TCVN 3752:2000 (ISO 8756:1994) | |
| 4 | Pressure | TCVN 3752:2000 (ISO 8756:1994) | |
| 5 | Wind direction | TCVN 3752:2000 (ISO 8756:1994) | |

| | | | |
|----|---|--------------------------------|--|
| 6 | SO ₂ (sulfur dioxide) | TCVN 5971:1995 (ISO 6767:1990) | |
| 7 | NO ₂ (Nitrogen dioxide) | TCVN 6137:2009 (ISO 6768:1998) | |
| 8 | CO (Carbon monoxide) | TCVN 7725:2007 (ISO 4224:2000) | |
| 9 | Dust PM10 (particulate matter less than 10 microns) | TCVN 5067:1995 | |
| 10 | Dust TSP (total suspended particulate) | TCVN 7241:2003 | |

Table 13. Analyzing Method for Noise and Vibration

| No | Item | Method | Standard Compared |
|----|------------------------|--------------------------------------|--------------------|
| 1 | Noise, Leq | TCVN 7878 - 2:2008 (ISO 1996-2:2003) | QCVN 26:2010/BTNMT |
| 2 | Vibration acceleration | TCVN 6963:2001 | QCVN 27:2010/BTNMT |

Table 14. Analyzing Method for Surface Water Quality

| No | Item | Method | Standard Compared |
|----|------------------------------|------------------------|--|
| 1 | Temperature | EATC - PPNB - 02 | QCVN 08:2008 /BTNMT, B for surface water quality |
| 2 | pH | TCVN 6492:1999 | |
| 3 | DO | TCVN 7325:2005 | |
| 4 | Turbidity | SMEWW 2130 B 2012 | |
| 5 | Cr ₆ ⁺ | HACH Method 8023 | |
| 6 | Cr ₃ ⁺ | SMEWW 3111B:2012 | |
| 7 | TSS | SMEWW 2540 D 2012 | |
| 8 | NO ₂ | SMEWW 4500 NO2- B 2012 | |
| 9 | NO ₃ ⁻ | TCVN 6180:1996 | |
| 10 | NH ₄ ⁺ | SMEWW 4500 NH3 F 2012 | |
| 11 | Total Phosphorus | SMEWW 4500 P BE 2012 | |
| 12 | Total Nitrogen | TCVN 6638:2000 | |
| 13 | Cl ⁻ | SMEWW 4500 Cl- B 2012 | |
| 14 | F ⁻ | HACH Method 8029 | |
| 15 | COD | SMEWW 5220 C 2012 | |
| 16 | BOD ₅ | TCVN 6001-1:2008 | |
| 17 | Fe | SMEWW 3500 Fe B 2012 | |
| 18 | Cu | SMEWW 3111B:2012 | |
| 19 | Hg | SMEWW 3112B:2012 | |
| 20 | Cd | SMEWW 3111B:2012 | |
| 21 | Zn | SMEWW 3111B:2012 | |
| 22 | Ni | SMEWW 3111B:2012 | |
| 23 | As | SMEWW 3113B:2012 | |
| 24 | Pd | SMEWW 3111B:2012 | |
| 25 | Total Phenol | HACH Method 8047 | |

29. Analyzing Method for ground water quality applies the National technical regulation on ground water quality – QCVN09-MT:2015/BTNMT. The results also shall be compared with this standard to assess construction’s impacts on ground wells adjacent to construction sites of the Project.

C. Monitoring results

Results of ambient noise sampling

30. Noise measurement time was from 8.00 to 22.00. All the noise monitoring results shall be compared with National Specification of Viet Nam QCVN 26: 2010 / BTNMT for common area from 6.00 to 21.00. Most of the data measured at the locations are higher than the level stipulated in the specification due to numerous vehicles on the roads. Figure 3 illustrates the results of monitoring noise level during Jan-Jun 2017 and the average results from sampling programs in 2016 (last period of report).

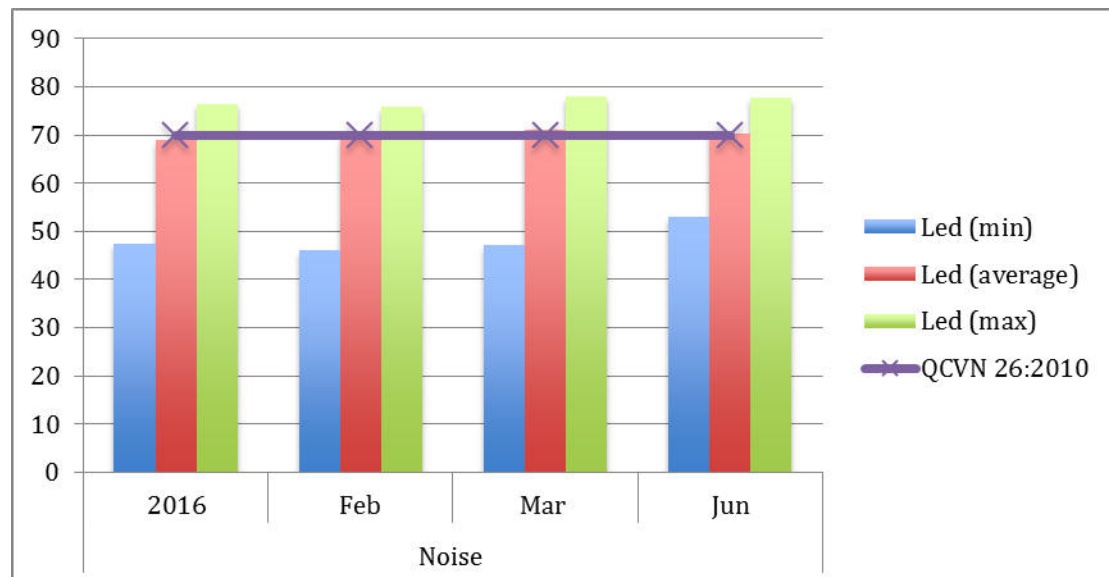


Figure 4. Noise levels measured during January to June 2017

31. As the results from the monitoring programs during Jan- Jun 2017, the metro line can be divided in two sections, the first one from the Depot to P20 within low population density areas of Tay Tuu and Phu Dien wards, generally has noise level lower than the applied standard and the second one from P20 to the station 8, within very crowded areas, has noise level higher than the standard even during low traffic time from 6h to 7h. As a result, it is concluded that the high noise levels mostly come from public traffic rather than construction activities. The noise has not significantly changed between the noise level in 2016 and the ones in the first six months of 2017.

Results of ambient vibration sampling

32. According to specifications, vibration level must not be higher than 75dB or 0.055 m/s² from 6.00 to 21.00 for common area and baseline at night. So, all the data from the monitoring programs in table 10 reveal that the maximum vibration level was lower than the level stipulated in the specification (QCVN 27:2010/BTNMT). Figure 4 illustrates the results of monitoring vibration level during Jan to Jun 2017.

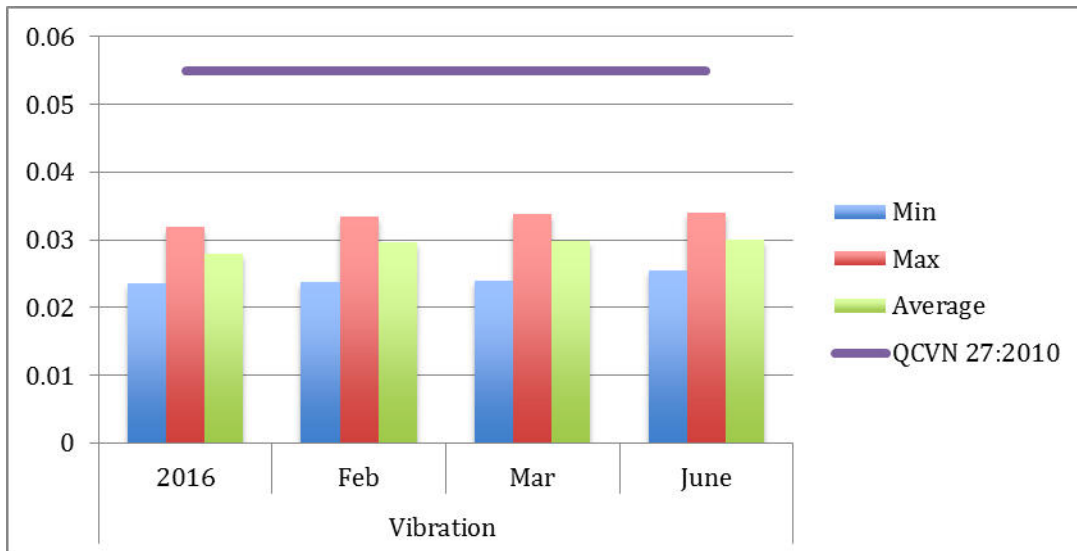
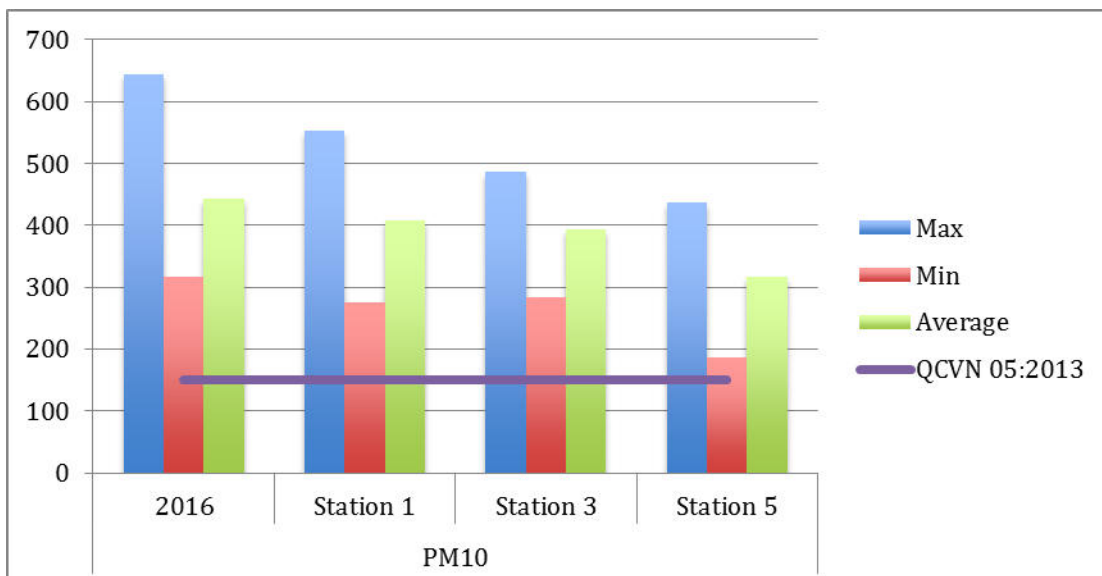


Figure 5. Vibration levels measured during Jan to Jun 2017

Result of ambient dust sampling

33. Only the contractor of CP02 conducted a monitoring program on dust including PM10 and TSP level for 24h. This program was carried out in June 2017 at three locations (station 1 – Nhon (Minh Khai Ward); Station 3 – Phu Dien (Phu Dien Ward) and Station 5 – Le Duc Tho station (Le Duc Tho street)). Dust measurement time was from 8.00 to 22.00. All the dust monitoring results shall be compared with National Specification of Viet Nam QCVN 05: 2013 / BTNMT. Most of the data measured at the locations are much higher (from 2.5 times to 5.5 times) than the level stipulated in the specification, but as compared with the results between June 2016 and June 2017, it is showed that the PM10 level in 2017 was slightly lower than the level in 2016, possibly due to the completion of earthworks and bored piles.



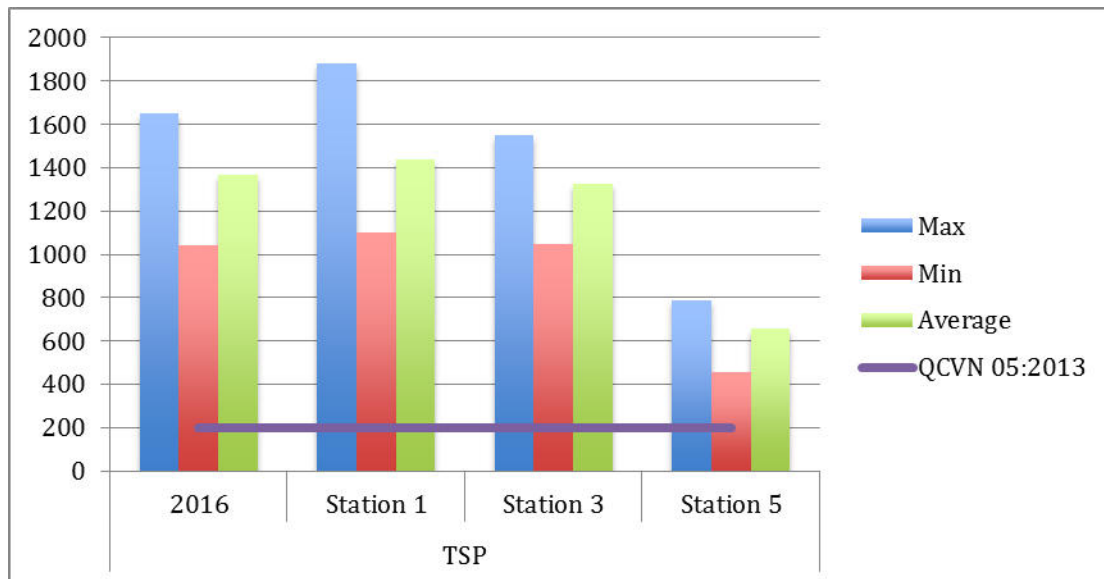


Figure 6. Concentration TSP and PM10 at three project stations

34. The most significant reason for high dust concentration is the stations to be located on the main roads (National Road 32 and Le Duc Tho streets) for material transportation to many ongoing projects in Ha Noi. The results also show the difference among three stations as the station 5 has TSP level lower than other two stations. This difference can be explained by the location of these stations; stations 1, 3 are on the material transportation routes, whereas station 5 is on an urban road with a limitation of truck during 8AM to 9PM.

Result of ambient air quality sampling

35. The monitoring data from the sampling programs of contractors (CP01, 02 and 05) also showed that all parameters of air quality monitored were much lower than acceptable levels stipulated in the QCVN 05:2013/BTNMT and the air quality adjacent to the project construction sites had only minor changes from last year 2016. (Refer to Appendix 2 for more detail).

Result of ambient surface water sampling

36. The results from sampling programs conducted in March and June 2017 of CP01 contractor showed that the parameters of NH₄⁺, COD, BOD₅ and Coliform of natural surface water sources (To Lich, Nhue Rivers, Thu Le and Mai Dich Lakes) were higher than the current standard (QCVN 08:2015/BTNMT). Meanwhile other parameters (metals, oil, Phenol...) were lower than the standards. No significant changes in surface water quality was observed from 2016 and the period of this report in 2017. This surface water pollution is recently general for water sources within Ha Noi city as domestic wastewater has still been discharged directly to natural resources without treatment. The quality of surface water samples taken in the sites at abutments of pier showed that the construction activities did not affect the water quality as all the parameters of these samples were lower than the standard (Refer to Appendix 2 for more detail).

VI. PUBLIC CONSULTATION, GRIEVANCE REDRESS MECHANISM

A. Public consultation and EMP information dissemination

37. Information relevant to the construction packages were disseminated through (i) the ceremony of work commencement (involving representatives of city, district,

wards, journalists and other relevant agencies); (ii) sending documents to ward people committee; and (iii) the information boards at the gates or on the fencing system of construction sites. These kinds of information disseminated by (i) and (ii) only focused on technical description of the packages, project progress etc. but with no information related to EMP implementation. The information boards only provide name, address, contact and hotline of contractors. GRM is not specifically disclosed.

38. As a requirement of updated EIA approved by ADB in August 2013, public involvement activities to disseminate project information should be carried out during pre-construction; construction and operation. A framework for these activities was established as the commitment of MRB for ensuring public involvement in the project implementation phase. The status for implementing public involvement activities is presented in the succeeding table.

Table 15. Monitoring the implementation of public involvement activities

| Activity | Purpose | Participants | Status of implementation |
|----------------------------|--|--|---|
| Newsletter/ Fact Sheets | To broadly disseminate project information to a wide audience. Newsletters / Fact Sheets will be distributed to residences and businesses in the project area and on community notice boards. | Residents and businesses in project area | Project information was disseminated by ceremonies of work commencement with identified participants but did not include residents and businesses in project area. CP03 contractor organized a work commencement ceremonies in Feb 2017 and only MRB's representatives were invited and attended. |
| Mass media communications | To broadly disseminate project information to a wide audience. Mass media tools would include loudspeakers, radio, newspaper and television. | Throughout project area and more broadly throughout Ha Noi. | Only traffic management was broadcast on radio and television. None of mass media communication event is carried out during this period of report. MRB and CP03 contractor have been preparing a mass media communication for tree cutting and relocation, expectedly in Sep 2017. |
| Open public meetings | To provide stakeholders an opportunity to seek more detailed information on the project and provide direct feedback to the project team. | By open invitation to community members and by invitation to key stakeholders such as ward and district officials, GOV agencies, NGOs etc. | None of open public meeting event is carried out during this period of report. Local authorities such as representatives of wards, communities shall be invited to attend the mass media communication for tree cutting and relocation. |
| Focus groups | To allow detailed and focused discussion on addressing project-related issues such as water use, land use and business changes, use of system by different passenger groups and amenity effects during | Community members, GOV authorities and other stakeholders formed into interest groups to address specific issues – examples of issues around which focus groups may be developed | CP03 contractor has worked and consulted to local people whose houses potentially are affected by underground construction works. |

| | | | |
|----------------------|--|--|--|
| | construction | include heritage issues, business operators, road user / public transport user and operator groups, residents etc. | |
| Stakeholder meetings | To allow discussion and information gathering on specific issues relevant to environmental issues related to the project | GOV agencies, project consultants, NGOs etc. | Focus group meetings among ADB, MRB and HPC conducted in March, May and June relating to the project GRM |

39. Information dissemination to public is very important for project implementation as it gives some benefits for MRB operation consisting of (i) enhancing community's support for project by project's positive objectives for both environment and society; (ii) obtaining precious feedbacks from community on unanticipated impacts; and (iii) avoiding unreasonable complaints due to the lack of information. In view of these benefits and to comply with the EIA, the public involvement activities should be scheduled in detail continuously.

40. A communication team has been established at MRB per Decision 13/QD-DSDT-VP issued by MRB (dated 7th Feb 201) that have missions including (i) External Media (ii) Press Releases and (iii) Internal Media. Since the establishment the communication team has coordinated with an other communication team from ADB to establish a communication strategy for 2017 – 2018 that shall be a comprehensive guidance for communication activities of MRB during 2017 – 2018. This strategy is expected to complete at the end of September 2017.

41. During the period of this report, the MRB communication team has done some communication activities as follows:

- Prepared and distributed brochures, leaflets to provide brief but clear, adequate information of the Project for the communities closed to the Project locations
- Prepared first steps to establish media connections with important TV agencies such as VTV, HTV as well as popular newspapers such as Capital Security, Transportation, Hanoi New to share objectives and achievements of the Project.
- Prepared and updated quarterly news on important issues of the Project as Project progress, tree relocation, gender equality and traffic management
- Coordinated with an ADB communication team to film on construction activities at sites, interviews of investor, consultant and construction contractors on sites. These films have been posted on the Facebook of Hanoi Metro.

42. The establishment of MRB communication team has been a significant achievement of the Project given the Project, now, has a model, positive and sufficient way to disseminate information to government agencies, communities which really concern to the situation of the Project.

43. A Grievance Receiving, Screening and Settling Unit (GRSSU) has been established at the Metropolitan Railway Management Board (MRB) per Decision No.63/QD-DSDT-VP issued by MRB (dated 22 May 2017) and also a GRM at project level has been proposed by the coordination of ADB and MRB, but since the GRM has not yet been formally approved by HPC, the GRM was not yet disseminated..

B. Grievance Redress Mechanism (GRM)

44. To improve the existing GRM of project, there were some activities carried out during this period of report that are (i) holding a workshop by ADB in May with the participation of MRB, Systra, Contractor and representatives of relevant wards, districts; (ii) a meeting in May with HPC with the participation of ADB, MRB, relevant districts and departments (DOC, DONRE); (iii) focus meetings during June between ADB's specialists and MRB's GRSSU. The achievement of the continuous efforts from ADB, MRB is

- A Grievance Receiving, Screening and Settling Unit (GRSSU) established at the Metropolitan Railway Management Board (MRB) per Decision No.63/QD-DSDT-VP issued by MRB (dated 22 May 2017)
- A GRM at project level submitted to HPC for approval in 30th June 2017.

GRSSU

45. the GRSSU receives, reviews and handles grievances, denunciations, petitions and feedbacks on Hanoi pilot urban railway project. Duties of this team: (i) receive, classify and handle grievances, denunciations, petitions and feedbacks from agencies, units, organizations, individuals and address them; (ii) review, classify grievances, denunciations, petitions and feedbacks; (iii) submit to relevant competent authorities for settlement and cooperate with them to follow settlement process; (iv) give advices to the board' s leaders for settlement of grievances, denunciations, petitions, feedbacks within the Board' authorities; (v) provide information, response to those who submit grievances, denunciations, petitions and feedbacks; (vi) organize meetings, invite specialists in relevant fields to come up with solutions; (vii) compile, develop periodical and ad-hoc reports in accordance with requests from superior agencies or the donor.

46. The **GRSSU** consists of the following members:

| Name | Position within MRB | GRSSU Function |
|--------------------------|----------------------------|-------------------|
| Mr. Nguyen Anh Thang | Head of Office of MRB | Unit Head |
| Ms. Nguyen Thi Thuc Hien | Vice-Head of Office of MRB | Vice Unit Head |
| Mr. Tran Trong Au | Officer/ Office of MRB | Secretary of Unit |
| Mr. Nguyen Lam Binh | Deputy Director of PMU1 | Member |
| Mr. Nguyen Quang Thien | Officer/PMU1 | Member |
| Mr. Truong Tri Tai | Officer/PMU1 | Member |

47. The GRSSU will receive and resolve both resettlement and environment complaints but there is no member with environmental experience and background in the GRSSU, thus it is recommended that the environmental officer of MRB should be added in the GRSSU for environmental issues.

Proposed GRM

48. In general, the proposed GRM will now integrate both resettlement and environment issues into one single structure. The proposed structure takes into account the Viet Nam laws and provisions for complaint handling as well as nuances of the operating environment such as capacity constraints, and cultural attitudes toward lodging complaints. Specifically, the proposed structure will enable the mechanism to provide:

- a predictable, transparent, and credible process to all parties, resulting in outcomes that are seen as fair, effective, and lasting;
- builds trust as an integral component of broader community relations activities; and
- a systematic identification of issues or problems, facilitating corrective action, and pre-emptive engagement.

49. The proposed GRM will include the following stages with respective time-frame

- Stage 1: Submission of complaint
- Stage 2: Registration, eligibility Assessment, Confirmation of Eligibility
- Stage 3: Assessment and Identification of Action
- Stage 4: Confirmation by complainant, or First Instance Appeal
- Stage 5: Review, Eligibility Assessment and Confirmation of Appeal by GRC
- Stage 6: Assessment and Identification of Action by GRC
- Stage 7: Confirmation by Complainant, or Second Instance Appeal
- Stage 8: Implementation of Action, Monitoring, Reporting and
- Stage 9: Closure of Complaint.

50. The GRM structure regroups all coordination and reporting tasks to the central GRSSU at MRB, composed of relevant project staff. Complaint resolution and decision making are done by the GRSSU (in consultation with District Grievance Redress Units, GRUs) in a first instance, and by a Grievance Redress Committee (GRC) at city level in a second instance. With decisions made at the highest level, there is no need for additional appeals except for complainants to use the court systems should they not agree with the decisions.

51. The proposed process for resolving complaints of the project is described in the succeeding figure.

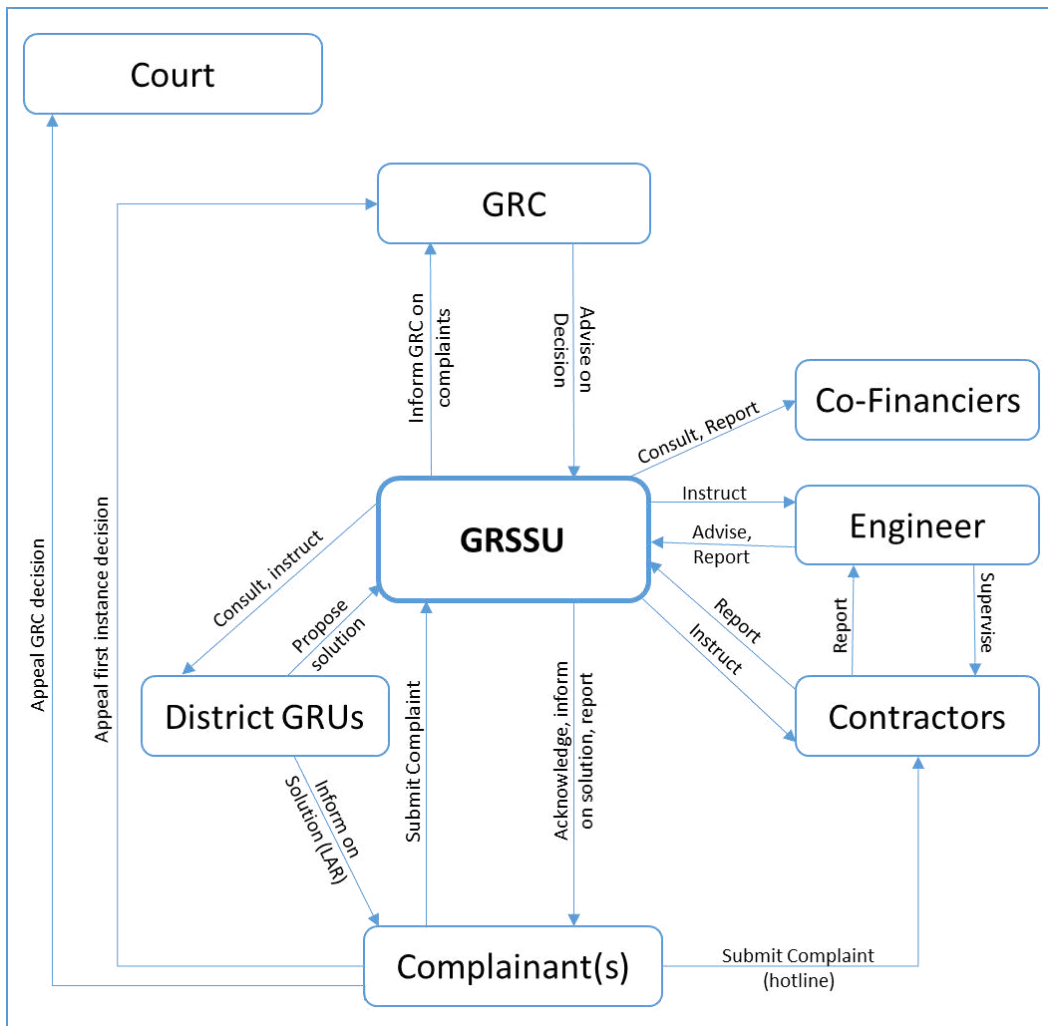


Figure 5: Structure of the Grievance Redress Mechanism

Note: GRSSU = Grievance Receiving, Screening and Settling Unit (within MRB); GRC = Grievance Redress Committee (within HPC); GRU = Grievance Redress Unit (within District PC).

52. The proposed GRM is satisfactory to the guidelines and requirement from the approved EIA that has a center GRSSU at MRB taking a main role of dealing with complaints and receiving supports from other units such as government agencies (GRC, District GRUs), Engineer (Systra), ADB. the GRM also establishes a GRM procedure consisting of stages that are comprehensive and understandable to process complaints from submission to closure of complaint. Each stage is set with an appropriate time frame based on the national law.

For the next step of the propose GRM (the status of proposed GRM is continued to be updated in the next report for July to Dec 2017):

53. **HPC** to (i) review and endorse draft GRM procedure; (ii) advise which members of the Residents Receiving Unit and other city agencies, as relevant, have been assigned by HPC to act as members of the project GRC; and (iii) advise how and when GRUs will be established in Dong Da, Hoan Kiem and Bac Tu Liem District.

54. **MRB (GRSSU)** to (i) develop GRM operations manual, forms and templates; (ii) develop and publish on the project website a GRM Booklet; (iii) provide orientation to key members of the GRM (District PCs, GRUs, Engineer, Contractors) on the GRM structure and procedures. (iv) update the status of the GRM on project website. ADB will provide support in completing these tasks.

55. **District PCs** of Dong Da, Hoan Kiem and Bac Tu Liem to establish District GRUs per HPC instructions.

Complaint by Green Trees Ha Noi.

56. In the period from March to December 2016, the project's co-financiers received eight letters from Green Trees Ha Noi (GTH). GTH is an unregistered, informal group of concerned citizens established in 2015 and operating through social media (Facebook mainly).

57. During the period of this report (from January to June 2017), one member of GTH (sent an email to ADB on 26th April 2017 to raise the Group's concerns upon possible impacts on physical cultural resources and the zoological garden, as well as the risk of flooding of underground structures. On 27th April 2017, a responding letter issued by ADB was sent back to the complainant, requesting the group to be properly registered by relevant government authorities if they still want to pursue its project oversight activities following ADB policies. On 5th May 2017, the said subgroup sent an acknowledge mail for receiving the 27 April letter that also requested to provide them technical reports, design drawings. However, ADB did not answer this email since the group did not meet the requirement mentioned in the December 2016 meeting and the 27 April letter.

58. This issue shall be updated continuously in the next report (the second semi-annual monitoring report from Jul to Dec of 2017).

VII. INSTITUTIONAL STRENGTHENING AND TRAINING

59. As mentioned in the updated EIA, to strengthen the knowledge base of the EMU and PMU/HRB staff, a series of training activities shall be implemented by the Project Supervision Consultant (PSC). The international specialist of PSC had to prepare a training program and materials based on the results of the assessment. Therefore, the environmental monitoring & assessment (EMA) training course was organized as a part of the Tasks 2.1. and 2.3 of the contract of PSC (IDOM) that was carried out from 01 to 02 July, 2013. This course provided PMU-1 & MRB's staffs with a comprehensive understanding of environmental safety management and developed their capacity on environmental monitoring & assessment.

60. Main objectives of environmental monitoring training course consisted of the understanding of environmental safeguard policy and EMP, how to implement, supervise EMP, how to prepare CEMP. There were about 23 MRB's staffs participating in this course. This training course was received the special attention of PMU-1's staffs working at the Construction & Supervision Department (30%), the Engineering Department (13%), the Planning & Financial Department (4%) and the Technical Assistance & Land Preparation Department (4%). The participating staffs came from MRB's Divisions including the Financial & Accounting Division (4%), Technical Assistance & Investment Preparation Division (30%), the Planning & Investment Division (9%), and Technical Division (4%).

61. During the period of this report, there was no training course related to environment and safety provided by ADB, MRB or Systra. The contractors of CP01 and CP02 still have provided specific trainings on safety for new coming workers or starting new works with risks of safety.

VIII. KEY ENVIRONMENTAL ISSUES

A. Key issues and the status of corrective actions from previous report

Table 16. Environmental key issues from the previous report (Jan to Dec 2016)

| No | Key issues | Corrective actions (as defined in Jan-Dec 2016 report) | Status of implementation of the actions |
|--------------------|--|---|--|
| MRB | | | |
| 1 | The lack of a well-defined GRM | Established a GRM at project level following the requirement and guidance from the approved EIA, expectedly done in March 2017 | Done. Refer to Section B: Grievance Redress Mechanism – Chapter VI. Slightly delayed as submission of the proposed GRM to HPC for approval in June 2017 |
| 2 | The lack of EMU in MRB | Establish an EMU to oversee implementation of EMP requirements for the entire project with assistance from the PIC. The EMU would be under the direction of the Project Management Unit 1(PMU1) within MRB The EMU, shall be initially staffed by at least, an environmental engineer and an occupational health and safety officer | Done. MRB signed contract with a Master in environmental science to be MRB's environmental officer. He is in charge of overseeing implementation of EMP requirements for the entire project. He will coordinate with other safety staffs of MRB for managing relevant environmental and safety issues raised by the Project. No additional action required. |
| 3 | The lack of monthly environmental monitoring reports on EMP implementation | Request the assistance of PIC to prepare the monthly reports. | Done. Since Feb 2017, PIC has included an additional section for environmental management in their monthly reports that has showed the most important information related to environmental management of contractor level. |
| | | Establishing an EMU, and the EMU has responsibility to prepare monthly reports. | Not done yet. MRB confirmed that PIC is supporting to prepare the monthly reports until the engagement of PMSC phase 2. The environmental officer of MRB will prepare monthly environmental and safety monitoring report starting from September 2017 |
| 4 | Missing EMP dissemination activities | Establishing an EMU, and the EMU has responsibility to conduct public disclosure of project information. | Not done yet. |
| CP01-DEALIM | | | |
| 5 | Information disclosure | An information board with adequate and detail contacts (name, position, tel) of relevant stakeholders | Done partly. Some gates of sites under construction did not have the |

| | | | |
|-------------------|------------------------------------|---|---|
| | | (representative of MRB, PIC, contractors and hotline) should be provided at every gates of construction site. | required board. Some information boards have been faded, the detail contacts could not read. |
| | Dust control and community health | <ul style="list-style-type: none"> - Conducting watering sprays at least every 2 hours during construction time for the heaps of unused fine materials. - Cleaning unused materials off the sites by hauling to the designated disposal sites. | Done. |
| | Solid waste management | <ul style="list-style-type: none"> - Providing bins specifically for the solid wastes sticking with petroleum products, these bins should be placed within the areas for storing petroleum products. | Not done yet. |
| | Pollution of public road | A wheel washing station should be established at the gate of the site for Pier 365 – 364 and in a manner the wastewater generated from the station shall run off into the site. The station should also is provided with steel sheets for vehicle parking during wheel washing process. | Done. |
| | Construction site security | <p>Provide locks for all construction gates and assure that all the gates are locked when the sites do not have any construction activities</p> <p>Provide security guards at the sites on which still have excavation holes or scaffoldings</p> | Done. |
| CP02-POSCO | | | |
| 11 | Pollution of public road | A wheel washing station should be established at the gate of the site of station 8 and in the manner the wastewater generated from the station shall run off into the site. The station should also is provided with steel sheets for vehicle parking during wheel washing process. | Done. |
| 12 | Air pollution and community health | <p>Clean soil, sand and small substances around the gates of the stations</p> <p>Spray water on these areas to reduce dust before cleaning</p> | Done. |
| 13 | Construction site sanitation and | <p>Rehabilitate the broken concrete ledge of the site of station 7</p> <p>Clean all the garbage within the</p> | Done. |

| | | | |
|---------------------|---------------------|--|---|
| | management | site | |
| CP05-HANCORP | | | |
| 14 | Construction safety | Establish rail hand guard and fences system for the sites at height Assure all workers to be equipped with proper personal protective equipment while working | Done partly. Rail hand guard and fences system was not provided at the sites for OCC building. |

B. Key Issues Identified, Actions Taken, Additional Actions Required for the period of Jan to June 2017

62. Based on the assessment mentioned in previous chapters, the undone Key issues from the previous report, Key environmental outstanding issues identified during this monitoring period are presented in table 17 with respective corrective actions, implementation responsibility and timeframe.

Table 17. Environmental key issues

| No | Key issues | Corrective actions | Supervised by | Schedule |
|----------------------|--|---|---------------|---|
| MRB | | | | |
| 1 | The lack of information disclosure | Update the following information on the project website: - Establishment of GRSSU and the proposed GRM; - CEMPs of all construction packages; - The schedule and methodology statement for tree cutting and relocation mission for the underground section and parking area; - SEMR for the year of 2016. | MRB/ADB | At the end of September 2017 |
| 2 | The lack of members with environmental background in GRSSU at MRB | Add the environmental officer in to GRSSU as an official member | MRB/ADB | At the end of September 2017 |
| 3 | The lack of monthly environmental monitoring reports on EMP implementation | The environmental officer of MRB will prepare monthly environmental and safety monitoring report starting from September 2017 | MRB/ADB | At the end of September 2017 |
| CP01 – DEALIM | | | | |
| 5 | Wastewater management | Using pipe to lead flooding water pumped from excavated holes in to manholes alongside road. | PIC and MRB | After rain and localized flooding at site |

| No | Key issues | Corrective actions | Supervised by | Schedule |
|--|-----------------------------|---|------------------|-----------------------|
| 6 | Information disclosure | An information board with adequate and detail contacts (name, position, tel) of relevant stakeholders (representative of MRB, PIC, contractors and hotline) should be provided at every gate of construction site. | PIC and MRB | Within September 2017 |
| 7 | Risk to community safety | Conducting a check on entire fence system of construction sites to identify broken fence and replace or repair. | PIC and MRB | Within September 2017 |
| 8 | Solid waste management | Providing bins specifically for the solid wastes sticking with petroleum products, these bins should be placed within the areas for storing petroleum products. | PIC and MRB | Daily |
| 9 | Construction site security | Provide locks for all construction gates and assure that all the gates are locked when the sites do not have any construction activities Provide security guards at the sites on which still have excavation holes or scaffoldings | PIC and MRB | Daily |
| CP02 – POSCO | | | | |
| 10 | Risk to construction safety | Establish rail hand guard and fences system for the sites at height in station 6. Assure all workers to be equipped with proper personal protective equipment while working. | PIC and MRB | Within September 2017 |
| CP03 – Venture of Hyundai and Gella | | | | |
| 11 | CEMP preparation | Preparing a draft CEMP taking consideration of lessons learnt and experience from other construction packages, specially from the first tree relocation mission. | PIC, MRB and ADB | August-September 2017 |
| CP05 – HANCOR | | | | |
| 12 | Construction safety | Establish rail hand guard and fences system for the sites at height. Assure all workers to be equipped with proper personal protective equipment while working. | PIC and MRB | Daily |

IX. CONCLUSION AND RECOMMENDATION

A. Overall Progress of Implementation of Environmental Management Measures

63. Environmental supervision arrangements have significantly improved as compared with the previous report period, as MRB has assigned an environmental officer. This position plays a vital role in the environmental management system of

the Project that shall support MRB to coordinate environmental aspects of the project, including regular EMP implementation supervision, public consultation and GRM coordination, and reporting to ADB.

64. Another achievement during this period of report is the establishment of a central GRSSU at MRB and the proposal of a GRM at project level that creates for people, communities affected by the Project a critical opportunity to access a predictable, transparency and credible process of receiving and resolving complaint. The process complies with both national regulations and ADB's safeguard policy.

65. During the period from Jan to June 2017, according to confirmation of MRB, PIC (Systra), contractors and report review, there are no environment-related complaints, labour accidents registered by the environmental and safety management system of the Project. The only complaints received by ADB related to the GTH Group, which was initiated in 2015.

66. The contractors' compliance with environmental supervision and reporting requirements is satisfactory (monthly environmental compliance reports are submitted to the PIC and MRB), but all contractors should be requested to include sections on community participation, communication, grievances and health and safety in forthcoming monitoring reports.

67. The PIC should continue to prepare a detailed section on the contractors' environmental management activities and performance included in monthly progress reports until the PMS Phase 2 Consultant is mobilized. The MRB's environmental officer has responsibility of reviewing and giving guidance if necessary to improve the quality of this section.

68. MRB should accelerate recruitment of the PMS Phase 2 consultant.

69. Construction sites are generally tidy and organized. Information boards are displayed at construction sites. Sturdy metal sheet fences were installed around all construction sites. Security personnel are assigned at the construction site ingress/egress and the public are not allowed access to the area. Construction safety is exemplary. General housekeeping is satisfactory. There are proper provisions for hazardous materials such as fuel, oil and gas. No major environmental issues were observed during the site inspections except some minor issues are shown in table 9.

B. Actions Recommended

70. Outstanding issues during this report period and corrective action are presented in Table 17. MRB needs to allocate adequate resources to carry out effectively these actions.