

Environmental and Social Monitoring Report

Semi-Annual Report
January 2017

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

WATER SUPPLY AND SANITATION OF DIEN PHONG, DIEN TRUNG AND DIEN QUANG COMMUNES, DIEN BAN DISTRICT, QUANG NAM 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
\$1.00	=	VND22714

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

NOTE

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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
DIEN PHONG, DIEN TRUNG AND DIEN QUANG COMMUNES,
DIEN BAN DISTRICT, QUANG NAM 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)}

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**WATER SUPPLY AND SANITATION OF
DIEN PHONG, DIEN TRUNG AND DIEN QUANG COMMUNES,
DIEN BAN DISTRICT, QUANG NAM 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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File name	VIE 2609 Dien Ban-QN Safeguards Monitoring Report Jul ÷ Dec 2016 EN
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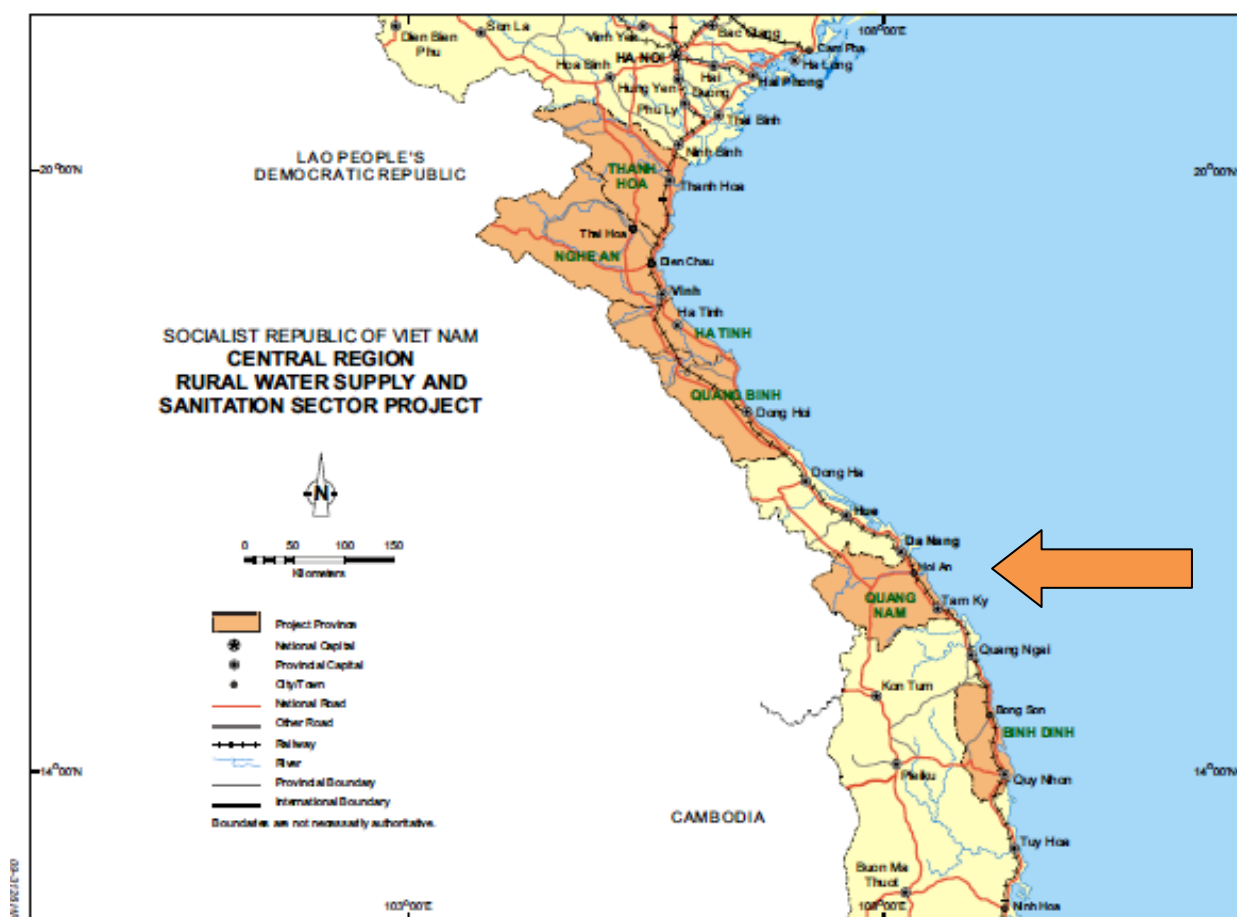


Figure 1 Location map of six Project Provinces of the central coastal region of Vietnam.

Preface

The Government of Vietnam and the Asian Development Bank (ADB) have agreed to implement the Central Region 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 33 communes 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 2nd February 2010. On the 26th 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 25th August 2011.

This Safeguards Monitoring Report – July ÷ December 2016 covers main findings of the monitoring of safeguards issues of operation activities carried out during the reporting period from July to the end of December 2016. This report is based on review of quarterly records of the Provincial Project Management Unit (PPMU), desk review on the raw water and treated water quality analysis of the Operation Unit (OU) made by PIA Consultant during a supervision mission fielded on 25 – 27 August 2016 to the Subproject area.

List of Abbreviations

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

RWSS	Rural Water Supply and Sanitation
SAR	Subproject Appraisal Report
SIEE	Summary Initial Environmental Examination
SSO	Subproject Site Office
Subproject	Dien Ban District, Quang Nam Batch-2 Subproject
VND	Vietnam Dong
VWU	Vietnam Women's Union
WSCC	Water and Sanitation Commune Committee
WSSS	Water Supply and Sanitation Subproject
WTP	Water Treatment Plant

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- Annex 2 Monitoring Data: Raw and Treated Water Quality Analysis Results**
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1 INTRODUCTION AND PROJECT OVERVIEW

1.1 Introduction

The water supply and sanitation Batch-2 Subproject located in Dien Phong, Dien Trung and Dien Quang Communes, Dien Ban District, Quang Nam Province (Subproject) is one of the eight Batch-2 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 to 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 Quang Nam Batch-2 Subproject needs to adhere to preparation of semi-annual safeguards monitoring reports. This semi-annual report covers issues in the second half-year of 2016.

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 network with treatment facilities.

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 Design-Build packages for Water Supply System and Sanitation of the Subproject was signed on January 15, 2015. The construction and sanitation drawing design dossiers have been approved by Quang Nam PPC. The water supply system has been constructed since August 2015. Construction of drainage system and sanitation package started on August 24, 2015. The construction of the two packages has been completed in quarter 2, 2016.

1.2 Subproject Overview and Progress

Table 1 Quang Nam Batch-2 Subproject Overview and Progress

Project Number and Title:	ADB Loan No. 2609-VIE (SF) Central Region Rural Water Supply and Sanitation Sector Project Subproject: Construction of Water Supply and Sanitation for Dien Phong, Dien Trung and Dien Quang Communes, Dien Ban District, Quang Nam Province	
Safeguards Category	Environment	B
	Involuntary Resettlement	B
	Indigenous People	C
Reporting period:	July 2016 - December 2016	
Last report date:	October 2016	
Key sub-project activities since last report:	<p>1) Construction Component</p> <ul style="list-style-type: none"> ❖ The Subproject of Dien Phong, Dien Trung and Dien Quang Communes, Dien Ban District, Quang Nam District includes four construction packages: <ul style="list-style-type: none"> (i) Design-Build package of water supply system (QN2/DB1/NCB, QN2/DB2/NCB and QN2/DB3/NCB) and (ii) Design-Build package of sanitation (QN2/DB4/NCB). <p>2) Progress of Work</p> <p>Main items of water supply component:</p> <ul style="list-style-type: none"> (i) Package No.QN2/DB1/NCB: all items completed; (ii) Package No.QN2/DB2/NCB: completed 100% of transmission pipelines HDPE PN8 D180mm; distribution pipelines HDPE PN8 DN110mm, HDPE PN8 DN90mm, and HDPE PN8 DN63 mm; and service pipelines HDPE PN8 DN40 mm; and (iii) Package No.QN2/DB3/NCB: completed 100% of transmission pipelines, distribution pipelines (galvanized steel pipe DN 90mm, HDPE DN 110mm, and HDPE PN6 DN 63mm), and service pipeline. <p>Main items of sanitation and drainage system component:</p> <p>By the end of this reporting period, the contractor has</p>	

Project Number and Title:	ADB Loan No. 2609-VIE (SF) Central Region Rural Water Supply and Sanitation Sector Project Subproject: Construction of Water Supply and Sanitation for Dien Phong, Dien Trung and Dien Quang Communes, Dien Ban District, Quang Nam Province
	constructed 100% of drainage system, 5/5 public latrines, and 100 household latrine substructures (of which 72 are poor HHs and 28 are near poor female headed HHs).. 3) Changes of Surrounding Environment: The construction of the Subproject is completed. No major negative impacts.
Report prepared by:	PIA consultant

Table 2 Basic Data of Quang Nam Batch-2 Subproject

No.	Contents	Data
1	Water Supply System Component	
	<ul style="list-style-type: none"> Designed Population Capacity Water source Length of Distribution network Number of Service Connections 	<p>20,576 people</p> <p>3,500 m³/day</p> <p>Groundwater from 05 boreholes</p> <p>131.5 km</p> <p>4260 HHs and public places</p>
2	Sanitation Component	
	<ul style="list-style-type: none"> Public Latrines Household's in-kind latrine substructures Drainage system (open ditch) 	<p>5 units</p> <p>250 units</p> <p>2,635 m</p>

2 ENVIRONMENTAL PERFORMANCE MONITORING

2.1 EMP/EMoP Implementation and Compliance

EMP/EMoP Implementation by D&B Contractor

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, during the pre-construction phase, the D&B Contractor conducted raw water quality analysis on 25th April 2015 as part of the Detailed Design phase. The slightly elevated contents of ammonium and irons will be removed by the proposed treatment technology. The results verified that no changes or adjustment to the water treatment process are required but the raw water quality will need regular and close monitoring.

EMP/EMoP Implementation by Operating Unit

During the O&M phase, the plant operating unit (OU) will be responsible for adherence to mitigation measures and activities stipulated in the EMP and EMoP plans. They will primarily focus on safe operation of the WTP and distribution of treated water including (i) testing of raw water quality and treated water quality as well as (ii) monitoring of the quality of waste water and sludge as stipulated in EMoP and (iii) applying the health and safety regulations specified in the EMP. The operators will also need to carry out O&M procedures in accordance with the O&M manual.

2.2 Environmental Monitoring by CSC/PPMU

During Subproject preparation phase, the PPMU/EO was responsible for ensuring that all EMP and EMoP requirements were included in the bidding documents and the contracts are followed by the contractors. The templates for D&B construction package and CSC package in the bidding documents and the contract documents prepared by PIA Consultant have already included EMP and EMoP compliance requirements and should be used for all of the Subprojects.

During construction phase, the inspection, evaluation and recording of compliance to the EMP and EMoP as implemented by the contractors is 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 have been 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 have been summarized in matrix attached with the report to be submitted to CPMU and PIA Consultant within 15 days after the end of each quarter.

During O&M phase, PPMU's Environmental Officer (EO) will be responsible for monitoring the OU compliance to the EMP and EMoP, as well as consolidating all the records of the plant operator on laboratory analysis and health and safety issues, and quarterly reporting to the CPMU and PIA Consultant within 15 days after the end of each quarter.

2.3 Monitoring Activities Carried out by PIA Consultant

In the second half of 2016, the PIA Consultant has provided support to CPMU and PPMUs in terms of environmental documentation preparation, field visit for supervision and assistance and information verification, to ensure all the environment related provisions/requirements are followed.

In preparation for environmental assessment of batch-2 subprojects, PIA Consultant has prepared IEE reports based on (i) the environmental documents prepared by FS consultants and PPMUs and (ii) field visits carried out by PIA Consultant's Environmental Specialists to investigate and validate baseline environmental conditions of the proposed Batch-2 subprojects. The IEE reports of 08 batch-2 Subprojects were issued Conditional Approval from the ADB. The EMPs approved by ADB were also incorporated in the FS reports approved by the PPCs and in the Environmental Protection Commitments registered and accepted by the Subprojects' DPCs.

The templates of the bidding and contract documents with incorporated-EMP/EMoP plans were prepared by the PIA Consultant specialists and delivered to the PPMU. Subsequent monitoring of the PIA Consultant during bidding and contract process indicated that the EMP and EMoP plans and budget requirements were included in the Subproject's bidding and bid documents and budgets, as well as in the Subproject's contract documents.

During the construction, the PIA Consultant has provided support and advices to the CSC and D&B Contractors in implementation of EMP/EMoP and assisted CPMU in compiling monitoring reports for submission to ADB.

During the second half of 2016, the PIA Consultant conducted one field trip to the Subproject on 25 - 27 August 2016. The on-site visit was made to check the progress and quality of the construction works and compliance with contract documents including safeguards issues. A meeting with PPMU, CSC and D-B Contractor staff was held afterward to give them recommendation/advice to the Subproject implementation and to have discussion or find resolution to the rising issues. Specific site visit to monitor the environmental compliance of the Subproject focused on the following:

- (i) Inspect completed construction work;
- (ii) Examine construction quality; and
- (iii) Evaluate the operation and function of water supply system.

The collation of the OU's quarterly monitoring reports and PIA Consultant's review on the assessment of the safeguard 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 3 Environmental Issues for Further Action.

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports: none			
New Issues from This Report			
Raw water quality analysis taken in September 2016 was applied QCVN 02:2009/BYT National technical regulation on drinking water quality.	The correct regulation which is QCVN 09:2008/BTNMT National technical regulation on groundwater quality must be applied.	The OU is requested to apply the correct regulation which is QCVN 09:2008/BTNMT in the next raw water	

		quality analysis.	
Concentration of ammonia and level of total coliform in the raw water quality analysis taken in September 2016 are higher than the standard stipulated in QCVN 09:2008/BTNMT (1.1 mg/l vs 0.1 mg/l and 3.5×10^1 MNP/100ml vs BDL, respectively).	Though the elevated contents of ammonia and total coliform can be removed by the proposed treatment technology, the PPMU/OU is requested to continue monitoring raw groundwater quality closely.	The PPMU/OU is requested to continue monitoring raw groundwater quality closely and to adjust treatment dosing if necessary to ensure treated water meets drinking water quality QCVN 01:2009/BYT.	

3 INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

3.1 Compliance with RP Requirements

The draft LARP of Dien Ban Subproject, Quang Nam Province has been prepared and submitted to ADB as Volume 5 of Subproject Appraisal Report and has been approved on December 2014 .

The detailed engineering designs were approved by local competent authorities on 22, 24, and 25 June 2015. PPMU of Quang Nam conducted detailed measurement survey from 26 to 30 June 2015, conducted socio-economic survey (SES) from 01 to 03 July 2015. Two public consultation meetings were conducted, first meeting was held in the morning in 02 July 2015 with affected households in Dien Quang commune and in afternoon in 02 July 2015 with affected households in Dien Trung commune.

PPMU of Quang Nam has submitted the Updated LARP to ADB as well as disclosed it on the notice board of Dien Trung PC on 27 July 2015. ADB has approved the Updated LARP 25 August 2015. After that, Quang Nam PPMU has cooperated with CARC to carry out compensation payment to AHs.

The approved Updated LARP was disclosed to AHs on 21 January 2016.

Table 4 Summary of Compliance with RP Requirements.

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action 1
Establishment of personnel in PMU/PIU	Yes	The Compensation Assistance Resettlement Committee (CARC) established according to Decision 2742 QD-UBND dated 14 May 2014.	
Public consultation and socialization process	Yes	<ul style="list-style-type: none"> During preparation of draft LARP, there was 1 public consultation with affected households was held on 10 June 2014 During updating the LARP two public consultation meetings have been conducted. 	

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action 1
		First meeting was held in the morning in 02 July 2015 with affected households in Dien Quang commune and in afternoon in 02 July 2015 with affected households in Dien Trung commune. The socio- economic survey was conducted from 01 to 03 July 2015.	
Land area to be acquired is identified and finalised	Yes	DMS has been conducted from 26 to 30 June 2015 by PPMU and CARC after detailed designs were approved on 22, 24, and 25 June 2015 by PPC of Quang Nam. <ul style="list-style-type: none"> Total of permanently acquired land is 10,024 m², out of which 9,709 m² is public land managed by CPC of Dien Trung and 315 m² is agricultural land belonging to 06 households Total of temporarily acquired land is 21,393m², all is public land is managed by CPC of Dien Phong, Dien Trung, and Dien Quang 	
Land acquisition completed	Yes	The acquired land was handed over and the construction started in August 2015.	
Establishment of Resettlement Site(s)	Not applicable	No relocation required	
Compensation payments for affected assets is completed	Yes	<ul style="list-style-type: none"> - Paid compensations for land and assets on land to 13 AHs (50 APs) was 49,571,300 VND including + Land: 14,525,000 VND + Tree and crops: 35,046,000 VND - Paid allowances to CPC of Dien Trung and 13 AHs (50 APs) excluding allowance to vulnerable person was 131,409,793,000 VND 	
Transport assistance for relocating affected households	Not applicable	No relocation required	
Additional assistance to vulnerable	Yes	5 elderly- head of HHs will receive 1,200,000 VND/HH	

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action 1
affected household			
Income Restoration Program	Not triggered	No households lose more than 10% of productive agricultural land	
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)	Yes	The pipeline was installed during rest time between two crops seasons to minimize the impacts on crops and households	
Capacity building activities	Yes	Member of PPMU and District CARC of Dien Ban attended to the Training course on “ADB's social safeguard policies on environment and resettlement” from 2 April to 4 April, 2014 in Quang Nam province	
Disclosed the approved Updated LARP	Yes	Disclosed to AHs on 12 January 2016	
Land acquisition and resettlement completion (LARC) report	Partial	Under preparation	

3.2 Resettlement Monitoring by PPMU

The construction of water supply system started in August 2015 and PPMU has cooperated with Constructor Supervision Consultant (CSC) to supervise the land acquisition boundary during construction to ensure that the adjacent land area has not been affected.

3.3 Monitoring Activities carried out by PIA Consultant

Up to the reporting period, the second half of 2016, the PIA Consultant has conducted one field trip on 25 – 27 August 2016 to check construction sites. All construction has been carried out within the land boundaries and no claims have been raised by people in the subproject area.

3.4 Issues for Further Action

Table 5 LARP Issues for Further Action.

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
None			
New Issues from This Report			
Land acquisition and resettlement completion (LARC) report	LARC report needs to be prepared after completing the construction	<ul style="list-style-type: none"> - PPMU prepare - PIA review and submit to CPMU - CPMU review and submit to ADB 	

4 OCCUPATIONAL HEALTH AND SAFETY (OHS) PERFORMANCE MONITORING

The Occupational, Health and Safety (OHS) performance has been monitored for the public and the workers.

4.1 OHS for Workers

Before construction, the construction site was surveyed and cleared of bombs and unexploded ordnance by Lung Lo Construction Company.

The following issue related to OHS for workers has been identified:

Table 6 OHS for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Report: none			
New Issues from This Report: none			

4.2 Public Safety

No public safety issues have been identified or reported during this reporting period.

5 INFORMATION DISCLOSURE AND CAPACITY BUILDING

5.1 Public Consultations, Meetings and Information Disclosure

5.1.1 Environmental Public Consultation and Information Disclosure

There are two public consultations on environmental issues to be implemented for each of the Subproject. The 1st public consultation was held during FS and SAR preparation. The 2nd public consultation was held before construction commencement in order to inform the local people of at least: (i) commencement time of construction, (ii) duration of construction, (iii) EMP and EMoP requirements and responsibilities, (iv) introduction of Subproject site office, contact details and telephone numbers of contractors, CSCs and PPMU staff.

The approved IEE report and SIEE report were disclosed on the information boards of the related CPCs and the soft copies of the full IEE reports stored in computers by CPC staff and shall be disclosed to any third party if requested.

Updates of the Subproject information will also be disseminated to all the beneficiaries through the loudspeaker system of the Subproject communes as well as over activities of the Water and Sanitation Commune Committee (WSCC) members and the Health and Sanitation Promoters (HSPs).

5.1.2 Resettlement Public Consultation and Information Disclosure

One public consultation meeting was carried out during preparation phase on 10 June 2014. During updating of the LARP, two public consultation meetings have been conducted. First meeting was held in the morning of 02 July 2015 with the affected households in Dien Quang commune and in the afternoon of 02 July 2015 with the affected households in Dien Trung commune. The cut-off dated was disclosed on 30 June 2015. The approved Updated LARP was disclosed to AHs on 21 January 2016.

5.2 Training - Capacity Building

5.2.1 Environment

To improve environmental monitoring capacity of commune environmental officers, WSCCs and HSPs for Batch 2 subprojects, PIA consultant organized training courses on environmental monitoring during project implementation for WSCCs and HSPs in Tam Ky city, Quang Nam province on 10th and 11th July 2015. This capacity building activity equipped 21 participants of this Subproject (18 males and 03 females) with solid knowledge about ADB's and GoV's environmental policies and environmental monitoring.

The PPMU staff and CSCs of Thanh Hoa, Nghe An, Quang Nam and Binh Dinh Batch-2 Subprojects attended 2nd training course on "Contract management and Construction quality supervision" organized by PIA Consultant on September 30 and October 1, 2015. There were 22 participants in the course (2 female)– including 3 participants of this Subproject. The training course aimed to improve the trainees' capacity on management of contracts and construction quality, environmental management and monitoring, and preparation of progress reports etc. and also to enable the participants to transfer skills and knowledge to other offices/personnel after the course.

Apart from the above organized training courses, PIA Consultant has delivered on-the-job support via phones, emails and meetings when necessary as well as clarified any queries from CPMU and PPMUs.

5.2.2 Resettlement

PPMU of Quang Nam organized the "Land Acquisition and Resettlement Supervision" course for members of PPMUCARC and affected households to enhance their capable on supervision of land acquisition and resettlement with support of PIA Consultant on 6 and 7 April 2016.

5.3 Press/Media Releases

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

6 GRIEVANCE REDRESS MECHANISM

A Subproject site office has been established, and the Subproject's information including grievance redress mechanisms on environment and resettlement has been disclosed to the public on the notice boards of the CPCs of the Subproject.

6.1 Environment

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

6.2 Resettlement

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

7 CONCLUSION AND RECOMMENDATIONS

EMP/EMoP Implementation

The results of the implementation of the EMP/EMoP have indicated that most of the requirements of the EMP and EMoP have been followed by the contractors and the PPMU. The new issues detected during this reporting period include (i) the limiting value set in the raw water quality analysis was adapted from unsuitable regulation – QCVN 02:2009/BYT on drinking water quality; and (ii) concentration of ammonia and level of total coliform in the raw water quality analysis are higher than standards. The PPMU/OU is recommended to apply the suitable regulations on raw water and treated water quality for the quality analyses and urgently take the proposed measures.

The overall implementation/compliance of the Quang Nam Batch-2 Subproject to the EMP/EMoP is rated as partially satisfactory in this reporting period. In the forthcoming time, the PPMU shall enforce that the OU will operate the Subproject facilities in compliance with the approved EMP/EMoP provisions, and to timely conduct raw water and treated water sampling and quality analysis.

RP Implementation

Implementation of the resettlement activities of Dien Ban sub-project is appraised as satisfactory and within the project's resettlement framework.

Annex 1 Subproject Compliance with EMP and EMoP Requirements

(i) Summary of Subproject 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)
OPERATION & MAINTENANCE PHASE			
Environmental and Occupational Health and Safety <ul style="list-style-type: none"> Equipped workers with gas masks and protective clothing and gears such as boots, helmets during working. WTP operator will strictly comply with instructions for use and storage of chemicals. If leakage or spillage events happen, the WTP operator will inform to relevant agency to deal with immediately. 	<p>Yes</p> <p>Yes</p>	<p>Operational unit has provided sufficient work wear for workers such as: work safety gear, 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 use and fire protection is sufficiently supplied including: 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>	

(ii) Summary of Subproject compliance with EMoP requirements

EMoP Requirements (Mitigation Measures)	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
(1)	(2)	(3)	(4)
OPERATION & MAINTENANCE PHASE			
<ul style="list-style-type: none"> Raw (surface) water quality Conduct raw water sample (taken from abstraction boreholes) and analysis annually 	Partial	Raw water quality analysis was conducted in this reporting period. However, the limiting value set in the raw water quality analysis was adapted from unsuitable regulation – QCVN 02:2009/BYT on drinking water quality; and concentration of ammonia and level of total coliform in the raw water quality analysis are higher than standards.	The OU is requested to remind the testing unit to apply the correct regulation which is QCVN 09-MT:2015/BTNMT in the next raw water quality analysis and to continue monitoring raw groundwater quality closely.
<ul style="list-style-type: none"> Treated water quality Conduct treated water sample (taken from treated water basin/ household water tap) and analysis monthly 	Yes.	Treated water was sampled and tested; and the treated water quality meets the standard.	

Annex 2 Monitoring data: Raw and treated water quality analysis results

Original:

Quang Nam Batch 2 Subproject: Raw water quality analysis result

SỞ NN&PTNT QUẢNG NAM
TRUNG TÂM NƯỚC SẠCH VÀ TƯ
VẤN THỦY LỢI

16 Lê Lợi – Tam Kỳ - Quảng Nam

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

Độc lập - Tự do - Hạnh phúc.

Số: 13-2016/PTN

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước chưa xử lý

Địa điểm lấy mẫu: Nước giếng thô - Hệ thống cấp nước liên xã Điện Quang-Điện Trung-Điện Phong huyện Điện Bàn

Số lượng: 1×1500ml, 1×500ml

Mô tả mẫu: Mẫu đựng trong chai nhựa 1500ml và chai 500ml, nước trong, không có cặn.

Ngày nhận mẫu: 20.09.2016

Ngày tiến hành xét nghiệm: 20.09.2016

Thời gian lưu mẫu: 7 ngày kể từ ngày ban hành kết quả

KẾT QUẢ XÉT NGHIỆM

(QCVN 02:2009/BYT)

TT	Tên chỉ tiêu	Phương pháp thử	Đơn vị tính	Mức tiêu chuẩn	Kết quả
I. Hóa lý					
1	Màu sắc	TCVN 6185-1996	TCU	15	7,5
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	5	2,1
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0
5	pH	Mettler Toledo SG2-FK	-	6,0-8,5	6,8
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	1,1
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,5	2,9
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	4	0,56
9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	350	35,8

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

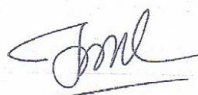
10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	300	25,6
11	Hàm lượng Asen tổng	HACH EZ Arsenic Test Kit	Mg/l	0,01	0
12	Hàm lượng Florua	USEPA SPANDS Method 8029	Mg/l	1,5	0,1
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	50	$3,5 \times 10^1$
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Ghi chú: Kết quả này chỉ có giá trị đối với mẫu tại thời điểm phân tích. Hết thời gian lưu mẫu, mọi khiếu nại về kết quả không được giải quyết.

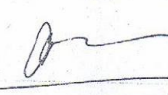
Quảng Nam, ngày 30 tháng 09 năm 2016

PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích


Huỳnh Thị Thuận

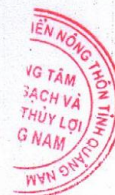
Trưởng phòng


Nguyễn Trí Đại



GIÁM ĐỐC


Lê Văn Dũng



Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

Translation:

Quang Nam Batch 2 Subproject: Raw water quality analysis result

No.	Parameter	Unit	Result (20 th September 2016)	Limiting value set in QCVN 09:2008/ BTNMT ²
1	Color	TCU	7.5	
2	Odor	-	No odor	
3	Turbidity	NTU	2.1	
4	Chlorine residual	mg/l	0	
5	pH	-	6.8	5.5-8.5
6	Ammonia	mg/l	1.1	0.1
7	Fe total	mg/l	2.9	5
8	Permanganate index	mg/l	0.56	
9	Hardness (calculating by CaCO ₃)	mg/l	35.8	500
10	Chloride	mg/l	25.6	250
11	Arsenic	mg/l	0	0.05
12	Fluoride	mg/l	0.1	1.0
13	Total coliform	MPN/100ml	3.5x10 ¹	BDL
14	E.coli	MPN/100ml	0	3

Note:

- **QCVN 09:2008/BTNMT**: National technical regulation on underground water quality
- **BDL**: Below Detected Level.

² The limiting value set applied in the raw water quality analysis belongs to QCVN 02:2009/BYT National technical regulation on drinking water quality. However, the correct regulation applied here must be QCVN 09:2008/BTNMT National technical regulation on underground water quality. Therefore, the limiting value set in the above table is adapted from the QCVN 09:2008/BTNMT.

Original:

Quang Nam Batch 2 Subproject: Treated water quality analysis results

SỞ NN&PTNT QUẢNG NAM CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
TRUNG TÂM NƯỚC SẠCH VÀ TƯ Độc lập - Tự do - Hạnh phúc.
VẤN THỦY LỢI
16 Lê Lợi – Tam Kỳ - Quảng Nam

Số: 24-2016/PTN-Q3

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Giữa mạng – Hệ thống cấp nước liên xã Điện Quang, Điện Trung,
Điện Phong huyện Điện Bàn

Số lượng: 1×1500ml, 1×500ml

Mô tả mẫu: Mẫu đựng trong chai nhựa 1500ml và chai 500ml, nước trong, không có cặn.

Ngày nhận mẫu: 17.08.2016

Ngày tiến hành xét nghiệm: 17.08.2016

Thời gian lưu mẫu: 7 ngày kể từ ngày ban hành kết quả

KẾT QUẢ XÉT NGHIỆM

(QCVN 01:2009/BYT)

TT	Tên chỉ tiêu	Phương pháp thử	Đơn vị tính	Mức tiêu chuẩn	Kết quả
I. Hóa lý					
1	Màu sắc	TCVN 6185-1996	TCU	15	7,1
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	2	0
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,4
5	pH	Mettler Toledo SG2-FK	-	6,5-8,5	7,17
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,4
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,3	0,01
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	2	0,21
9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	300	79,5

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý
bằng văn bản của Phòng thí nghiệm.

10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	250	21,4
11	Hàm lượng Asen tổng	HACH EZ Arsenic Test Kit	Mg/l	0,01	0
12	Hàm lượng Florua	USEPA SPANDS Method 8029	Mg/l	1,5	0,1
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	0	0
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Kết luận:

- Hóa lý nước: Mẫu đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 01:2009/BYT. Đối với chỉ tiêu Clo dư.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 01:2009/BYT.

Ghi chú: Kết quả này chỉ có giá trị đối với mẫu tại thời điểm phân tích. Hết thời gian lưu mẫu, mọi khiếu nại về kết quả không được giải quyết.

Quảng Nam, ngày 10 tháng 9 năm 2016

PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích

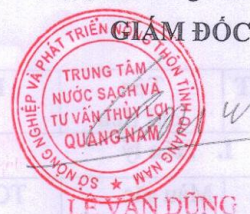
Trưởng phòng

[Signature]

[Signature]

Thuyền Thị Thôn

Nguyễn Trí Đại



Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

SỞ NN&PTNT QUẢNG NAM
TRUNG TÂM NƯỚC SẠCH VÀ TƯ
VẤN THỦY LỢI
16 Lê Lợi – Tam Kỳ - Quảng Nam

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc.

Số: 23-2016/PTN-Q3

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Bể xử lý – Hệ thống cấp nước liên xã Điện Quang, Điện Trung, Điện Phong huyện Điện Bàn

Số lượng: 1×1500ml, 1×500ml

Mô tả mẫu: Mẫu đựng trong chai nhựa 1500ml và chai 500ml, nước trong, không có cặn.

Ngày nhận mẫu: 17.08.2016

Ngày tiến hành xét nghiệm: 17.08.2016

Thời gian lưu mẫu: 7 ngày kể từ ngày ban hành kết quả

KẾT QUẢ XÉT NGHIỆM

(QCVN 01:2009/BYT)

TT	Tên chỉ tiêu	Phương pháp thử	Đơn vị tính	Mức tiêu chuẩn	Kết quả
I. Hóa lý					
1	Màu sắc	TCVN 6185-1996	TCU	15	7,2
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	2	0
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,4
5	pH	Mettler Toledo SG2-FK	-	6,5-8,5	7,25
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,4
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,3	0,01
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	2	0,21
9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	300	78,5

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	250	21,1
11	Hàm lượng Asen tổng	HACH EZ Arsenic Test Kit	Mg/l	0,01	0
12	Hàm lượng Florua	USEPA SPANDS Method 8029	Mg/l	1,5	0,1
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	0	0
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Kết luận:

- Hóa lý nước: Mẫu đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 01:2009/BYT. Đối với chỉ tiêu Clo dư.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 01:2009/BYT.

Ghi chú: Kết quả này chỉ có giá trị đối với mẫu tại thời điểm phân tích. Hết thời gian lưu mẫu, mọi khiếu nại về kết quả không được giải quyết.

Quảng Nam, ngày 10 tháng 9 năm 2016

PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích

Trưởng phòng

[Signature]

[Signature]

Huỳnh Thị Thuận

Nguyễn Trí Đại



LÊ VĂN DŨNG

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

SỞ NN&PTNT QUẢNG NAM CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
TRUNG TÂM NƯỚC SẠCH VÀ TƯ Độc lập - Tự do - Hạnh phúc.
VĂN THỦY LỢI
16 Lê Lợi – Tam Kỳ - Quảng Nam

Số: 23-2016/PTN-Q4

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Bể xử lý – Hệ thống cấp nước liên xã Điện Quang, Điện Trung, Điện Phong huyện Điện Bàn

Số lượng: 1×1500ml, 1×500ml

Mô tả mẫu: Mẫu đựng trong chai nhựa 1500ml và chai 500ml, nước trong, không có cặn.

Ngày nhận mẫu: 03.11.2016

Ngày tiến hành xét nghiệm: 03.11.2016

Thời gian lưu mẫu: 7 ngày kể từ ngày ban hành kết quả

KẾT QUẢ XÉT NGHIỆM

(QCVN 01:2009/BYT)

TT	Tên chỉ tiêu	Phương pháp thử	Đơn vị tính	Mức tiêu chuẩn	Kết quả
I. Hóa lý					
1	Màu sắc	TCVN 6185-1996	TCU	15	7,5
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	2	0
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,4
5	pH	Mettler Toledo SG2-FK	-	6,5-8,5	7,1
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,4
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,3	0,08
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	2	0,37
9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	300	80,5

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	250	21,7
11	Hàm lượng Asen tổng	HACH EZ Arsenic Test Kit	Mg/l	0,01	0
12	Hàm lượng Florua	USEPA SPANDS Method 8029	Mg/l	1,5	0,1
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	0	0
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Kết luận:

- Hóa lý nước: Mẫu đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 01:2009/BYT. Đối với chỉ tiêu Clo dư.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 01:2009/BYT.

Ghi chú: Kết quả này chỉ có giá trị đối với mẫu tại thời điểm phân tích. Hết thời gian lưu mẫu, mọi khiếu nại về kết quả không được giải quyết.

Quảng Nam, ngày 22 tháng 11 năm 2016

PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích

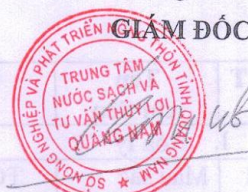
Trưởng phòng

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Nguyễn Thị Thuận

Nguyễn Trí Đại



1	Độ đục	NTU	0,4	0,3-0,5	0,4
2	Clo dư	Mg/l	0,5	0,2-0,5	0,5
3	pH		7,1	6,5-8,5	7,1
4	Hàm lượng Amoniac	Mg/l	0,4	3	0,4
5	Hàm lượng Sắt tổng	Mg/l	0,08	0,3	0,08
6	Chỉ số Permanganat	Mg/l	0,37	2	0,37
7	Độ cứng theo CaCO ₃	Mg/l	80,3	200	80,3

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

SỞ NN&PTNT QUẢNG NAM
TRUNG TÂM NƯỚC SẠCH VÀ TƯ
VẤN THỦY LỢI

16 Lê Lợi – Tam Kỳ - Quảng Nam

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

Độc lập - Tự do - Hạnh phúc.

Số: 24-2016/PTN-Q4

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Giữa mạng – Hệ thống cấp nước liên xã Điện Quang, Điện Trung,
Điện Phong huyện Điện Bàn

Số lượng: 1×1500ml, 1×500ml

Mô tả mẫu: Mẫu đựng trong chai nhựa 1500ml và chai 500ml, nước trong, không có cặn.

Ngày nhận mẫu: 03.11.2016

Ngày tiến hành xét nghiệm: 03.11.2016

Thời gian lưu mẫu: 7 ngày kể từ ngày ban hành kết quả

KẾT QUẢ XÉT NGHIỆM

(QCVN 01:2009/BYT)

TT	Tên chỉ tiêu	Phương pháp thử	Đơn vị tính	Mức tiêu chuẩn	Kết quả
I. Hóa lý					
1	Màu sắc	TCVN 6185-1996	TCU	15	7,7
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	2	0,06
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,4
5	pH	Mettler Toledo SG2-FK	-	6,5-8,5	7,1
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,4
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,3	0,08
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	2	0,36
9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	300	80,7

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	250	21,7
11	Hàm lượng Asen tổng	HACH EZ Arsenic Test Kit	Mg/l	0,01	0
12	Hàm lượng Florua	USEPA SPANDS Method 8029	Mg/l	1,5	0,1
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	0	0
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Kết luận:

- Hóa lý nước: Mẫu đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 01:2009/BYT. Đối với chỉ tiêu Clo dư.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 01:2009/BYT.

Ghi chú: Kết quả này chỉ có giá trị đối với mẫu tại thời điểm phân tích. Hết thời gian lưu mẫu, mọi khiếu nại về kết quả không được giải quyết.

Quảng Nam, ngày 22 tháng 11 năm 2016

PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích

Trưởng phòng

[Signature]

[Signature]

Huỳnh Thị Thuận

Nguyễn Trí Đại



1	Độ đục	NTU	0,0	0,0	0,0
2	Clo dư	Mg/l	0,3-0,5	0,4	0,4
3	pH	-	6,2-8,5	7,1	7,1
4	Hàm lượng Amoni	Mg/l	3	0,4	0,4
5	Hàm lượng sắt tổng	Mg/l	0,3	0,08	0,08
6	Chỉ số Manganat	Mg/l	5	0,36	0,36
7	Độ cứng theo CaCO ₃	Mg/l	100	80,7	80,7

Phiếu kết quả xét nghiệm này không được sao chép lại (ngoại trừ toàn bộ) nếu không được sự đồng ý bằng văn bản của Phòng thí nghiệm.

Translation:**Quang Nam Batch 2 Subproject: Treated water quality analysis results**

No.	Parameter	Unit	QCVN 01:2009 BYT	Results			
				At WTP (on 17 Aug 2016)	At the middle of the distribution network (on 17 Aug 2016)	AT treated water reservoir (3 Nov 2016)	In the middle of the distribution pipeline (3 Nov 2016)
1	Color	TCU	15	7.2	7.1	7.5	7.7
2	Odor	-	No odor	No odor	No odor	No odor	No odor
3	Turbidity	NTU	2	0	0	0	0.06
4	Chlorine residual	mg/l	0.3-0.5	0.4	0.4	0.4	0.4
5	pH	-	6.5-8.5	7.25	7.17	7.1	7.1
6	Ammonia	mg/l	3	0.4	0.4	0.4	0.4
7	Fe total	mg/l	0.3	0.01	0.01	0.08	0.08
8	Permanganate index	mg/l	2	0.21	0.21	0.37	0.36
9	Hardness (calculating by CaCO ₃)	mg/l	300	78.5	79.5	80.5	80.7
10	Chloride	mg/l	250	21.1	21.4	21.7	21.7
11	Arsenic total	mg/l	0.01	0	0	0	0
12	Fluoride	mg/l	1.5	0.1	0.1	0.1	0.1
13	Total coliform	MNP/100ml	0	0	0	0	0
14	E.coli	MNP/100ml	0	0	0	0	0

Note:

- **QCVN 01:2009/BYT**: National technical regulation on treated water quality
- **BDL**: Below Detected Level.

Annex 3 Photographs



Figure 2 SIEE disclosure at Dien Quang CPC (May 2015)



Figure 3 SIEE disclosure at Dien Trung CPC (May 2015)

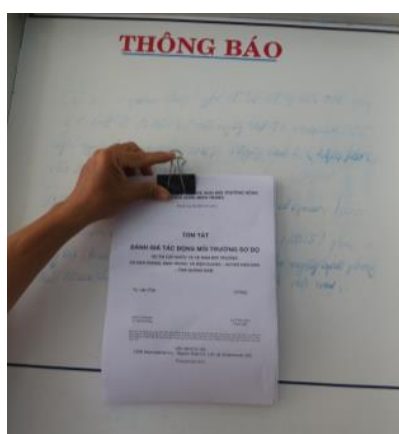


Figure 4 SIEE disclosure at Dien Phong CPC (May 2015)



Figure 5 Environmental training for WSCCs and HSPs in Tam Ky city (early July 2015, picture 01)



Figure 6 Training course on "Contract and Construction Quality Management" (Nov. 2015)



Figure 7 Finishing abstraction well (Nov. 2015)



Figure 8 Water treatment plant (August 2016)



Figure 9 Clean water pumping station and backwashing (August 2016)



Figure 10 Sludge settling ponds (August 2016)



Figure 11 Sand filter tank (August 2016)



Figure 12 PIA Consultant interviews Mr. Ngo Van Hoa officer of Dien Ban CARC



Figure 13 Mr. Nguyen Van Hien, PPMU staff interviews an affected household