

Environmental Monitoring Report

VIE: Strengthening water management and irrigation systems rehabilitation project (ADB5)

**Six - month environment monitoring report
From May to October 2013**

COMPONENTS 1: CONSTRUCTION OF NEW EDUCATION FACILITIES FOR WATER RESOURCES UNIVERSITY

Prepared by Southeast Asia Institute for Water Resources and Environment for the Central Project
Office (CPO) – MARD and the Asian Development Bank

**MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT
CENTRAL PROJECT OFFICE (CPO)**



**Strengthening water management and irrigation systems rehabilitation project
(ADB5)**

**PACKAGE 14
MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL
MANAGEMENT PLAN FOR THE WHOLE PROJECT**

**SIX - MONTH ENVIRONEMENT MONITORING
REPORT
(From May to October 2013)**

**COMPONENTS 1: CONSTRUCTION OF NEW
EDUCATION FACILITIES FOR WATER RESOURCES
UNIVERSITY**

Central Project Office (CPO)

**Consultant firm
Southeast Asia Institute for Water
Resources and Environment**

Ha Noi, 10/2013

CURRENCY EQUIVALENTS
(1st June 2013)

Currency unit	–	Viet Nam Dong (VND)
VND 1.00	=	\$ 0,000048
\$1.00	=	VND 20,815

ABBREVIATIONS

ADB	–	Asian Development Bank
AFD	–	Agence Francaise Development
BHH	–	Bac Hung Hai irrigation and drainage system
CBOs	–	Community Based Organizations
CEMP	–	Community Environmental Management Program
CPMU	–	Central Project Management Unit
CPO	–	Central Project Office
EMP	–	Environmental Management Plan
GOV	–	Government
M&E	–	Monitor and Evaluation
PPMU	–	Provincial Project management Unit
PRA	–	Public Relative Assessment
SEMP	–	Site Environmental Management Program
TOR	–	Terms of references
DONRE	–	Department of Natural Resources and Environment
IEE	–	Initial Environmental Examination
PMU	–	Project Management Unit
QCVN	–	Vietnam National Environmental Standards

MEASURES UNIT

ha	–	Hectare
kg	–	Kilogram
km	–	Kilometer
m	–	Meter
t	–	Ton

NOTES

In this report, "\$" refers to US dollars unless otherwise state.

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

TABLE OF CONTENTS

LIST OF TABLES	iii
LIST OF FIGURES	iii
PART 1: PROJECT SUMMARY, IMPLEMENTATION PROGRESS, AND SCOPE OF ACTIVITIES	1
1.1 PROJECT INTRODUCTION	1
1.1.1 Objectives of Components 1	1
1.1.2 The main work items of project	1
1.1.3 Construction location of the components 1	3
1.2 IMPLEMENTATION PROGRESS OF PROJECT	5
1.3 IMPLEMENTATION OF ENVIRONMENTAL MONITORING	5
PART 2: SUMMARY RESULTS OF THE FIRST MONITORING	7
2.1 SUMMARY THE IMPLEMENTATION CONTENTS OF THE FIRST MONITORING	7
2.1.1 The implementation of community based monitoring	7
2.1.2 Implementation of construction supervision consultant based monitoring	7
2.1.3 Implementation of on – site inspection	7
2.1.4 Implementation of environmental sampling	7
2.2 FINDINGS AND RECOMMENDATIONS OF THE FIRST MONITORING	8
2.2.1 Achieved results	8
2.2.2 Some pending issues	9
2.2.3 Recommendations	9
PART 3: MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN - PERIOD 2	11
3.1 CONTENTS AND IMPLEMENTING METHOD OF 2 nd PERIOD MONITORING	11
3.1.1 Implementation contents	11
3.2 MONITORING AND EVALUATION OUTPUT	12
3.2.1 Evaluating the implementation of the first monitoring’s recommendations	12
3.2.2 Environmental monitoring results of construction supervision consultant	12
3.2.3 On-site inspecting output	15
3.2.4 Community-based monitoring output	16
3.3 SUMMARY OF ENVIRONMENTAL MONITORING OUTPUT AND RECOMMENDATION	17
3.3.1 The achieved results in the implementation of EMP	17
3.3.2 Some pending issues	17
3.3.3 Recommendation for Contractors	18
APPENDIX	22
Appendix 1: Some pictures of the second monitoring	23
Appendix 2: Plan for the second monitoring	24
Appendix 3: Tasks of Environmental monitoring consultant	25
Appendix 4: Meeting minutes with stakeholders	27

Appendix 5: Sample analysis results.....	30
--	----

LIST OF TABLES

Table 1. 1 Main work items	1
Table 1.2 Scale and area of functional blocks.....	2
Table 1. 3 Total volume of earthworks	3
Table 1.2: Implementation progress table of subprojects of components 1	5
Table 2.1: Synthesize recommendations in the first monitoring.....	9
Table 3. 1: Summary results of environmental monitoring of package no. 11 – Water Resources University implemented bt CSC from 19/5 to 30/9/2013	13
Table 3. 2: Synthesize assessment issues of CSC on environmental safeguard.....	14
Table 3.3: Synthesize the results of the second monitoring.....	18

LIST OF FIGURES

Figure 1.1: Map of project location	4
Figure 3. 1: Figure of average assessment score pf environment at construction site package 11 – Water Resources University (average score monitoring phase 2).....	13

PART 1: PROJECT SUMMARY, IMPLEMENTATION PROGRESS, AND SCOPE OF ACTIVITIES

1.1 PROJECT INTRODUCTION

Project “Strengthening water management and irrigation systems rehabilitation”, invested by ADB and AFD includes three components:

- (i) Components 1: Construction of New Education Facilities for Water Resources University.
- (ii) Components 2: Construction and rehabilitation of Bac Hung Hai irrigation and drainage system infrastructure
- (iii) Components 3: Strengthening capacity of BHH Service Providers.

1.1.1 Objectives of Components 1

- Increase high-quality human resources in the water-sector;
- Create favorable and modern environment for students to study and research in order to increasingly enhance quality with necessary knowledge and skills for career and creativeness in the market economy;
- Make sure to create favorable conditions for the lecturers and staff so that they can best devote their intellectual capacity for education, training and development of the university;
- Endeavoured to become one of the top 10 universities in Vietnam in training high-quality human resources and scientific research, etc.
- To develop Water Resources University to become prestigious science-technology centre in all aspects of water-sector.

1.1.2 The main work items of project

The project Construction of New Education Facilities for Water Resources University in Pho Hien University Complex in Tien Lu District, Hung Yen Province with total land area used is 80.33 ha, including lecture blocks with capacity of 13,400 students (in phase 1) and 17,438 students (in phase 2).

- In phase 1 (from 2012 – 2016), the construction area is 56.35ha, including the following items: Land leveling (56.35ha), constructing internal transport-network, gate – fence for the whole area (80.32 ha), lecture blocks (left-wing and right-wing), dormitory, electric power system, water-supply station, waste-water treatment station, communication system, car parks (for left-wing lecture block, right-wing lecture block, dormitory).
- Construction area in phase 2 (from 2017-2020) is 23.98 ha, including items: Land leveling (23.98 ha), constructing manager’ building, common study-building, hall, central library, cultural building, housing for teachers and football field.

• Main work items:

Table 1. 1 Main work items

No.	Item	Working area (m ²)	Flooring area (m ²)
1	Study area	125,400	243,661

2	Physical training facilities	14,551	8,820
3	Dormitory	86,243	157,003
4	Living-houses for teachers	41,386	74,855
5	Ancillary area	400	600
	Total	269,589	487,837

The training capacity in 2020 up to 17,438 students is divided into 2 phases as follows:

- Phase 1 (from 2012 to 2016): 13,400 students;
- Stage 2 (from 2017 to 2020): 17,438 students.

Table 1.2 Scale and area of functional blocks

No.	Item	Training scale (student)	Area indicators (m ² /person)	study- building area		
				Land (m ²)	Construction (m ²)	Floor (m ²)
1	Faculty of Civil engineering	7,460	05	22,778	8,000	40,000
2	Faculty of Water resources engineering	3,538	06	11,823	4,000	20,000
3	Faculty of Hydrology & Water Resources	1,410	07	8,047	2,500	10,000
4	Faculty of environment	1,256	08	7,721	2,500	10,000
5	Faculty of Mechanical Engineering	926	09	5,955	2,000	8,000
6	Faculty of energy engineering	1,738	06	8,216	2,500	10,000
7	Faculty of coastal engineering	1,110	07	6,663	2,000	8,000

Source: Project Investment Report, 2012

The constructed items have been invested in phase 1 as follows:

(i) Left-wing lecture block for teaching function:

- o 4-floor building with a standard floor height of 4.2 m;
- o Construction area: 11,581 m²;
- o Total floor area: 35,967 m²;

(ii) Right-wing lecture block for teaching function:

- o 5-floor building with a standard floor- height of 4.2 m;
- o Construction area: 11,273 m²;
- o Total floor area: 44,261 m²;

(iii) Dormitory block for students:

- o Construction area: 27,000 m².
- o Total number of students: 4,022 students

- Number of floors: 08 floors.

• **The ancillary items**

The ancillary facilities aim to serve for the main construction activities: material storing area, fuel storage area, concrete mixing plant, the operational management, workers' camps. There are also other facilities including water supply system, power supply system, communication network, construction roads.

Area of the ancillary works:

- ✓ The camps: 2,000 m²;
- ✓ Material storing area: 3,000 m²;
- ✓ Temporary disposal area: 2,000 m²;
- ✓ Warehouses: 2,000 m²;
- ✓ Mixing station: 4,000 m².

In phase 1, only land leveling is conducted entirely by sand with area of 56.35 hectares for the construction works of Phase 1. Sand was purchased at work-site from Yen Lenh stockpile that is located near the Red River bank in Hung Yen City.

Table 1. 3 Total volume of earthworks

<i>No.</i>	<i>Item</i>	<i>Volume</i>	<i>Unit</i>
1	Land leveling area:	388,308	m²
1.1	Pond -filled area	7,339	m ²
1.2	Landfill area	380,969	m ²
2	Total of excavated volume:	117,960.20	m³
2.1	Mud-dredged volume	3,669.50	m ³
2.2	Organic-excavated volume	114,290.70	m ³
3	Total of filled volume:	824,682.73	m³
3.1	Filling for land leveling	706,722.53	m ³
3.2	Filling for dredged mud + organic soil	117,960.20	m ³
4	Total volume of foundation excavation:	135,971.00	m³

Source: Project Investment Report, 2012

1.1.3 Construction location of the components 1

Components 1 “Construction of New Education Facilities for Water Resources University” is located in Nhat Tan, Di Che and An Vien communes, Tien Lu district, Hung Yen province. According to Decision No.1988/QD-UBND dated 25/11/2011 of Hung Yen province, total land-area acquired by the sub project is 80.32 ha and in the boundary as follow:

- The North is the residential area of An Vien commune and National highway No. 38.
- The South is the An Xa village – An Vien commune – Tien Lu district
- The East is the agricultural production-area of Di Che commune – Tien Lu district
- And the West is Road No.61.

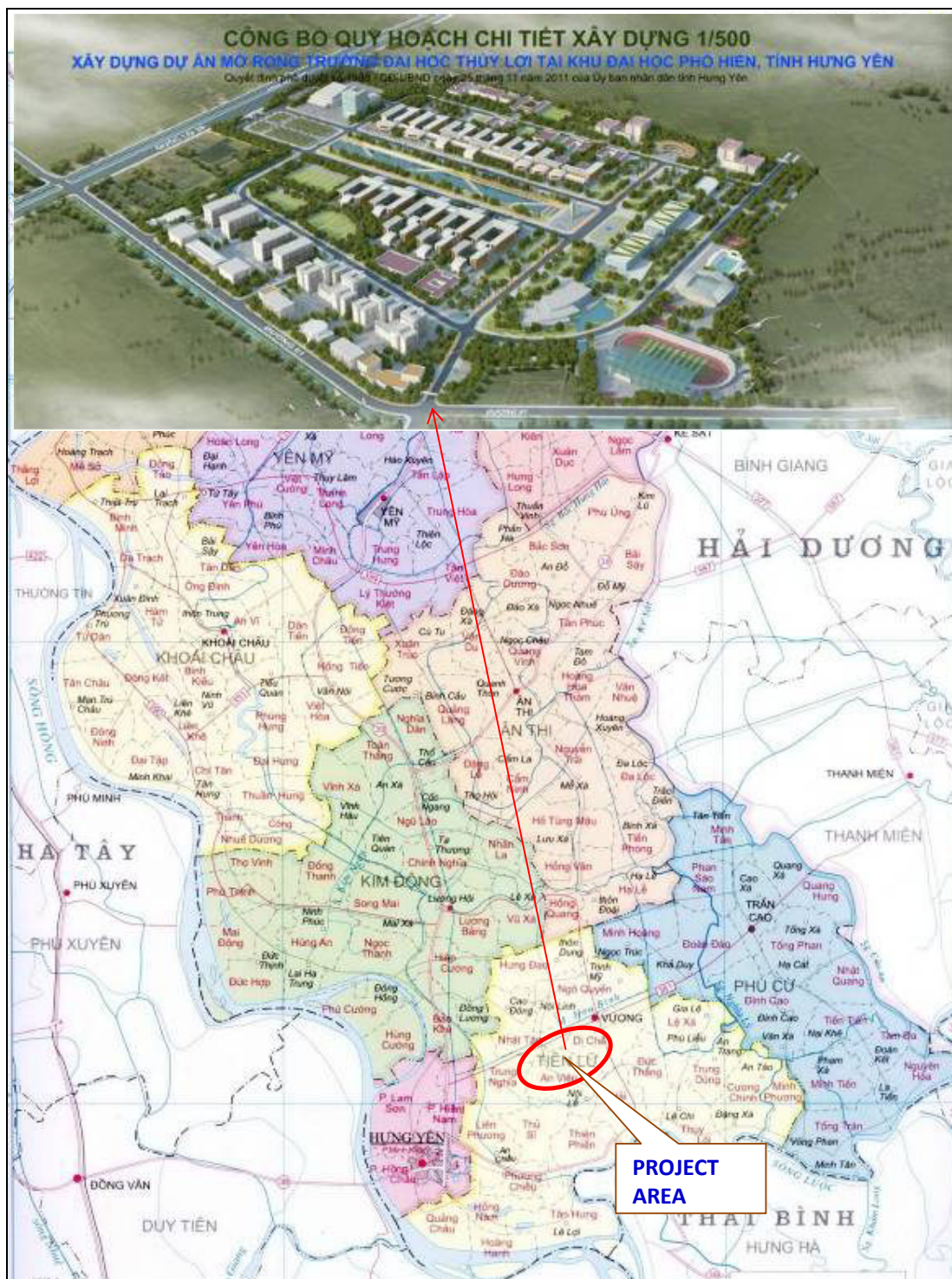


Figure 1.1: Map of project location

1.2 IMPLEMENTATION PROGRESS OF PROJECT

The implementation progress of Sub project has been updated till 30/9/2013 for the following items listed in table 1.2:

Table 1.4: Implementation progress table of subprojects of components 1

Item/ Package	Date of signing Contract and commence	Implementing time	Implemented items	Implemented volume/Total contract volume(%)	Contractors
Package No. 11 – WRU: Construction for leveling ground	- Date of signing contract: 4/4/2013 - Date of commence: 18/04/2013	06 months	Construction has finished removing organic soil in the process of leveling ground: filling sand, compaction and stone wall	85%	Cooperation between Dong Phong Joint Stock Company and Thang Loi Trading Construction Investment JSC

PMU’ assessment on the contractors’ implementation progress:

Presently, the contractor is implementing the last works of bidding package (achieved 85% of total package volume). Thus, contractors’ implementation progress is slow compared with the schedule due to the following main causes:

- Due to the rainy weather, it is difficult for transporting construction materials, earth-compaction and water drainage.
- Changes of construction methods: because of the need of keeping organic soil, contractor has to wait for the acceptance process of the completed the layer of soil, and then transport it to the designated sites, instead of bringing it out as the proposed plan; routes of N1, N2 and N4 (connection section of N1 and N2) have to be treated by the weak bed; the works of moving the electric wires out of the project area implemented by PMU of Pho Hien University area has not been completed, therefore, it causes delays on the subproject progress.

1.3 IMPLEMENTATION OF ENVIRONMENTAL MONITORING

Southeast Asia Institute for Water Resources and Environment (called the Consultant) has been selected as Independent Consultant following the consulting contract 14/TV/AD dated 21/11/2012 between Central project Office (CPO) and Southeast Asian Institute for Water Resources and Environment on the implementation of Package 14 "Monitoring the implementation of the environmental management plan for the whole project" of the project: Strengthening water management and irrigation systems rehabilitation (ADB5). The valid time of the contract starts from 15/01/2013 to 30/6/2016 (42 months). According to the implementation plan described in the contract, every 3 months, the consultant will perform independent monitoring and develop a periodical report (March, May, August, and November). However, monitoring time can be adjusted to match with construction progress.

- Consultant starts implementing the contract from 15/01/2013 and completes Inception Report in 03/2013.

- The first monitoring mission (Component 1) was conducted from 25/04/2013 to 27/4/2013
- The second monitoring mission (Component 1) was conducted from 30/09/2013 to 15/10/2013 (1 month delay because of rainy weather).

PART 2: SUMMARY RESULTS OF THE FIRST MONITORING

2.1 SUMMARY THE IMPLEMENTATION CONTENTS OF THE FIRST MONITORING

2.1.1 The implementation of community based monitoring

Interview local authorities and people in affected areas about project’s impacts on environment, society, and the compliance of PMU, and contractors with the implementation of environmental management

2.1.2 Implementation of construction supervision consultant based monitoring

- Instruct construction supervision consultant to fill in the form no.1 and form no.2
- Collect monitoring forms implemented by construction contractors and construction supervision consultants
- Synthesize monitoring forms of construction supervision consultants to evaluate the compliance degree of construction contractors

2.1.3 Implementation of on – site inspection

Organize professional group to monitor the compliance with implementation of environmental pollution mitigation measures of construction contractors. On – site inspection the implementation of impact mitigation measures for environment, occupational safety of construction contractors via directly interview professional staffs, take photographs, fill information in forms.

2.1.4 Implementation of environmental sampling

- Taking 3 water surface samples:
 - + Sample no. 1: water from canal no. 61 at sluice gate near national highway no. 38 (drainage direction from canal no. 61 to Hoa Binh river).
 - + Sample no. 2: water from internal field canal in west side of project near road no. 61(discharge location).
 - + Sample no. 3: water from canal no. 61 in front of An Vien Secondary School (Drainage direction from canal no .61 to T1-5 canal).
- Taking 3 air samples:
 - + Sample no. 1: at intersection of road no. 61 and national highway no 38. (at location of transporting sand, materials).
 - + Sample no. 2: West of project near road no. 61 (construction areas).
 - + Sample no. 3: residential area near Vo temple (residential areas affected by dust).

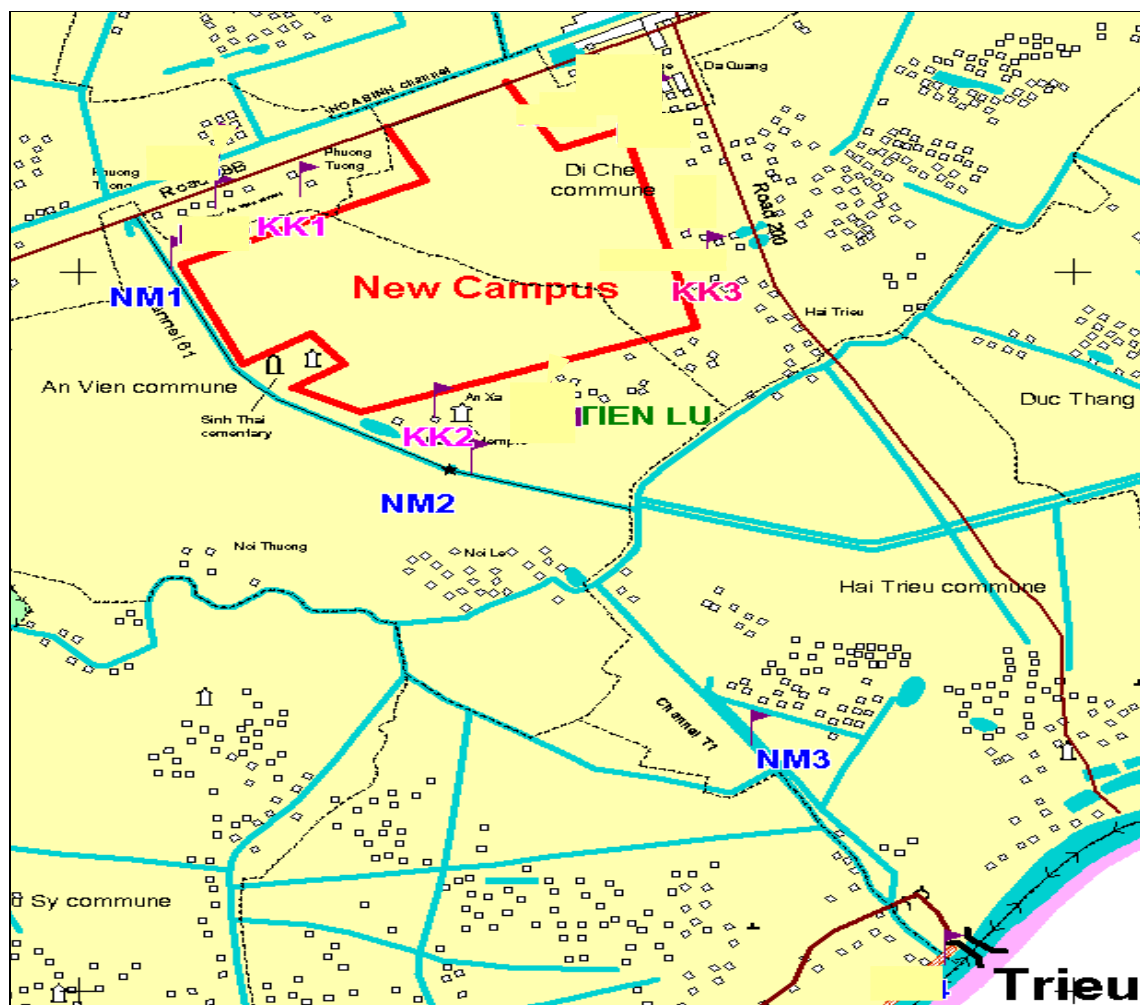


Figure 2.1: Environmental sampling locations - components 1

2.2 FINDINGS AND RECOMMENDATIONS OF THE FIRST MONITORING

2.2.1 Achieved results

- In the contract with construction contractor (package no.11-ĐHTL: construction of leveling foundation), there is Appendix of quality management and environment (attached Contract no. 11-ĐHTL/HĐ-ADB5), this appendix regulates the requirements of quality and environment in the process of construction for package no. 11.
- PMU of Water Resource University arranged environmental staff, announced to People committee about implementing package of leveling foundation and received support of local authorities.
- At construction site, speed limiting signs and flash light are available. Organic soil layer after being digged, partly can be used for plant, partly has been bought, so it has not been moved to gathering places.
- Construction site was tidy and clean, no impact on traffic and people living in the area
- The contractor has had measures for diversion during construction across canal so that no impact on irrigation water supply for 160 ha of agricultural land of group no .6, An Xa

village, An Vien commune (installation the temporary drainage system across canal). The additional measure is shown in Document no. 12/CV-ĐP of Dong Phong Joint Stock company, dated 02/05/2013 regarding on adding intake water pumping machines, temporary drainage system and relocated 35 KV electric line for package no. 11-ĐHTL.

- Operation license certificate for all machines and equipments at construction site is available and level of exhaust fume is within allowed regulation accordance with Decision no. 249/2005/QĐ-TTg dated 10/10/2005 of Prime Minister.
- Construction contractor agreed with PMU about temporary gathering location for organic soil at construction site in order to ensure distance of 200m away from canal and residential areas.
- There was not arising social problems, workers were lived in house of local people rented by the contractor
- The quality of air environment was within allowed regulations
- Water surface quality at 3 locations were some indicators exceeding allowed regulations due to water quality of Bac Hung Hai irrigation system polluted by other waste resources in this area. At this time, construction volume was not large, construction’s activities have not affected environment of water surface

2.2.2 Some pending issues

- At construction site, there is no information board about construction time of package as well as environmental impact mitigation measures
- Construction contractor has not collected waste that causing the status of unsanitary environment at the interaction national highway no.38 and road construction foundation
- The contractor has not arranged workers for observation task at position from national highway no.38 to construction site.

2.2.3 Recommendations

The recommendations in the first monitoring are synthesized in table 2.1 as following:

Table 2.1: Synthesize recommendations in the first monitoring

No.	Problems	Recommendation to implement	Responsibility for implementation
1	Project’s information board is not available	Install information board for introduction of working item, construction unit, execution time at construction site as regulations	PMU of Water Resource University
2	Information of construction progress, items and environmental impact mitigation measures have not been sent to local management agencies	Announce to local management agencies (Department of Hung Yen Natural resources and Environment, Tien Lu People Committee, and People committee of commune in project area)	PMU of Water Resource University Construction contractor
3	Workers in working hour without labour protection	- Workers at construction site are required to wear fully labour protection (clothes, helmet, shoes,	Construction contractor

No.	Problems	Recommendation to implement	Responsibility for implementation
	Medicine cabinet is not available at construction site	mask,...) - Medicine cabinet must be available for first aid in the case of accident	
4	Mitigation measures for environmental impact, occupational safety and traffic safety have not fully implemented	- Fully implemented impact mitigation measures to society, environment regulated in EMP - Fully implemented measure of occupational safety and traffic safety regulated in EMP	PMU of Water Resource University Construction contractor
5	Periodical health inspection for workers has not implemented	Periodical health inspection every 3 months for workers who work in hazardous condition	Construction contractor

PART 3: MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN - PERIOD 2

3.1 CONTENTS AND IMPLEMENTING METHOD OF 2nd PERIOD MONITORING.

3.1.1 Implementation contents

3.1.1.1 *Implementing environmental monitoring of construction supervision consultant (CSC)*

- Collecting environmental-monitoring forms that were done by CSCs
- Assessing the implementation of environmental-safeguard and labor-safety measures done by Contractors according to the scoring-system.

3.1.2.2 *Implementing field inspection*

- Inspect the overcoming of the existing problems in 1st period monitoring
- Inspect the field on the compliance of the mitigation measures to the environmental impacts:
 - + Assess the Contractor's capacity in management of construction environment (professional cadre's knowledge and skills, plan of the environmental mitigation-measures implementing)
 - + Check on communication activities of the Project: Project-Information Board at the construction site. Public informing at the Project site, on the shot EIA report that approved by the authorities according the regulations;
 - + Mitigation measures in the earthworks;
 - + Measures to ensure environmental sanitation ;
 - + Mitigation measures in gathering and storing materials;
 - + Mitigation measures during the mud-dredging process ;
 - + Mitigation measures to pollution in transport ;
 - + Measures to ensure the safety in construction period;
 - + Check the dump-site.
- Inspect the implementation of mitigation measures to social impacts
 - + Manage workers through setting the regulations and the implementing obligations.
 - + Percentage of the local workers
 - + Conflicts arisen between workers and local people
 - + Social evils : Drugs, prostitution and others
- Inspect the implementation of occupational safety measures
 - + Tools, medicine-cabinet for first aid and emergency
 - + Equip the protective clothes for workers
 - + Camps and environmental-sanitation conditions where the workers live
- Inspect the traffic-safety measures

- + Construction-site board.
- + Board for traffic directional distribution during construction
- + Check on the certificates of registry of construction equipments

3.1.2.3 Implementation of community based monitoring

- Interview local authorities (An Vien PC) in the project area on the informing-works related to the Project, impact of the implementing activities to environment and society, settling and overcoming conflicts and problems arisen during construction time.
- Interview some HHs in the affected area (An Vien commune)

3.2 MONITORING AND EVALUATION OUTPUT

3.2.1 Evaluating the implementation of the first monitoring’s recommendations

- **For WRU’s PMU:**

- The WRU PMU circulated the environmental management plan (EMP) to Contractors and CSCs for monitoring and implementation.
- The WRU PMU informed Tien Lu DPC, Division of Natural Resources and Environment - Tien Lu district, An Vien and Nhat Tan CPCs (Tien Lu district, Hung Yen) on construction time and progress, the EIA report, and the The Approval Decision by MONRE

- **For construction contractors**

- The Contractors have not done well in equipping the protective clothes for workers when working at the construction-site.
- Already installed enough medicine cabinets but in short of necessary drugs.
- The Contractors arranged the traffic instructors at the crowded place with a lots of vehicles transporting material in and out of the construction site, sprayed water on the roads, and covered the trucks to limit the dust, however, these watering jobs have not been done frequently.
- Already installed the Infor Board on information of Package, construction progress, Contractors and Project owner at the site.
- Workers have not had the periodical health-check

- **For construction supervision consultant (CSC)**

- Fully recorded and submitted the periodical monitoring-forms to PMUs.
- Made promptly responses and recommendation to PMUs in cases of violating occupational safety, traffic safety and environmental safeguards

- **For local authorities**

- Provided supports to the PMU and Contractors in hand-overing the site-plan, managing workers, settling the complaints in time.

3.2.2 Environmental monitoring results of construction supervision consultant

a) Collected data

PMUs provided environmental monitoring forms implemented by CSC as following:

- ✓ Form 1 - Infor-collecting form of environmental monitoring: Already submitted to the PMU, for months May, June, July, August and September 2013
- ✓ Form 2 - Monitor and manage the arising risks: No breakdown occurred.
- ✓ Form 3 - Monitor and check worker’s health in construction: None
- ✓ Form 4 - Feedback on environmental-safeguards by the communities (CEMP): None

b) Regular monitoring results on the environmental safeguard of CSC

The construction supervision consultant (CSC) assessed contractor’s environmental-safeguard services by giving scores corresponding with the contents in Form no.1. The scoring-system as following:

- ✓ 1 score: no implementation
- ✓ 2 score: poor implementaion
- ✓ 3 score: good implmentaion
- ✓ 4 score: excellent implementation

Table 3.1: Synthesis of environmental monitoring outputs for Package No. 11 – WRU done by CSC from 19th May to 30th September 2013

No.	Evaluation contents	Evaluation score		
		Max		
1	Impacts on air quality	3	2	2.7
2	Impacts on water environment	4	1	3.0
3	Impacts on soil environment, biological resource, environmental landscape	3	2	2.5
4	Impacts on worker health	3	1	2.6
5	Impacts on social economy both inside and outside surrounding areas	4	2	3.0
6	Breakdowns during construction	3	2	2.1

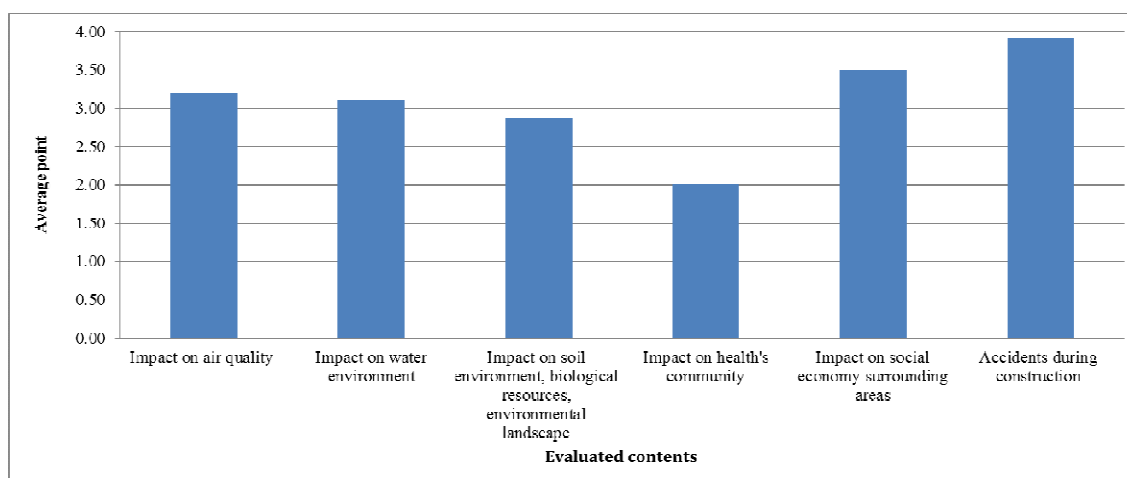


Figure 3. 1: Chart of average evaluating score on environment at construction site Package No. 11 – Water Resources University (average score monitoring 2nd period)

Systhezie the environmental monitoring ouputs CSCs as in Table 3.1 and Firgure 3.1 as following:

(i) The issues are evaluated with score < 3 including:

- Breakdowns during construction, which recieve the lowest score (2.1) becasue the contractor did not train workers before and during construction period and did not provide enough equipment for occupational safety
- Impacts on soil environment, biological resources, and environmental landscape get the average-score of 2.5, Contracts could not keep the construction material from falling out, and did not maintain the good clean of the construction site regularly.
- Impacts on the worker health (2.6): have not yet provided enough the protective equipments for workers (clothes, glass, helmet, etc.)
- Impacts on the air quality (2.7): there were some contents at which, Contractors have not done well, still poor as following:
 - o Spraying water to reduce the air pollution at the construction site and the construction road is irregular
 - o Reducing vibration for machine that generating high noise and vibration is not good.
 - o Equipping the ear-protective device for workers, who work at the high-noise place, is still limited

(ii) The issues are evaluated with score ≥ 3 including:

- Impact on the water environement (3.0): Contractor fully implemented works such as: installing mobile toilet, collecting rubbish into mobile recycle bin, signing contract with Environmental Sanitation Company to transport and treat following the regulations; do not bury the domestic waste in project areas; gathering areas of material, fuel stockpile is located away from water sources. Thus, there were no impacts on water sources during construction in the area.
- Impact on economy and society both inside and neighbouring area (3.0): some issues have been implemented well such as keeping good relationship between project owner and local authorities, local-workers employment is prioritized, informing the localities on construction progress, Setting up a buffer zone between construction site and residential areas, minimizing the number of transport vehicles parking at the crowded people area. However, traffic instruction to avoid traffic congestion has been performed poorly.

Detailed assessment for construction contractors in table 3.2

Table 3. 2: Systhesis of the assessing contents of CSC on the environmental safeguard

No.	Assessment issues	Construction Contractors	
		Dong Phong Joint Stock Company	Thang Loi – DDK Trading Construction Investment JSC
1	Impact on air quality	- Spraying water to prevent dust has not been implemented frequently. - Vehicles operate with high speed in the construction area, which results in	- On Road TL61, water-spraying practice to limit dust is not in time. - Person assigned to

		generation of dust to the surrounding areas, and the material scattering on Road QL38 at the entry access to the construction site.	pumping water and cleaning, is not specialized
2	Impact on water environment	Living place of workers, material-storing areas, and stockpiles are located far away from the water sources, so it not affect the water resources in the surrounding area	
3	Impact on soil environment, biological resources, and environmental landscape	There will be no significant impacts on soil environment, biological resources and the landscape	
4	Impact on worker health	<ul style="list-style-type: none"> - Equipping the protective equipments: Contractors have done poorly, not fully equipped the protective clothes for workers at the construction site. - Medicine cabinet: enough but in short of necessary drugs. - Canteen: Contractors have implemented well food-safety practice at construction site. 	
5	Impact on social economy both inside and outside surrounding areas	<ul style="list-style-type: none"> - None of impacts on the economy - The Contractors have prioritized the local workers for the items which only need the unskilled works - Regulations of worker management are set up 	

3.2.3 On-site inspecting output

3.2.3.1. Summary of environmental mitigation measures

(i) Impacts on quality by dusts, emitted gas, noise, and vibration

- Constructive machine and vehicles must be in the service life;
- Vehicles need to have the cover especially for ones carrying the fine material;
- Construction site and transportation roads through residential areas must be watered to reduce dust pollution, especially in the dry season;

(ii) Impacts on water environment due to construction and domestic waste

- Arrange stockpile and material storehouses far from water bodies;
- Isolate and cover material stockpiles;
- Collect the waste to the mobile containers and contract with URENCO to collect, transport and treat properly in line with the regulations;

(iii) Impacts on soil environment, flora and fauna and landscape

- Avoid spillage of construction materials, concrete and do regularly cleaning practice at the construction site;
- Use the mixed concrete;

(iv) Impacts on local community’s health

- Ensure a good living life for workers (camps, safe water, good food, sanitation etc.) to prevent epidemics;
- Organize on-site canteen for staff and workers to control hygienic and safe food;

(v) Impacts on socio-economic situation in and near-by areas (security, health and traffic)

- Inform timely the local people and authorities about the implementation progress;
- The project owner keeps good contact with the local authorities to settle down problems and conflicts arising during the construction process;
- Establish a buffer zone between the construction site and residential area; limit the speed of vehicles to avoid accidents, and cover the trucks from emitting dusts;
- Need to assign the traffic instructor to avoid the traffic jams

3.2.3.2. On-site inspecting output

• **Achieved results:**

- ✓ The Contractors made the construction-site board, submitted announcement of construction progress and mitigation measures to related local agencies.
- ✓ The contractors already paid attention to practices of environmental sanitation and occupational safety at construction site such as clean and tidy arrangement of waste earth and material; Prohibition board of entering construction-site must be installed at the observable places.

• **Pending issues:**

- ✓ There is enough medicine cabinets but in short of necessary drugs
- ✓ Practice of spraying water at the construction site and roads have not been done regularly.
- ✓ One has not done training of occupational safety practice for workers before and during the construction time.
- ✓ Workers have not fully worn the protective clothes and helmet during working.

3.2.4 Community-based monitoring output

During the 2nd monitoring period, Consultant worked with Nhat Tan, An Vien CPC, Tien Lu district, Hung Yen province. Summary of feedbacks from local authorities on environmental safeguard issues during construction as following:

• **Achieved results:**

- Impact by construction on environment and people’s life is not significant
- There is no conflict found with local people.
- Construction time, mitigation measures to environmental impact and approved EIA report already were informed to the localities.

• **The local recommendation:**

- The Contractors have not fully done registration of temporary living for the number of workers at construction site.

- During construction, the Contractors are requested to spray water more regularly to prevent dust
- The Contractors need to speed up the construction progress to avoid impact on irrigation for agriculture

3.3 SUMMARY OF ENVIRONMENTAL MONITORING OUTPUT AND RECOMMENDATION

3.3.1 The achieved results in the implementation of EMP

- **Environmental monitoring output of CSC**
 - Tư vấn giám sát thi công đã ghi chép và nộp đầy đủ các biểu mẫu giám sát theo định kỳ cho BQLDA. Phản ánh các thông tin về an toàn môi trường, lao động, giao thông và các vấn đề phát sinh khác trên công trường một cách chính xác, khách quan.
 - CSCs have recorded and submitted the periodical monitoring forms to PMU. Their reflection on environmental safeguard, occupational and traffic safety, arising problems at construction site was exact and objective.
- **Community-based monitoring outputs**
 - A close collaboration between PMU, construction contractors, construction supervision consultant, local authorities and communities has been recognized in monitoring environmental safeguard, occupational safety and traffic safety.
 - Workers working and living at the local areas, have not affected the local security and well-being.
 - WRU PMU already informed CPCs on supporting construction for Package in the local areas and suggests the local authorities to help the Contractors.
 - The local people always facilitate the Contractors' activities
- **On-site inspection**
 - Construction area is neat and tidy, so not affecting the local traffic and the living life.
 - Contractors already installed the speed-limited sign for the vehicles; and the signal light is also set up at the construction-site entrance.
 - At the construction site, poster to introduce about the Project of expanding WRU at the Hien-street university area
- **Analyzing results of environment (the first monitoring)**
 - The analyzing results have shown: indicators of noise, vibration, and dust are within allowable standards according to QCVN 05:2009 and QCVN 26:2009, and it proves the construction activities have not affected the local air-quality.
 - Surface-water quality at 3 observing sites are found with some indicator beyond the allowable standards, the reason is given as the water quality of BHH system has been polluted by other the emitting sources in the area. During this time, the construction volume is not much; therefore, those activities do not affect the surface water quality

3.3.2 Some pending issues

- Workers did not wear the protective clothes during construction

- The Contractors did not implement regularly the regulations of environmental protection during construction such as spraying water and covering material trucks to reduce dust
- Contractor has not regularly assigned the traffic instructor at the places with a lot of vehicles carrying material in and out of the construction area
- One has equipped the medicine cabinets, first-aid tools in cases of accidents. However, it is short of necessary drugs

3.3.3 Recommendation for Contractors

- Fully equip the protective clothes for workers during construction period;
- Fully equip the medicine cabinet, the first-aid tools, and necessary medicines in case of accidents.
- Workers who work in the difficult conditions, who needs to be checked for health periodically.
- Contractor needs to be responsible for training on the occupational safety before and during construction time.
- Contractor needs to assign workers more regularly to instruct the traffic at the places with many vehicles
- It implement water-spraying practice to reduce dust and cover the material-carrying vehicles to prevent the spillage that obstructs the traffic and affect the local environmental sanitation
- Arrange and maintain the red light at the entrance of the construction site at night.

Table 3.3: Recommendation of EMP action plan

No.	Problems	Overcome the first period shortcoming/ Recommend the second period	Implementing responsibility	Executing time
I	Overcome the shortcomings at the first monitoring period			
1	Information board on the subproject at the construction site	Already installed the project-infor board at the construction site in line with the regulations	PMU of Water Resource University	5/2013
2	Information on the implementing progress, items and mitigation measures to environmental impacts	Already informed the local authorities (Hung Yen DONRE, Tien Lu DPC, CPCs in the project area)	PMU of Water Resource University Construction contractor	26/4/2013
3	Protective clothes for workers and medicine cabinets	<ul style="list-style-type: none"> - Workers working at the construction sites did not wear the protective clothes - Already installed medicine cabinets, first-aid tools in cases of accidents. However, there are not enough necessary drugs for the first aid 	Construction contractor	5/2013

No.	Problems	Overcome the first period shortcoming/ Recommend the second period	Implementing responsibility	Executing time
4	Implement the mitigation measures to the environmental impacts occupational safety	<ul style="list-style-type: none"> - Already assigned workers to instruct the traffic at the places with many vehicles, but infrequently - Not regularly implemented the regulations of environmental protection during construction such as watering road and covering the material-carrying trucks 	<ul style="list-style-type: none"> - PMU of Water Resource University - Construction contractor 	5/2013
5	Filling the monitoring forms	<p>CSC has fully recorded and submitted periodically the monitoring forms to the PMU</p> <p>Reflect the information of environmental safeguard, occupational, traffic safety, and other arising issues on the construction site properly and objectively</p>	Construction supervision consultant	From 5/2013 to complete project
6	Coordinate with the local government	Already support the PMU and Contractor in handing over the land and managing the workers;	Local authorities	From 5/2013 to complete project
II	Shortcomings existed during the second monitoring period			
1	Protective clothes for workers and medicine cabinets	<p>Fully equip the protective clothes for workers during construction period;</p> <p>Fully equip the medicine cabinet, the first-aid tools, and necessary medicines in case of accidents.</p>	Contractor	From 10/2013
2	Periodical health-check	Check health every 3 months for workers working in the difficult and hazardous conditions	Contractor	3 months/times
3	Implement the mitigation measures to environmental impacts, occupational safety and traffic.	<ul style="list-style-type: none"> - Contractor needs to have responsibility of training on occupational safety for workers before and during construction time. - Contractor is requested to assign more frequently workers to instruct the traffic 	Construction contractor	From 10/2013

No.	Problems	Overcome the first period shortcoming/ Recommend the second period	Implementing responsibility	Executing time
		<p>flow at the places with high number of material-carrying vehicles</p> <ul style="list-style-type: none"> - Regularly implement the water-spraying practice on the road to limit the dust and cover the material-carrying vehicles to prevent spillage that might obstruct the traffic and affect the environmental sanitation. - Arrange and maintain the red-light at the entrance of the construction area at night. 		

Conclusion:

1. For WRU PMU:

Already assigned the specialized cadre on environment, informed the PCs on the implementation of the land-leveling package, and recieved great supports from the local authorities

2. For comunity-based monitoring:

Already had a close collaboration between PMU, Contractor, CSC, local authorities and communities in monitoring the environmental safeguard, occupational safety and traffic. The local governments and people always create the favourable conditions for the executing units.

3. For CSCs:

Already recorded and fully submitted the monitoring forms in periodical manner to the PMU. Reflection of information on environmental safeguard, occupational safety and the other arising problems on the construction properly and objectively.

4. For on-site inspection:

The construction sites are neat and tidy, not affecting the local traffic and people life. At the sites, there are the speed-limited sign and flash light. Machine and quipment, operating in the construction area, have enough the certificates, and their emmitting rates are within the allowable standards. However, some problems are required to solved such as the workers do not wear the protective clothes, not spraying water to reduce dust on the road, and not assigning persons to instruct the traffic at the entrance of construction area.

5. Ouput of analyzing environmental quality

Quality of environmental air is still within the allowable standards. The surface water quality at 3 observing sites are found with some indicators exceeding the allowable standards. The cause is that water quaility in BHH system has been polluted. During recent time, the construction volume is not much, the construction acitvities does not affect the surface-water quality

The coming monitoring plan of Consultant will be executed in the early December 2013 with the following contents::

- Implement the on-site inspection
- Synthesizing the monitoring forms from the CSCs
- Implement community-based monitoring
- Conduct collection of environmental-quality samples

APPENDIX

Appendix 1: Some pictures of the second monitoring

Appendix 2: Plan for the second monitoring

Appendix 3: Tasks of Environmental monitoring consultant

Appendix 4: Meeting minutes with stakeholders

Appendix 1: Some pictures of the second monitoring



Consultants worked with stakeholders at WRU's PMU



Project's information board



Sign boards at construction site



Bulldozer's drivers were working without labour protection

Appendix 2: Plan for the second monitoring

No.	Contents	Location	Implementation time
1	Working with CPO for the monitoring issues in phase 2 and gathering relevant documents	CPO office	27/9/2013
2	Gathering relevant documents related to monitoring works	PMU office of Water Resources University	9/10/2013
3	On-site monitoring includes the following issues: - On-site inspection the implementation of environmental mitigation impact measures - Inspecting the implementation of social mitigation impact measures - Inspecting the implementation of occupational safety measures - Inspecting traffic safety measures	At construction site	10/10/2013
10	Submit the 1 st draft to CPO	CPO office	25/10
11	Submit the final report		1/11/2013

Appendix 3: Tasks of Environmental monitoring consultant

1. Objectives of environmental monitoring

The main objectives of environmental safeguard monitoring as following:

- + Give supports for the sub-projects in implementation of Environmental Management Plan according to currently applicable regulations and procedures of environmental monitoring under policies of ADB and Socialist Republic of Vietnam.
- + Implementing the overall monitoring on environmental changes caused by project activities; monitoring compliance with national environmental quality standards related to environmental impact of projects’ activities, as well as complaints arising from households affected by project, adaptive level of the design and construction standards.
- + Consultant also supports PMUs in implementing an environmental management plan at construction area. Based on results of environmental safeguard monitoring which implemented by CSC and evaluation of the compliance with environmental safety by construction contractors to ensure that mitigation measures in the EMP will be implemented effectively, promptly and cost saving
- + Regarding on community based monitoring issues, consultant also make recommendations in order to raise awareness, participation of community and environmental monitoring capacity at community level. Consultant will contact the public consulting experts of project to guide communities to implement their environmental management plan.

2. The main tasks of Consultant

a) Strengthening capacity of environmental monitoring and management for the project

Give support to PMUs in designing environmental management program that also includes arrangement of professional environment-cadre and environmental management procedures.

Give support to PMUs in establishment of internal monitor through daily written report.

Give support to PMUs in formulating periodical monitoring records and internal-monitoring report.

Give guidance to PMUs to manage the complying activities by contractors under the regulation as occupational safety, explosive prevention, sanitation, disposal of construction waste according to the provisions under environmental management plan

b) Provide support for PMUs to review the bidding and draft contract documents to ensure the EMP requirements would be incorporated

Give support in reviewing the construction bid-documents to ensure a compliance with EMP requirements.

Give support in reviewing the construction contracts to make sure that an adequate integration of requirements of environmental protection is suitable to each package.

c) Information collection

• Stakeholders consultation

Consultation with stakeholders in the purpose of collecting information supports monitoring process (PMUs, contractors, local authorities, local people...)

- **Environmental monitoring via construction supervision consultant**

The consultants will work with PMUs and Construction Supervision Consultant (CSC) to generate daily record form and procedure for monitoring of the environmental compliance of contractors under the terms of environmental contents in the approved EMPs; based on those, CSC will conduct daily check on the environmental compliance of contractors. The independent environmental monitoring consultant will assist the monitoring of CSC through periodical checking and reviewing the recording results of CSC monitoring.

- **On-site monitoring**

Monitoring implementation of measures to minimize negative impacts of the project during the construction period

Consult community's idea and relevant agencies.

Investigate and detect problems caused by the project deployment to the environment, and recommend solutions.

- **Taking samples for assessing environmental quality**

Surveying, taking samples and analyzing the environmental quality indicators in order to monitor the impacts of project on environmental quality during implementation.

d) Updating monitoring indicators

Consultants will update monitoring indicators in implementation of project's activities. The monitoring indicators should be updated during the implementation of project.

e) Analyzing data

Analyzing the data collected from the on-site audit, consultation of stakeholder, daily of construction supervision consultant and environmental quality from sampling program to prepare monitoring reports.

f) Monitoring frequency

On-site monitoring: supporting PMUs, Contractors in implementing EMP. Monitoring the compliance of PMUs and Contractors with EMP: 2 times per year

On-site monitoring and collecting samples to assess project's impacts on environment quality: 2 times/year.

g) Report

Preparing Inception report, Final report and Periodical monitoring reports follow frequency of monitoring (4 periods/year in 3 years).

1	Evaluating contractors’ capacity in environmental management during construction	Good
2	Inspecting the implementation of project’s information works	Yes
3	Inspecting the overcoming of existence the first monitoring	Yes
4	Earthworking mitigation measures	Yes
5	Environmental sanitation ensuring measures	Yes
6	The mitigation measures in gathering and storage of materials (sand, stone, cement, ...)	Yes
7	Mud dredging mitigation measures	Yes
8	Pollution in transport mitigation measures	Yes
9	Inspecting operation certificate of equipments	Yes
10	Inspecting dumping site	Yes

(ii) Inspecting the implementation of social impact mitigation measures

No.	Contents	Result
1	Managing workers by generating regulations and inspecting the implementation of regulations	in the process of generating regulations
2	Local worker’s percentage	20%
3	Arising conflict between workers and local people	No
4	Other social negative issues	No

(iii) Inspecting the implementation of occupational safety measures

No.	Contents	Result
1	Tools, medicine cabinetn for first aid service, victims emergency	Not enough
2	Equip labour protection for workers	Yes
3	Camp, environmental sanitation conditions for worker’s accommodation	sanitation ensuring

(iv) Inspecting traffic safety measures

No.	Contents	Result
1	Sign board at construction site	Yes
2	Sign board for separete traffic lanes during construction	Yes
3	Inspecting material transport equipments	Yes

(v) Community consultation

Representative of Nhat Tan commune People’s Committee:

- + The contractors has not registered temporary accommodation for workers with local authority
- + During construction, the contractor has been requested to spray regularly water to avoid dust

Representative of An Vien commune People’s Committee:

- + The contractors need to speed up construction progress in order to avoid impacts on agricultural irrigation.

Signature of stakeholders

Representative of PMU:

Representative of Environmental Monitoring Consultant:

Representative of Construction Contractor:

Representative of Construction Supervision Consultant:

Representative of Local Authorities:.....

Appendix 5: Sample analysis results



CONSTRUCTION AND MATERIAL TECHNOLOGY TRANSFER JSC
CENTER FOR CHEMICAL – ENVIRONMENT ANALYSIS

Address : Building no. 5 – Water Resources University -
Dong Da - Ha Noi - Tel : 04.35640103

ISO 9001 : 2008

No: 1185/PTMT-CTY

ANALYSIS RESULT

Client: Southeast Asia Institute for Water Resources and Environment

Number of sample: 3

Sample type: Air

Location: Project area of Construction of New Education Facilities for Water Resources University

Date of sampling: / /2013

No.	Indicator	Unit	Sample symbol			QCVN 05:2009	QCVN 26:2010
			KK1	KK2	KK3		
1	Noise	dBA	49.5	67.3	50.4	-	70
2	Vibration	dB	0.015	0.020	0.018	-	-
3	Dust	mg/m ³	0.27	0.26	0.22	0.3	-

Allowed standard according to the following regulations:

(+)QCVN 05:2009/BTNMT National technical regulation on ambient air quality

(+)QCVN 26:2010/BTNMT National Technical Regulation on Noise

(-): No regulation

Hanoi, 03rd May 2013

Analysis Staff

Director

Nguyen Van Thanh

Nguyen Thi Hang Nga

Institute for Water and Environment

Department of general laboratory

Address: 1/95 - Chua Boc - Dong Da - Hanoi

Tel: 844-8.539.127

Fax: 844-5.634.809

TABLE OF SURFACE WATER ANALYSIS RESULTS

Unit sending samples: Southeast Asia Institute for Water Resources and Environment

April 2013

No.	Parameters	Unit	Analysis result		
			NM01	NM02	NM03
1	pH	-	7.05	7.2	7.2
2	DO	mg/l	3.84	3.68	5.6
3	SS	mg/l	22.43	23	34.4
4	COD	mg/l	48	46	54
5	BOD ₅	mg/l	13.44	13.8	17.28
6	NH ₄ ⁺	mg/l	1.51	0.56	0.62
7	NO ₂ ⁻	mg/l	0.44	0.12	0.04
8	NO ₃ ⁻	mg/l	<0.01	<0.01	<0.01
9	PO ₄ ³⁻	mg/l	0.04	0.02	0.04
10	As	mg/l	0.0036	0.0034	0.0024
11	Hg	mg/l	0.0006	0.0003	0.0003
12	Pb	mg/l	0.0044	0.0091	0.0081
13	Zn	mg/l	0.265	0.16	0.229
14	Grease	mg/l	0.5	0.4	0.7
15	Coliform	MPN/100ml	920	4900	1700

Notes:

NM01: Water in the channel 61 at the gate of the aqueduct near highway 38 (drainage direction is from the channel 61 to Hoa Binh river)

NM02: Water in the channel in the west of the project near road 61 (Discharge location)

NM03: Water sample in the channel 61 before An Vien secondary An Vien (drainage direction from the channel 61 to channel T1-5).

Hanoi, 03rd May 2013

**Representative for
analysis group**

Head of the department Institute for Water and Environment

Le Van Cu

MSc. Vu Quoc Chinh