

# Environmental and Social Monitoring Report

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Semi-Annual Report  
January 2017

## Viet Nam: Central Regions Rural Water Supply and Sanitation Sector Project

### WATER SUPPLY AND SANITATION OF THACH BANG, THACH KIM AND THINH LOC COMMUNES, LOC HA DISTRICT, HA TINH PROVINCE

Prepared by The Joint Venture of CDM International Inc., Nippon Koei Co. Ltd. and Vinaconsult JSC for the Asian Development Bank.

## CURRENCY EQUIVALENTS

(as of 2 December 2016)

Currency unit	–	dong (VND)
VND1.00	=	\$0000440
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## ABBREVIATIONS

ADB	–	Asian Development Bank
AHs	–	affected households
APs	–	Affected Persons
CARC	–	Compensation Assistance Resettlement Committee
CSC	–	Design-Build Construction Supervision Consultant
CPC	–	Commune People's Committee
CPMU	–	Central Project Management Unit
CVWU	–	Communal Vietnam Women's Union
D&B	–	Design and Build
DARD	–	Department of Agriculture and Rural Development, Provincial
DONRE	–	Department of Natural Resources and Environment, Provincial
DPC	–	District People's Committee
EARF	–	Environmental Assessment and Review Framework
EC	–	Environmental Protection Commitment
EMP	–	Environmental Management Plan
EMoP	–	Environmental Monitoring Plan
EO	–	Environmental Officer
FS	–	Feasibility Study
GoV	–	Government of Vietnam
HHs	–	Households
IEE	–	Initial Environmental Examination
LARC	–	Land Acquisition and Resettlement Completion Report
LARP	–	Land Acquisition and Resettlement Plan
lpcd	–	Litters per capita per day
MARD	–	Ministry of Agriculture and Rural Development
MOH	–	Ministry of Health (BYT)
MONRE	–	Ministry of Natural Resources and Environment (BTNMT)
MOU	–	Memorandum of Understanding
NCERWASS	–	National Centre for Rural Water Supply and Environmental Sanitation
NGO	–	Non-governmental Organization
NOL	–	No Objection Letter
O&M	–	Operation and Maintenance
ODA	–	Official Development Assistance
OHS	–	Occupational Health and Safety
OU	–	Operational Unit
PCERWASS	–	Provincial Centre for Rural Water Supply and Environmental Sanitation
PIA	–	Project Implementation Assistance
PPC	–	Provincial People's Committee
PPMU	–	Provincial Project Management Unit
PVWU	–	Provincial Vietnam Women's Union
REA	–	Rapid Environmental Assessment

SAR	– Subproject Appraisal Report
SIEE	– Summary Initial Environmental Examination
SSO	– Subproject Site Office
VND	– Vietnam Dong
VWU	– Vietnam Women's Union
WSCC	– Water and Sanitation Commune Committee
WTP	– Water Treatment Plant

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**MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
NATIONAL CENTRE FOR RURAL WATER SUPPLY AND  
ENVIRONMENTAL SANITATION**

**CENTRAL REGION RURAL WATER SUPPLY AND  
SANITATION SECTOR PROJECT**

{ADB Loan No. 2609-VIE (SF)}

**Safeguards Monitoring Report**

**JULY ÷ DECEMBER 2016**

**WATER SUPPLY AND SANITATION OF  
THACH BANG, THACH KIM AND THINH LOC COMMUNES,  
LOC HA DISTRICT, HA TINH PROVINCE**

**Consulting Services  
For  
Project Implementation Assistance**

The Joint Venture of  
CDM International Inc., Nippon Koei Co. Ltd. and Vinaconsult JSC

December 2016

# **CENTRAL REGION RURAL WATER SUPPLY AND SANITATION SECTOR PROJECT**

{ADB Loan No. 2609-VIE(SF)}

## **Safeguards Monitoring Report JULY ÷ DECEMBER 2016**

**WATER SUPPLY AND SANITATION OF  
THACH BANG, THACH KIM AND THINH LOC COMMUNES,  
LOC HA DISTRICT, HA TINH PROVINCE**

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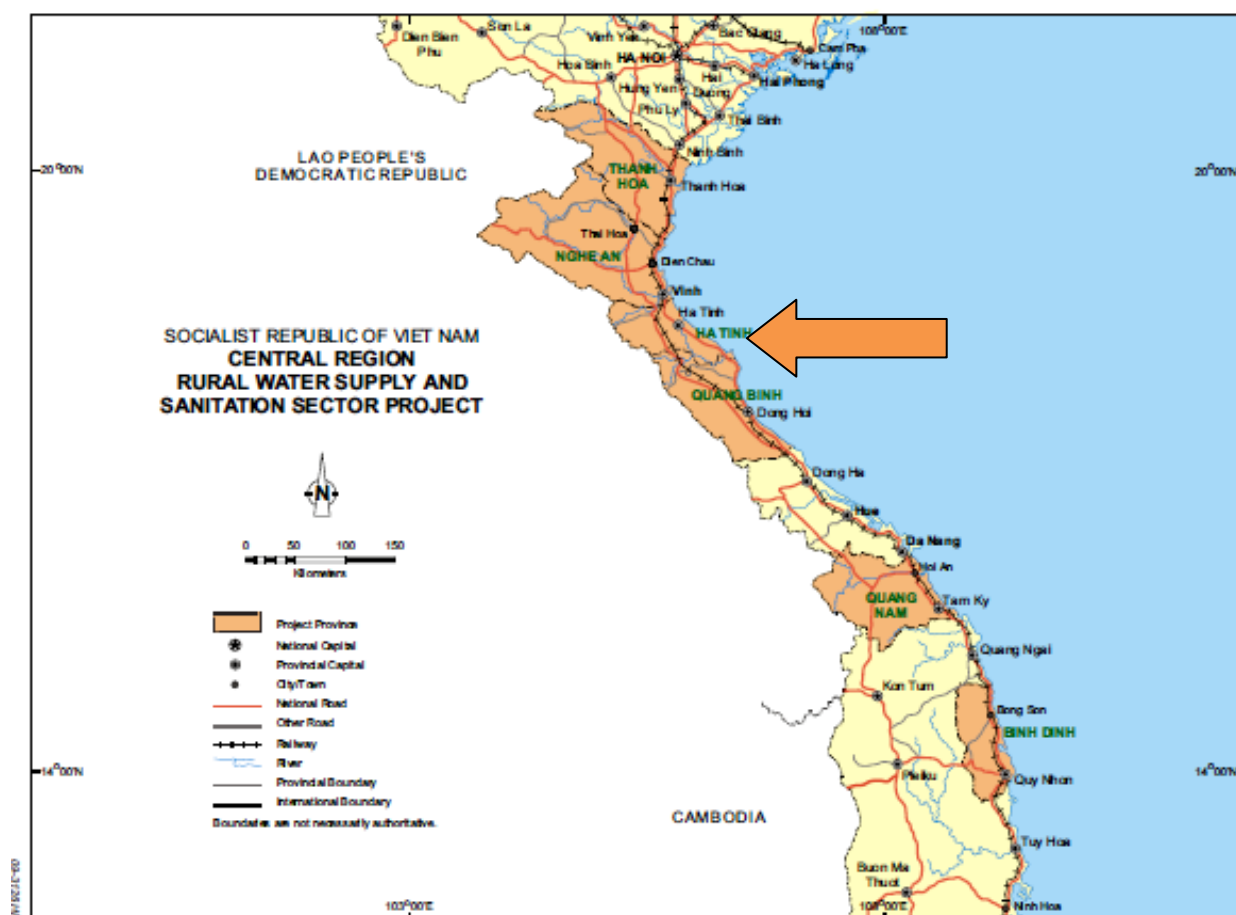
This report has been prepared based on a combination of information provided by others and by the PIA Consultant. The PIA Consultant has to the extent reasonably possible validated and verified the accuracy of the information in the reports and appendices. To the best of the PIA Consultant's belief and knowledge, the included information is reasonably accurate and correct.

The Joint Venture of  
CDM International Inc., Nippon Koei Co. Ltd. and Vinaconsult JSC

December 2016

## Internal Quality Control

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<b>Classification</b>	Safeguards Monitoring Report
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**Figure 1** Location map of six Project Provinces of the central coastal region of Vietnam

## Preface

The Government of Vietnam and the Asian Development Bank (ADB) have agreed to implement the Central Regions Rural Water Supply and Sanitation Sector Project (Project) scheduled to be completed by 31 December 2016. The Project has a total budget of US\$ 50 million and is expected to provide access to clean water and hygienic sanitation for about 200,000 rural people in 33communes in the six coastal central region provinces of Vietnam: Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Nam and Binh Dinh.

The Loan Agreement was signed on 2<sup>nd</sup> February 2010. On the 26<sup>th</sup> July 2011, the National Centre for Rural Water Supply and Environmental Sanitation (NCERWASS) of the Ministry of Agriculture and Rural Development (MARD) signed a Contract for Consulting Services for Project Implementation Assistance with CDM International Inc. in a joint venture with Nippon Koei Co. Ltd and national consultant Vinaconsult JSC (PIA Consultant). The PIA Consultant mobilized its team members on 25<sup>th</sup> August 2011.

This Safeguards Monitoring Report – July - December 2016 covers main findings of the monitoring of safeguards issues of construction activities carried outduring the reporting period from July to the end of December 2016. This report is based on review of quarterly records of Construction Supervision Consultant (CSC) during construction; the Provincial Project Management Unit (PPMU), Operating Unit during Water Treatment Plant's operation (WTP) and observation made by PIA Consultant during supervision missions on 07-09 September and 22-25 November 2016 to the Subproject area.



## List of Abbreviations

<b>ADB</b>	Asian Development Bank
<b>AH</b>	Affected Household
<b>AP</b>	Affected Person
<b>CARB</b>	Compensation Assistance Resettlement Committee
<b>CSC</b>	Design-Build Construction Supervision Consultant
<b>CPC</b>	Commune People's Committee
<b>CPMU</b>	Central Project Management Unit
<b>CVWU</b>	Communal Vietnam Women's Union
<b>D&amp;B</b>	Design and Build
<b>DARD</b>	Department of Agriculture and Rural Development, Provincial
<b>DPC</b>	District People's Committee
<b>EARF</b>	Environmental Assessment and Review Framework
<b>EC</b>	Environmental Protection Commitment
<b>EIA</b>	Environmental Impact Assessment
<b>EMoP</b>	Environmental Monitoring Plan
<b>EMP</b>	Environmental Management Plan
<b>EO</b>	Environmental Officer
<b>FS</b>	Feasibility Study
<b>GoV</b>	Government of Vietnam
<b>IEE</b>	Initial Environmental Examination
<b>lpcd</b>	liters per capita per day
<b>LARC</b>	Land Acquisition and Resettlement Completion Report
<b>LARP</b>	Land Acquisition and Resettlement Plan
<b>MARD</b>	Ministry of Agriculture and Rural Development
<b>MOH</b>	Ministry of Health
<b>MONRE</b>	Ministry of Natural Resources and Environment
<b>MOU</b>	Memorandum of Understanding
<b>NCERWASS</b>	National Centre for Rural Water Supply and Environmental Sanitation
<b>NGO</b>	Non-governmental Organization
<b>O&amp;M</b>	Operation and Maintenance
<b>ODA</b>	Official Development Assistance
<b>OHS</b>	Occupational Health and Safety
<b>OU</b>	Operating Unit
<b>PCERWASS</b>	Provincial Centre for Rural Water Supply and Environmental Sanitation
<b>PIA</b>	Project Implementation Assistance
<b>PPC</b>	Provincial People's Committee
<b>PPMU</b>	Provincial Project Management Unit
<b>Project</b>	Central Region Rural Water Supply and Sanitation Sector Project
<b>PVWU</b>	Provincial Vietnam Women's Union
<b>REA</b>	Rapid Environmental Assessment

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<b>RWSS</b>	Rural Water Supply and Sanitation
<b>SAR</b>	Subproject Appraisal Report
<b>SIEE</b>	Summary Initial Environmental Examination
<b>SSO</b>	Subproject Site Office
<b>Subproject</b>	Loc Ha - Ha Tinh Pilot Subproject
<b>VND</b>	Vietnam Dong
<b>VWU</b>	Vietnam Women's Union
<b>WSCC</b>	Water and Sanitation Commune Committee
<b>WSSS</b>	Water Supply and Sanitation Subproject
<b>WTP</b>	Water Treatment Plant

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## **1 INTRODUCTION AND PROJECT OVERVIEW**

### **1.1 Introduction**

The water supply and sanitation Pilot Subproject located in Thach Bang, Thach Kim and Thinh Loc communes of Loc Ha District, Ha Tinh Province is one of the 6 Pilot Subprojects of the Central Regions Rural Water Supply and Sanitation Sector Project (Project) to be implemented under the Loan Agreement No. 2609 - VIE (SF) between the Socialist Republic of Vietnam (GoV) and the Asian Development Bank (ADB).

The implementation of the Project will result in better health and living conditions of people living in rural areas in the Project provinces of Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Nam and Binh Dinh. The Project will construct a piped water supply systems, and sanitation facilities and promote safer hygiene practices by the commune's residents. The Project's components are the following: (i) Operational and sustainable piped water supply system; (ii) Improved household and public sanitation; (iii) Improvement of hygiene awareness; (iv) Strengthened sector planning and implementation capacity; and (v) Improved project management capacity.

In accordance with the Memorandum of Understanding (MOU) agreed between the ADB and the CPMU, the Ha Tinh Pilot Subproject needs to adhere to preparation of semi-annual safeguards monitoring reports. This semi-annual report covers issues in the second half of 2016.

The Ha Tinh Pilot Subproject is located in Thach Bang, Thach Kim and Thinh Loc communes of Loc Ha District (the Subproject). The Subproject is designed to improve rural water supply and sanitation facilities and to promote safer hygiene practices by the rural communes. Water supply includes construction of piped water supply schemes with treatment facilities. The Subproject will include construction of school and public latrines where school and public health education programs are being carried out.

The Subproject will also include grey water (sullage) disposal and small scale drainage improvements to properly discharge spill and grey water flows that will result from the water supply improvement works. The overall progress of the sanitation package is 100%.

The Design-Build package for Water Supply System of Thach Bang, Thach Kim and Thinh Loc communes of Loc Ha District, Ha Tinh Province was divided into two packages and commenced around mid-July 2013. The overall progress of the water supply component is about 100%. Service pipelines in Xuan Yen area (Xuan Khanh, Khanh Yen, Yen Binh, and Phu Dong hamlets) are completed. The sanitation component is 100% completed (figures taken from Quarterly Progress Report prepared by Ha Tinh PPMU).

## 1.2 Subproject Overview and Progress

**Table 1 Ha Tinh Pilot Subproject Overview and Progress**

<b>Project Number and Title:</b>	<b>ADB Loan No. 2609-VIE (SF)</b> <b>Central Region Rural Water Supply and Sanitation Sector Project</b> <b>Sub-project: Construction of Water Supply and Sanitation for Thach Bang, Thach Kim and Thinh Loc Communes, Loc Ha District, Ha Tinh Province</b>	
<b>Safeguards Category</b>	Environment	B
	Involuntary Resettlement	B
	Indigenous Peoples	C
<b>Reporting period:</b>	July 2016 – December 2016	
<b>Last report date:</b>	October 2016	
<b>Key sub-project activities since last report:</b>	<p><b>1) Construction Component</b>  The Subproject includes three construction packages:</p> <ul style="list-style-type: none"> <li>(i) The design-build package HT1/DB1/NCB for WTP, transmission pipeline to the booster station, distribution network of Thinh Loc commune was signed on July 15, 2013, and was completed in April 2015;</li> <li>(ii) The design-build package HT1/DB2/NCB for booster station, distribution network of Thach Bang, Thach Kim, district's administration area and Thach Kim seaport was signed on July 19, 2013. ADB granted no-objection letter for the extension of service to Xuan Yen area in January 2015 and the construction was completed in July 2015; and</li> <li>(iii) The design-build package of drainage system and sanitation for the whole Subproject was started on June 29, 2013 and the construction was completed in June 2014.</li> </ul> <p><b>2) Progress of Work</b>  <b>Main items of water supply component:</b>  <i>D-B package HT1/DB1/NCB</i></p> <ul style="list-style-type: none"> <li>(i) Water Treatment Plant: grading, clean water tank, civil works of the treatment unit and raw water pump station, fence and sedimentation tank are 100% completed;</li> <li>(ii) Installation of transmission, distribution and service pipelines: 100% are installed.  → The overall progress of the package HT1/DB1/NCB is 100%.</li> </ul> <p><i>D-B package HT1/DB2/NCB</i></p> <ul style="list-style-type: none"> <li>(i) Leveling, clean water tank, administration house, civil work of the clean water booster pumping station, warehouse, fences, gates, drainage system, foundation and power poles are 100% completed;</li> <li>(ii) Installation of technical pipes, installation of clean water pump station, yard, internal roads, installation of transformer and electrical equipment are being completed; and</li> <li>(iii) Service pipelines in Xuan Yen area (Xuan Khanh, Khanh Yen, Yen Binh, and Phu Dong hamlets) are to be installed immediately after</li> </ul>	

<b>Project Number and Title:</b>	<b>ADB Loan No. 2609-VIE (SF) Central Region Rural Water Supply and Sanitation Sector Project Sub-project: Construction of Water Supply and Sanitation for Thach Bang, Thach Kim and Thinh Loc Communes, Loc Ha District, Ha Tinh Province</b>
	<p>the updated LARP of the Subproject is approved by the ADB and scheduled to be completed on July 30, 2015.</p> <p>→ The overall progress of the package HT1/DB2/NCB is 100% including Xuan Yen area.</p> <p>→ The WTP is currently under operation.</p> <p><b>Main items of sanitation component:</b></p> <p>(i) Construction of latrine substructures: 1,200 latrine substructures achieved. The 199 remaining household latrine substructures (according to the contract, total in-kind grants for household latrine substructures is 1,399 households) shall not be constructed due to: (i) some households have constructed their latrines before the project, and (ii) some households in Thach Kim commune did not have enough area to build a latrine.</p> <p>(ii) Construction of 6 public latrines completed (100%); and</p> <p>(iii) Drainage improvement: 3,355 m drainage has been completed.</p> <p>→ The overall progress of the sanitation component is 100%. The Minutes of Acceptance (Certificate of Completion) for Construction Works of the package No. HT1/DB3/NCB and Handover &amp; Put the Works in to Use was signed on May 27, 2014.</p> <p><b>3) Changes of Surrounding Environment:</b></p> <p>The land area of the WTP has been transformed from a green hilly landscape into construction area of a modernized water treatment plant. On one side of the hill, trees were cut off to build access road to the WTP which connects to the existing main entrance. Outside of the permitted land area, the surrounding environment remains unchanged.</p>
<b>Report prepared by:</b>	PIA consultant

## 2 ENVIRONMENTAL PERFORMANCE MONITORING

### 2.1 EMP/EMoP Implementation and Compliance

During construction phase, the implementation of the EMP is the responsibility of the D-B Contractor. The D-B Contractor's responsibility includes the appropriate and timely application of the mitigating measures stipulated in the approved EMP/EMoP. The application and implementation of the mitigation measures are to provide the safeguards that will control, reduce if not eliminate unwanted effects during the Subproject implementation.

Regarding raw water quality, D&B Contractor is responsible for taking water samples and quality analyses once during Detail Design stage to point out whether there are any changes of raw water quality needed to have adjustment to the water treatment process of the water supply scheme, and to establish the baseline raw water quality; and another in the

end of construction when the WTP is already for operation to monitor any changes in raw water quality.

As agreed by the ADB and Ha Tinh PPC, the water supply service area has been expanded to cover a new area (Xuan Yen area including Xuan Khanh, Phu Dong, Khanh Yen and Yen Binh hamlets) with approximately 700 new service connections. This area was already included in the sanitation and drainage package component of the Subproject as well as covered in the SAR report revision 1 of Ha Tinh pilot Subproject which was approved by the ADB on June 3, 2013. No negative environmental impacts were caused by the construction of the water supply system in the area. Therefore, the expansion of water supply coverage area to include Xuan Yen area does not affect the findings of the updated IEE/ EMP of Ha Tinh pilot Subproject. Moreover, the people in Xuan Yen area have been informed and consulted before construction commences in the area.

## **2.2 Environmental Monitoring of CSC**

During construction phase, the inspection, evaluation and recording of compliance to the EMP and EMoP as implemented by the contractors are among the tasks undertaken by the Construction Supervision Consultant (CSC) in the field with the assistance of the PIA Consultant. The CSC carries out weekly and monthly inspections and maintains records of the D-B Contractor's mitigating measures and activities prescribed in the approved EMP and EMoP of the Subproject. The responsibilities of CSC cover the period to the end of the commissioning stage including certifying of construction materials, equipment and items and final checking and acceptance for handing over for operation.

The inspection and evaluation records are consolidated by the CSC in their Quarterly Environmental Monitoring Report. The CSC's collation and synthesis of the D-B Contractors' compliance to the requirements of the EMP and EMoP are summarized in matrix attached with the report to be submitted to CPMU and PIA Consultant within 15 days after the end of each quarter.

## **2.3 Monitoring Activities Carried out by PIA Consultant**

During the construction phase, the PIA Consultant has provided support and advice to CSC and D-B Contractors in implementation of EMP/EMoP and assisted CPMU in compiling monitoring reports for submission to ADB. The PIA Consultant carried out field visits for inspection of environmental performance during Subproject implementation.

During the second half of 2016, the PIA Consultant conducted two field trips to Ha Tinh on 07-09 September and 22-25 November 2016 and no problem was found.

The collation of the CSC's quarterly monitoring report and PIA Consultant's on-site visits on the assessment of the D-B Contractors' compliance to the requirements of the EMP and EMoP is summarized in environmental performance matrix of the Subproject attached with this report as an Annex 1.

## **2.4 Key Issues for Further Actions**

**Table 2 Environmental Issues for Further Action.**



Issue	Required Action	Responsibility and Timing	Resolution
<b>Old Issues from Previous Reports:</b> none			
<b>New Issues from This Report:</b> none			

### 3 INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

#### 3.1 Compliance with RP Requirements

Ha Tinh PPMU paid compensation to the affected households and allowed the contractor to start construction before ADB's approval of the Updated Land Acquisition and Resettlement Plan (LARP). As consequence of this non-compliance to the ADB's procedures, ADB put a stop to construction activities of Ha Tinh subproject by Letter dated 21 January 2014.

After the ADB mid-termreview in May 2014, Ha Tinh PPMU informed that there were 05 new households affected on land and crops in the new location of the booster pumping station. Therefore, the LARP had to be revised again. PPMU also held a public consultation on 26 May 2014 informing theTienLoc CPC and 7 households who were to lose land and crops due to the planned location of the booster pumping station, that the previously mentioned land is not to be used forthe subproject anymore and it will be used to build Mai Hac De monument (Letter No. 434/TB-ODA dated 26 May 2014).

The LARP was revised again accordingly andon 26 June 2014 Ha Tinh PPMU submitted it to ADB for approval. Through the No Objection Letter dated 07 July 2014, ADB approved the Updated Ha Tinh LARP and allowed construction works to resume.

Through the Compensation Assistance Resettlement Board(CARB), PPMU has fully paid compensation to 72 affected households, in which, 5 households are affected by land and crop; 67 households are affected by crop only. The total amount paid to the affected people was 659,482,486 VND. The redress grievance mechanism was established in communal, district and provincial levels to solve complaints from affected persons.

On 29 and 30 June 2014, PIA Consultant carried out a site review and had a meeting with PPMU and other concerned stakeholders for preparingthe Due Diligence Report. Based on the findings and review of the LARP processes carried out by the PPMU and CARB, PIA Consultant prepared the Due Diligence Report and submitted it to ADB on 21 July 2014.

The grievance redress mechanism was established on communal, district and provincial levels to solve any potential complaints from affected persons.

Because the streets of service area have not been constructed, therefore it is impossible to build the water supply system in that area as planned in the FS, one new area with about 700 households was agreed to be included the Subproject. For that reason, the PPMU of Ha Tinh has to update the approved Updated LARP. The Land Acquisition and Resettlement Plan of Thach Bang – Thach Kim and Thinh Loc communes, Loc Ha District, Ha Tinh Province was updated and approved by ADB through the Letter dated 7 July 2014.

During the implementation to enhance the project efficiency and increase number of service connections Department of Agriculture and Rural Development (DARD) issued the

Decision No 4384/QD/SNN dated 31 October 2014 for approving assignment of supplemental survey and preparation of engineering and technical design and cost estimation of water supply work items for Xuan Yen Area, Thach Bang commune, Loc Ha District, Ha Tinh province.

On 05 February 2015, PPMU of Ha Tinh issued Letter No 101/TTr-ODA to informing the amendment, explaining reasons for adjustment and on 27 February 2015, the CPMU has sent the Letter no 19/NS-ADB to ADB for requesting approval the mentioned packages. ADB has approved though the Letter dated 3 March 2015.

Consequently DARD of Ha Tinh issued Decision No.366/QD-SNN dated 24 April 2015 approving the detailed engineering and technical design and the cost estimate for adjustment of packages No.HT1/DB1/NCB and HT1/DB2/NCB under the Water Supply and Sanitation Subproject of Thach Bang, Thach Kim, and Thinh Loc Communes, Loc Ha District, Ha Tinh Province.

The detailed design of water supply system for Xuan Yen area has been approved by the local authorities on 24 April 2015, PPMU with CARC carried out the Detailed Measurement Survey (DMS) in Xuan Yen area on 27 and 28 April 2015. New temporarily affected public land area is 6,586 m<sup>2</sup> (refer to Annex 5) According to DMS result there are no affected households as only public land along the streets will be temporarily acquired for the construction of distribution pipelines (refer to Annex 5). The result of DMS shows that there is no new permanently acquired land. No new persons, houses or structures, public assets, monuments, cultural heritage and conservation areas will be affected. There is no loss of crops and trees and no relocation of graves will be required due to the construction the distribution network in Xuan Yen area.

The Public Consultation Meeting for Xuan Yen area was conducted on 27 April 2015 with presence of representatives of PPMU, CPC of Thach Bang and 07 head of households<sup>1</sup> who live along the road where transmission pipeline will be constructed. In the meeting, PPMU of Ha Tinh provided information on the subproject's outputs and implementation principles approved by PPC of Ha Tinh by the Decision 3282/QD-UBND dated 05 November 2012 and the Decision No.366/QD-SNN dated 24 April 2015 issued by the Department of Agriculture and Rural Development of Ha Tinh province on approving the detailed engineering and technical design and the Cost estimate for adjustment of packages No.HT1/DB1/NCB and HT1/DB2/NCB under the Water Supply and Sanitation Subproject of Thach Bang, Thach Kim, and Thinh Loc Communes, Loc Ha District, Ha Tinh Province. Also the grievance redress mechanism and impacts of the construction activities on people and structures were explained and discussed in the meeting. The people who attend to the meeting agreed with the construction of transmission pipeline and water supply distribution network for the people living in Xuan Yen area. The participants of the meeting signed in the Minutes of Public Consultation (refer to *Annex 4 Minutes of Public Consultation*).

PPMU of Ha Tinh informed to the CPC of Thach Bang about the construction of distribution network in Xuan Yen area through the Letter No.348/ODA-KTGS dated 24 April 2015 (refer to *Annex 3 Announcement of constructing water supply system in Xuan Yen Area*). The CPC of Thach Bang, has informed the residents of in Xuan Yen area about the mentioned construction by publicizing the mentioned letter in the communal notice board and through the community loudspeaker system.

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<sup>1</sup> The head of households were invited to participate in the Public Consultation meeting. However, most of head of households are male therefore no women attended the consultation.

The cut-off date of the construction of water supply system for the Xuan Yen area is the completion date of Detailed Measurement Survey 28 April 2015. The Letter No. 366/ODA – KTGS has been displayed on the communal notice board to inform the result of DMS and the cut-off date to everyone

Up to end of June 2015, the Supplementation Appendix for Xuan Yen Area has been prepared and based on the Supplementation Appendix, the Updated LARP has been updated accordingly. The Updated LARP has submitted to ADB for approval on 29 June 2015.

ADB has approved the Revised Updated LARP (including Xuan Yen area) though the Letter dated 16 July 2015. After that, it has been disclosed by PPMU of Ha Tinh to project area on 17 July 2015 through the Letter 704/ODA. The PPMU of Ha Tinh has prepared the draft Land Acquisition and Resettlement Completion (LARC) Report (Vietnamese version and English version).

**Table 3 Summary of Compliance with RP Requirements**

<b>RP Requirements</b>	<b>Compliance status</b>	<b>Comment or Reasons for Compliance, Partial Compliance/Non-Compliance</b>	<b>Issues for Further Action<sup>2</sup></b>
Establishment of personnel in PMU/PIU	Yes	The Compensation Assistance and Resettlement Board (CARB) established according to decision No 1038/QĐ-UNND, dated on 03 April 2013.	
Public consultation and socialization process	Yes	<p>Consultation meeting with the commune and affected households, from Mar 17, 2012 to Mar 24, 2012.</p> <p>Consultation meeting with affected households, after the document of construction design drawings was approved, from June 28, 2013 to June 30, 2013.</p> <p>Consultation with new 05 AHs in new location of booster pumping station on 8 March 2014.</p> <p>Public Consultation with households that have main pipeline run across without impacts on 27.4.2015 and informing results of DMS on 04 May 2015</p>	
Land area to be acquired is identified and finalised	Yes	Total of permanently acquired land is <b>6366.5 m<sup>2</sup></b> (in which public land acquired is 3,467.5 m <sup>2</sup> and private land acquired is 2,899 m <sup>2</sup> )	
Land acquisition completed	Yes	The land acquisition has been completed and the construction has been carried out. There has not been any complaint reported yet.	

<sup>2</sup> To be elaborated further in Table 4 (Issues for Further Action)

RP Requirements	Compliance status	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action <sup>2</sup>
Establishment of Resettlement Site(s)	Not applicable		
Compensation payments for affected assets is completed	Yes	<p>Total Number of Eligible AHs and APs (as per agreed RP): 72 households.</p> <p>Number of AHs and APs compensated as of this monitoring period: 72 households.</p> <p>Total Budget allocation as per agreed RP: Total budget for compensation for the affected people: 659,482,486 VND (32,632 USD).</p> <p>Total budget disbursed to AHs as of this monitoring period: Through CARB, PPMU has fully paid compensation budget to affected households with an amount of 659,482,486 VND.</p>	
Transport assistance for relocating affected households	Not applicable		
Additional assistance to vulnerable affected households	Yes	<ul style="list-style-type: none"> <li>Total Number of vulnerable AHs and APs (as per agreed RP): 06 AHs.</li> <li>Agreed forms of assistance as per RP: By cash with 1,200,000 VND per household. Beside provide allowance for 01 poor household (under government policy) with 2,000,000 VND.</li> <li>Number of AHs and APs assisted as of this monitoring period: 06 HHs.</li> </ul>	
Income Restoration Program	Yes	<p>Provide income/livelihood restoration has been fully paid for 05 households with amount of 69,120,000 VND.</p> <p>Provide transition subsistence allowance for 05 households with 24,000,000 VND per household.</p> <p>Support for job change when acquire land for 05 households with amount 230,185,692 VND.</p> <p>Support for job training and creation for 5 households (one free training 5,000,000 VND/courses/labor have demand).</p>	

RP Requirements	Compliance status	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action <sup>2</sup>
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)	Yes	62 households were affected on crops and trees in transmission and distribution pipeline. After finishing construction the land was restored to cultivation condition.	
Capacity building activities	Yes	Training course on “ADB's social safeguard policies on environment and resettlement” from 2 April to 4 April, 2014 in Quang Nam province.	
Disclosure the approved Updated LARP	Yes	PPMU of Ha Tinh has disclosed the approved Updated LARP on 17 July 2015	

### 3.2 Resettlement Monitoring by PPMU

The resettlement category of this sub-project is B, therefore Resettlement Internal Monitoring Report was required. The internal monitoring will be reported by CARC to PPMU every quarter. However, the PPMU has included the Resettlement Internal Monitoring Report into the general Quarterly Report instead of a separate Resettlement Internal Monitoring Report.

### 3.3 Monitoring Activities carried out PIA Consultant

On 29 and 30 June, 2014, PIA Consultant undertook a review of LARP processes, carried out and prepared the Due Diligence Report to review the compensation rates applied to the compensations paid to Affected Households whether (i) the rates used are based on the market value (ii) ensure that the Grievance Mechanism at the Commune, District and Province levels are established and known to the affected communities.

As well as the information reported in Quarterly Report sent by PPMU, PIA Consultant has carried out site visits 5 times on January, April, July, September and November 2014 to supervise the land acquisition activities. Up to this time, the scope of supply water has changed, and PIA Consultant will support PPMU of Ha Tinh in preparing the variation Annex on the approved Updated LARP.

PIA Consultant carried out a site visit to Ha Tinh for construction supervision in August from 16 to 20 2015. The construction of additional distribution system in Xuan Yen was completed except for approximately 1km of pipeline which had to be relocated due to change of road alignment.

During the site visit in November from 22 to 25, 2015, PIA observed that the construction of additional distribution system in Xuan Yen was completed including the remaining one kilometre of pipeline that had required relocation.

PIA consultant has supervised the Loc Ha subproject during a site visit from 07-09 March; 07-09 September and 22-25 November 2016 and no problem was found.

### 3.4 Issues for Further Action

**Table 4 LARP Issues for Further Action**

Issue	Required Action	Responsibility and Timing	Resolution
<b>Old Issues from Previous Reports</b>			
Disclosure of approved revised Updated LARP including Xuan Yen Area	PPMU to disclosed approved Updated LARP to project area	PPMU	Disclosed on 17 July 2015
<b>New Issues from This Report</b>			
Land Acquisition and Resettlement (LARC) Report	PPMU of Ha Tinh to prepare the draft LARC Report – English version	PIA Consultant will review report before submitting to ADB.	

## 4 OCCUPATIONAL, HEALTH AND SAFETY (OHS) PERFORMANCE MONITORING

The Occupational, Health and Safety (OHS) Performance has been monitored for the construction/ operational workers and the public.

### 4.1 OHS for Workers and Operators

During this reporting period, no issue related to safety of construction workers and operators has been detected and reported.

**Table 5 OHS for Construction worker and Operators.**

Issue	Required Action	Responsibility and Timing	Resolution
<b>Old Issues from Previous Reports:</b> none			
<b>New Issues from This Report:</b> none			

### 4.2 Public Safety

No issues related to public safety have been detected and reported.

**Table 6 Public Safety.**

Issue	Required Action	Responsibility and Timing	Resolution
<b>Old Issues from Previous Reports:</b> none			
<b>New Issues from This Report:</b> none			

## 5 INFORMATION DISCLOSURE AND SOCIALIZATION INCLUDING CAPACITY BUILDING

### 5.1 Public Consultations, Meetings and Information Disclosure

#### 5.1.1 Environmental Public Consultation and Information Disclosure

There was one public consultation meeting held during this reporting period and all of the updated information regarding the Subproject's implementation and policies has been dispatched to the local residents through the Commune loudspeaker system.

All of the information regarding the Subproject's implementation, supply of clean water including water quality and tariff has been disseminated to all the beneficiaries through the loud speaker systems of the three Subproject communes. Moreover, the SIEE report and the EMP/ EMoP have been attached in the notification boards of Thach Bang, Thach Kim and ThinhLoc communes during the construction period.

#### 5.1.2 Resettlement Public Consultation and Information Disclosure

Public consultation meetings with affected households were conducted after basic design was prepared and another time after detailed design was approved. Because of changing the location of booster pumping station, consultation meeting was conducted with new 05 AHs in new location of booster pumping station, as follows:

**Table 7 Summary of Public Consultation Meetings.**

Date	Topic	Issues and Concerns Raised	Participants
Consultation 8 March 2014	Consultation with new 05 AHs in new location of booster pumping station	Summary of the subproject, construction location and the scope of land acquisition.  Presentation on the policy frame and benefits of the project.  Consultation for permanently affected households by the project.  Official determination of the quantities/values of permanent impacts on officially affected households.  Reason of moving location of booster pumping station	PPMU representatives;  Thach Bang CPC representatives; Loc Ha CARB and  05 affected households'
27 April 2015	Consultation with CPC of Thach Bang and 07 head of households who live along the road where	Provided information on the subproject outputs and implementation principles approved by PPC of Ha Tinh,  Disclosed the approved detailed	PPMU, CPC of Thach Bang and 07 households

	transmission pipeline was constructed in Xuan Yen Area	engineering design of Xuan Yen area	
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The new Updated LARP has approved and disclosed to affected households on the notice board of Thach Bang, Thach Kim and Thinh Loc CPCs.

## 5.2 Training – Capacity Building

At the beginning of the operation of WTP in Quarter I/ 2015, the PPMU fielded six personnel of the Operating Unit, who will be operating the water treatment plant and distribution system under the management of the PCERWASS. Initial training of the personnel was provided by the contractors. The personnel were trained on how to operate raw water pump station, run the mechanical equipment like the operation of the transfer pumps, the process of backwashing the rapid sand filters, and the running of the chlorination system as well as to prevent and react in emergency circumstances.

In addition to training provided by the contractor, the PIA Consultant also delivered a three day training course for the PPMUs and the plant operators on the management and operation of water supply systems. CPMU also organized a conference at the end of 2014 for MARD representatives, 06 PPMUs PIA Consultant, representatives of the Subprojects' people, and guest speakers to exchange further information and experience on O&M.

Apart from the above organized training courses, during field trip conducted in May and June 2015, PIA Consultant also gave hands-on training on checking functional performance of each unit of the water supply system, and on practicing operation activities. On-the-job training via phones, emails and meetings were performed by PIA Consultant and any queries from PPMU's staff and operators have been clarified.

No training courses on safeguards issues were organized for the Pilot Subprojects during the reporting period. During the field trips conducted in March and May 2016 for the operation monitoring, PIA Consultant specialists gave hands-on training and guidance on checking carefully functional performance of each unit of the water supply system, and on practicing operational activities. Also on-the-job support via phones and emails were provided by the PIA Consultant to clarify any queries from PPMU's staff and OU's operators.

## 5.3 Press/Media Releases

In order to extend the publicity for the Project information, implementation status and lessons learnt from the ADB funded CRRWSSSP Project have been published and updated on the website of NCERWASS (<http://ncerwass.mard.gov.vn/>) since January 2014. These publications aim to share the experiences of the Project activities and the Project's progress among network of RWSSP, partners and interested stakeholders.

## 6 GRIEVANCE REDRESS MECHANISM

A project site office has been established to receive and resolve complaints and disclose project information to the public.



## **6.1 Environment**

No written grievance has been received and no oral complaints have been raised.

## **6.2 Resettlement**

The payments to affected households have been made. Up to this reporting period no complaints or lawsuits have been recorded.

## **7 CONCLUSION AND RECOMMENDATIONS**

### **EMP/EMoP Implementation**

The results of the implementation of the EMP/EMoP have indicated that some of the requirements of the EMP have been followed by the contractor. There is no issue arising during this reporting period.

The overall implementation/compliance of the Subproject contractor to the EMP/EMoP is rated as satisfactory.

The OU and the Loc Ha DPC need to supervise raw water source protection throughout the Subproject lifespan. The PPMU is recommended to coordinate with the concerned DPC to come up with a strategy through which, the local people are aware of the need to protect the water source, especially the Subproject's intake location. In the forthcoming time, the PPMU/ PCERWASS shall continuously enforce that the OU's operators will comply with the provisions of the EMP/EMoP, especially to operate the WTP according to the O&M manual and to conduct periodic raw water sampling and quality analyses with adequate parameters.

### **RP Implementation**

As for the water supply to Xuan Yen area, in the ADB Mission Review on December 2014, it is reported that the distribution pipeline goes along the inter-village road however; the following activities have to be conducted to ensure the people's entitlements are protected:

Conducting meaningful consultation with households who live along the road where transmission pipeline was constructed. No household was effected by Subproject therefore no need to conduct socio-economic survey. ADB has issued No Objection Letter for the revised Updated LARP (including Xuan Yen Area) on 16 July 2015, PPMU of Ha Tinh has displayed it on the notice board of Thach Bang, Thach Kim and ThinhLoc CPCs.

The Vietnamese version of draft Land Acquisition and Resettlement Completion (LARC) Report has been completed but its English version is under preparation. PIA Consultant is reviewing LARC and prepare a Validation Report. Once the LARC Report is approved by ADB, it will also be disclosed to affected households in the same way.

## **Annex 1      Subproject Compliance with EMP Requirements**

(i) Summary of Ha Tinh Compliance with EMP Requirements

EMP Requirements (Mitigation Measures)	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
(1)	(2)	(3)	(4)
<b>II. OPERATION &amp; MAINTENANCE PHASE</b>			
<b>Environmental and Occupational Health and Safety</b> <ul style="list-style-type: none"> <li>Equipped workers with gas masks and protective clothing and gears such as boots, helmets during working.</li> <li>WTP operator will strictly comply with instructions of use and storage of chemicals. If leakage or spillage events happen, the WTP operator will inform to relevant agency to deal with immediately.</li> </ul>	<p>Yes</p> <p>Yes</p>	<p>Operational unit has provided sufficient work wear for workers such as: work safety gears, helmets, boots, gloves, protection mask, etc.</p> <p>Along with ensuring safety, the construction unit has instructed and trained the workers how to operate safety devices and fire protection equipment.</p> <p>Safety equipment in regards of chemical using and fire protection is sufficiently supplied as: ventilation fan for chemical mixing room, chemical shelf, fire extinguisher, back-up water for fire extinguishing, signs, instructions, etc. The WTP uses sodium hypochloride solution produced from salt.</p> <p>Along the pipelines, fire hydrants have been installed and are always ready for using at any time.</p>	

<b>EMoP Requirements (Mitigation Measures)</b>	<b>Compliance Status (Yes, No, Partial)</b>	<b>Comment or Reasons for Non-Compliance</b>	<b>Issues for Further Action</b>
(1)	(2)	(3)	(4)
<b>OPERATION &amp; MAINTENANCE PHASE</b>			
<ul style="list-style-type: none"> <li>• <b>Raw (surface) water quality</b> Conduct raw water sample and analysis annually (Due to the unclearly specified frequency of conducting raw water sample in the EMoP, raw water sample is recommended to be taken once per year).</li> <li>• <b>Treated water quality</b> Conduct treated water sample (taken from treated water basin) and analysis quarterly</li> </ul>	<p style="text-align: center;">Yes.</p> <p style="text-align: center;">Yes.</p>	<p>Raw water was tested in the reporting period and meets the standard.</p> <p>Treated water was tested in the reporting period and meets the standard.</p>	

## **Annex 2      Monitoring data – Raw water and treated water quality analysis results**

Original:

**Ha Tinh Pilot Subproject - Raw water quality analysis**



**DOANH NGHIỆP KHOA HỌC VÀ CÔNG NGHỆ**  
**CÔNG TY CỔ PHẦN PHÁT TRIỂN CÔNG NGHỆ CAO MÔI TRƯỜNG**  
Địa chỉ: Số 10 B2 Thủ Lệ 1, Ngọc Khánh, Ba Đình, Hà Nội  
VPGD: 18 Hoàng Quốc Việt, Cầu Giấy, Hà Nội  
ĐT: 04, 38364152 Fax: 04, 37561352

**EHTD, JSC**

### PHIẾU KẾT QUẢ PHÂN TÍCH

Khách hàng: Trung tâm Nước sinh hoạt và Vệ sinh môi trường nông Thôn Hà Tĩnh  
Địa chỉ: Công trình cấp nước Thạch Bang, xã Thạch Bang, huyện Lộc Hà, tỉnh Hà Tĩnh  
Ngày nhận mẫu: 05/12/2016  
Tên/ loại mẫu: Nước thô trước xử lý  
Tình trạng/ đặc điểm mẫu: Bình thường  
Số lượng mẫu: 01 mẫu

TT	Danh mục chỉ tiêu	Đơn vị	Kết quả phân tích	Giới hạn cho phép (Regular limit)
1	PH	-	7,3	6,0 – 9
2	Tổng chất rắn lơ lửng (TSS)	mg/l	13	20
3	Amoni (NH <sub>4</sub> + tính theo N)	mg/l	0,05	0,5
4	Hàm lượng Clorua (Cl <sup>-</sup> )	mg/l	7,56	200
5	Hàm lượng Florua F <sup>-</sup>	mg/l	0,5	1,5
6	Nitrit (NO <sub>2</sub> <sup>-</sup> tính theo N)	mg/l	0,04	1
7	Nitrat (NO <sub>3</sub> <sup>-</sup> tính theo N)	mg/l	1,8	6
8	Chỉ số Phosphat (PO <sub>4</sub> <sup>3-</sup> )	mg/l	KPHT	1,5
9	Hàm lượng asen (As)	mg/l	KPHT	0,05
10	Hàm lượng sắt (Fe)	mg/l	0,13	1
11	Chất hoạt động bề mặt	mg/l	0,01	0,1
12	Tổng dầu, mỡ (oils & grease)	mg/l	0,1	0,3
13	Coliform tổng số	MPN hoặc CFU/100 ml	700	2500
14	E. coli hoặc Coliform chịu nhiệt	MPN hoặc CFU/100 ml	20	100
15	Hóa chất bảo vệ thực vật hữu cơ	mg/l	0,011	0,15

**Ghi chú:** - (KPHT): Không phát hiện thấy.  
- QCVN 08-MT: 2015/BTNMT: Quy chuẩn kỹ thuật quốc gia về chất lượng nước mặt.

Hà Nội, ngày 12 tháng 12 năm 2016

**T/M NHÓM KIỂM NGHIỆM**



**Ths. Trương Hồng Thẩm**

**THỦ TRƯỞNG ĐƠN VỊ**



**Nguyễn Bằng Giang**

1. Kết quả này chỉ có giá trị đối với mẫu thử;
2. Không được trích sao một phần kết quả này nếu không được sự đồng ý của Công ty CP Phát triển Công nghệ cao Môi trường;
3. Mẫu này sẽ được hủy trong vòng 7 ngày (mẫu nước) và 20 ngày (mẫu đất) kể từ ngày trả kết quả nếu không có sự phân hồi nào từ khách hàng;

**Translation:**

**Ha Tinh Pilot Subproject - Raw water quality analysis**

No.	Parameter	Unit	Limiting value set in QCVN 08-MT:2015/BTNMT	Result (on 5 Dec 2016)
1	pH		6 - 8.5	7.3
2	Total suspended solids (TSS)	mg/l	20	13
3	Ammonia	mg/l	0.5	0.05
4	Chloride	mg/l	200	7.56
5	Fluoride	mg/l	1.5	0.5
6	Nitrite (NO <sub>2</sub> <sup>-</sup> ) (calculating by N)	mg/l	1	0.04
7	Nitrate (NO <sub>3</sub> <sup>-</sup> ) (calculating by N)	mg/l	6	1.8
8	Phosphate (PO <sub>4</sub> <sup>3-</sup> )	mg/l	1.5	BDL
9	Arsenic	mg/l	0.05	BDL
10	Fe	mg/l	1	0.13
11	Surface active agent	mg/l	0.1	0.01
12	Total oil and grease	mg/l	0.3	0.1
13	Coliform	MPN/100ml	2500	700
14	E.coli	MPN/100ml	100	20
15	Pesticide	mg/l	0.15	0.022

**Notes:**

- **QCVN 08-MT:2015/BTNMT**: National technical regulation on surface water quality.
- **BDL**: Below detected level.

Original

Ha Tinh Pilot Subproject - Treated water samples



PHIẾU KẾT QUẢ PHÂN TÍCH

Khách hàng: Trung tâm Nước sinh hoạt và Vệ sinh môi trường nông thôn Hà Tĩnh

Địa chỉ: Trạm cấp nước Thạch Bằng, huyện Lộc Hà, tỉnh Hà Tĩnh

Ngày nhận mẫu: 10/10/2016

Tên/ loại mẫu: Mẫu nước Máy

Tình trạng/ đặc điểm mẫu: Bình thường

Số lượng mẫu: 01 mẫu

TT	Danh mục chỉ tiêu	Đơn vị	Kết quả phân tích	QCVN 01:2009/BYT
1	Màu sắc	TCU	2	15
2	Mùi vị	-	Không	Không mùi vị lạ
3	Độ đục	NTU	0,12	2
4	pH	-	7,32	6,5 – 8,5
5	Hàm lượng Nitrat	mg/l	1,23	50
6	Hàm lượng Nitrit	mg/l	0,06	3
7	Hàm lượng sắt (Fe)	mg/l	0,08	0,3
8	Chỉ số Pecmanganat	mg/l	0,09	2
9	ĐCTP (tính theo CaCO <sub>3</sub> )	mg/l	17,1	300
10	Hàm lượng Clorua (Cl) <sup>-</sup>	mg/l	1,16	300
11	Hàm lượng Sunphat	mg/l	3,34	250
12	Hàm lượng mangan tổng số	mg/l	0,04	0,3
13	Clo dư	mg/l	0,43	0,3 - 0,5
14	Coliform tổng số	VK/100ml	0	0
15	E. coli hoặc Coliform chịu nhiệt	VK/100ml	0	0

Ghi chú: QCVN 02:2009/BYT: Quy chuẩn quốc gia về chất lượng nước sinh hoạt.

Hà Tĩnh, ngày tháng 10 năm 2016

T/M NHÓM KIỂM NGHIỆM

TL.GIÁM ĐỐC  
TRƯỞNG PHÒNG KH-TT

Lưu Văn Linh

Đoàn Văn Khang

- Kết quả này chỉ có giá trị đối với mẫu thử;
- Không được trích sao một phần kết quả này nếu không được sự đồng ý của Trung tâm Nước sinh hoạt và vệ sinh Môi trường nông thôn





SỞ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN  
**TRUNG TÂM NƯỚC SINH HOẠT VÀ VỆ SINH MÔI TRƯỜNG NÔNG THÔN**  
Địa chỉ: Thôn Tân Phú, xã Thạch Trung, TP Hà Tĩnh, tỉnh Hà Tĩnh  
VPCT: Thôn Tân Phú, xã Thạch Trung, TP Hà Tĩnh  
ĐT: 0393 855354; Fax: 0393 857497

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## PHIẾU KẾT QUẢ PHÂN TÍCH

Khách hàng: Trần Văn Chất

Địa chỉ: Thôn Phú Nghĩa, xã Thạch Bằng, huyện Lộc Hà, tỉnh Hà Tĩnh

Ngày nhận mẫu: 10/10/2016

Tên/ loại mẫu: Mẫu nước Máy

Tình trạng/ đặc điểm mẫu: Bình thường

Số lượng mẫu: 01 mẫu

TT	Danh mục chỉ tiêu	Đơn vị	Kết quả phân tích	QCVN 01:2009/BYT
1	Màu sắc	TCU	2	15
2	Mùi vị	-	Không	Không mùi vị lạ
3	Độ đục	NTU	0,16	2
4	pH	-	7,54	6,5 – 8,5
5	Hàm lượng Nitrat	mg/l	1,13	50
6	Hàm lượng Nitrit	mg/l	0,05	3
7	Hàm lượng sắt (Fe)	mg/l	0,06	0,3
8	Chỉ số Pecmanganat	mg/l	0,07	2
9	ĐCTP (tính theo CaCO <sub>3</sub> )	mg/l	34,2	300
10	Hàm lượng Clorua (Cl <sup>-</sup> )	mg/l	1,32	300
11	Hàm lượng Sunphat	mg/l	3,11	250
12	Hàm lượng mangan tổng số	mg/l	0,04	0,3
13	Clo dư	mg/l	0,33	0,3 - 0,5
14	Coliform tổng số	VK/100ml	0	0
15	E. coli hoặc Coliform chịu nhiệt	VK/100ml	0	0

**Ghi chú:** QCVN 02:2009/BYT: Quy chuẩn quốc gia về chất lượng nước sinh hoạt.

Hà Tĩnh, ngày tháng 10 năm 2016

T/M NHÓM KIỂM NGHIỆM

TL.GIÁM ĐỐC  
TRƯỞNG PHÒNG KH-TT

Lưu Văn Linh

Đoàn Văn Khang

- Kết quả này chỉ có giá trị đối với mẫu thử;
- Không được trích sao một phần kết quả này nếu không được sự đồng ý của Trung tâm Nước sinh hoạt và vệ sinh Môi trường nông thôn.



SỞ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN  
**TRUNG TÂM NƯỚC SINH HOẠT VÀ VỆ SINH MÔI TRƯỜNG NÔNG THÔN**

Địa chỉ: Thôn Tân Phú, xã Thạch Trung, TP Hà Tĩnh, tỉnh Hà Tĩnh

VPCĐ: Thôn Tân Phú, xã Thạch Trung, TP Hà Tĩnh

ĐT: 0393 855354; Fax: 0393 857497

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### PHIẾU KẾT QUẢ PHÂN TÍCH

Khách hàng: Nguyễn văn Tiến

Địa chỉ: Thôn Yên Diêm, xã Thịnh Lộc, huyện Lộc Hà, tỉnh Hà Tĩnh

Ngày nhận mẫu: 10/10/2016

Tình trạng/ đặc điểm mẫu: Bình thường

Tên/ loại mẫu: Mẫu nước Máy

Số lượng mẫu: 01 mẫu

TT	Danh mục chỉ tiêu	Đơn vị	Kết quả phân tích	QCVN 01:2009/BYT
1	Màu sắc	TCU	2	15
2	Mùi vị	-	Không	Không mùi vị lạ
3	Độ đục	NTU	0,21	2
4	pH	-	7,57	6,5 – 8,5
5	Hàm lượng Nitrat	mg/l	1,06	50
6	Hàm lượng Nitrit	mg/l	0,07	3
7	Hàm lượng sắt (Fe)	mg/l	0,05	0,3
8	Chỉ số Pecmanganat	mg/l	0,08	2
9	ĐCTP (tính theo CaCO <sub>3</sub> )	mg/l	34,2	300
10	Hàm lượng Clorua (Cl <sup>-</sup> )	mg/l	1,54	300
11	Hàm lượng Sunphat	mg/l	3,54	250
12	Hàm lượng mangan tổng số	mg/l	0,06	0,3
13	Clo dư	mg/l	0,37	0,3 - 0,5
14	Coliform tổng số	VK/100ml	0	0
15	E. coli hoặc Coliform chịu nhiệt	VK/100ml	0	0

Ghi chú: QCVN 02:2009/BYT: Quy chuẩn quốc gia về chất lượng nước sinh hoạt.

Hà Tĩnh, ngày tháng 10 năm 2016

T/M NHÓM KIỂM NGHIỆM

TL.GIÁM ĐỐC  
TRƯỞNG PHÒNG KH-TT

Lưu Văn Linh

Đoàn Văn Khang

- Kết quả này chỉ có giá trị đối với mẫu thử;
- Không được trích sao một phần kết quả này nếu không được sự đồng ý của Trung tâm Nước sinh hoạt và vệ sinh Môi trường nông thôn

## Translation

### Ha Tinh Pilot Subproject - Treated water samples

No.	Parameter	Unit	QCVN 01:2009 BYT	Results (on 10 Oct 2016)		
				S1	S2	S3
1	Color	TCU	15	2	2	2
2	Odor		No odor	No odor	No odor	No odor
3	Turbidity	NTU	5	0.12	0.16	0.21
4	pH	-	6.0-8.5	7.32	7.54	7.57
5	Nitrate	mg/l	50	1.23	1.13	1.06
6	Nitrite	mg/l	3	0.06	0.05	0.07
7	Total Iron (Fe <sup>2+</sup> & Fe <sup>3+</sup> )	mg/l	0.3	0.08	0.06	0.05
8	Permanganate index	mg/l	2	0.09	0.07	0.08
9	Hardness (calculating by CaCO <sub>3</sub> )	mg/l	300	17.1	34.2	34.2
10	Chloride (Cl <sup>-</sup> )	mg/l	300	1.16	1.32	1.54
11	Sulfate	mg/l	250	3.34	3.11	3.54
12	Total manganese	mg/l	0.3	0.04	0.04	0.06
13	Chlorine residual	mg/l	0.3-0.5	0.43	0.33	0.37
14	Total Coliforms	MPN /100ml	0	0	0	0
15	E.Coli	MPN /100ml	0	0	0	0

#### Notes:

- **QCVN 01:2009/BYT**: National technical regulation on domestic water quality.
- **S1**: Treated water taken at WTP;
- **S2**: Treated water taken at the household of Mr. Tran Van Chat, Phu Nghia village, Thach Bang commune, Loc Ha district;
- **S3**: Treated water taken at the household of Mr. Nguyen Van Tien, Yen Diem village, Thich Loc commune, Loc Ha district.

## **Annex 3    Photographs**





**Figure 2** Original area of WTP before construction



**Figure 3** Inside the WTP area



**Figure 4** Treatment tank



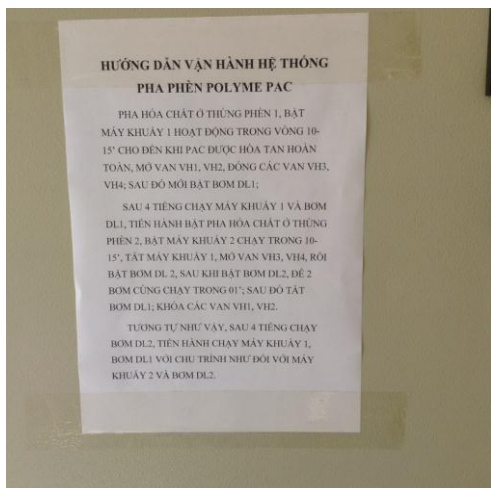
**Figure 5** Clean water tank



**Figure 6** Backwash pump



**Figure 7** Sludge lagoon



**Figure 8** Instruction on mixing PAC



**Figure 9** Machine to produce sodium hypochlorite from salt



**Figure 10** Fire hydrant along pipeline in Thach Bang commune



**Figure 11** A household tap in Xuan Yen area

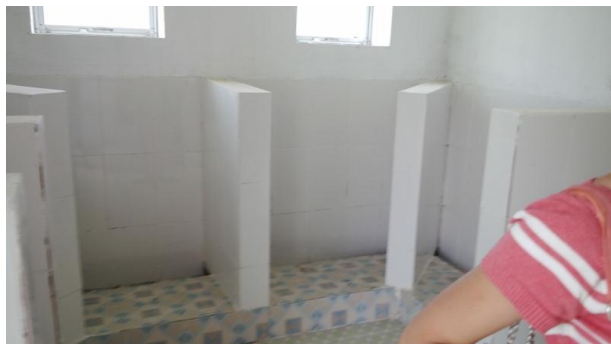


**Figure 12** Clean water pumps at booster pumping station



**Figure 13** A household latrine in Xuan Yen area

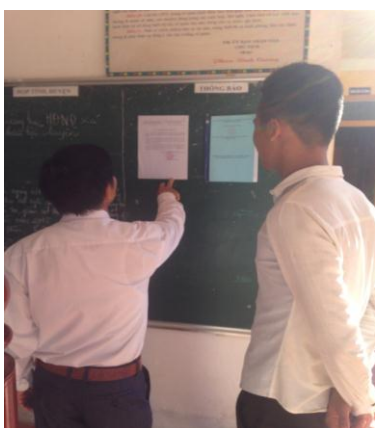




**Figure 14** Clinic station's latrine in Thinh Loc commune



**Figure 15** Primary school's latrine



**Figure 16** Approved revised Updated LARP has been disclosed in the notice board of CPC office.