

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 A TIENG COMMUNE TAY GIANG 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)

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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

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
A TIENG COMMUNE
TAY GIANG 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) }

Safeguards Monitoring Report July – December 2016

WATER SUPPLY AND SANITATION OF A TIENG COMMUNE TAY GIANG DISTRICT - QUANG NAM PROVINCE

PIA Consultant

CPMU

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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 believe 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

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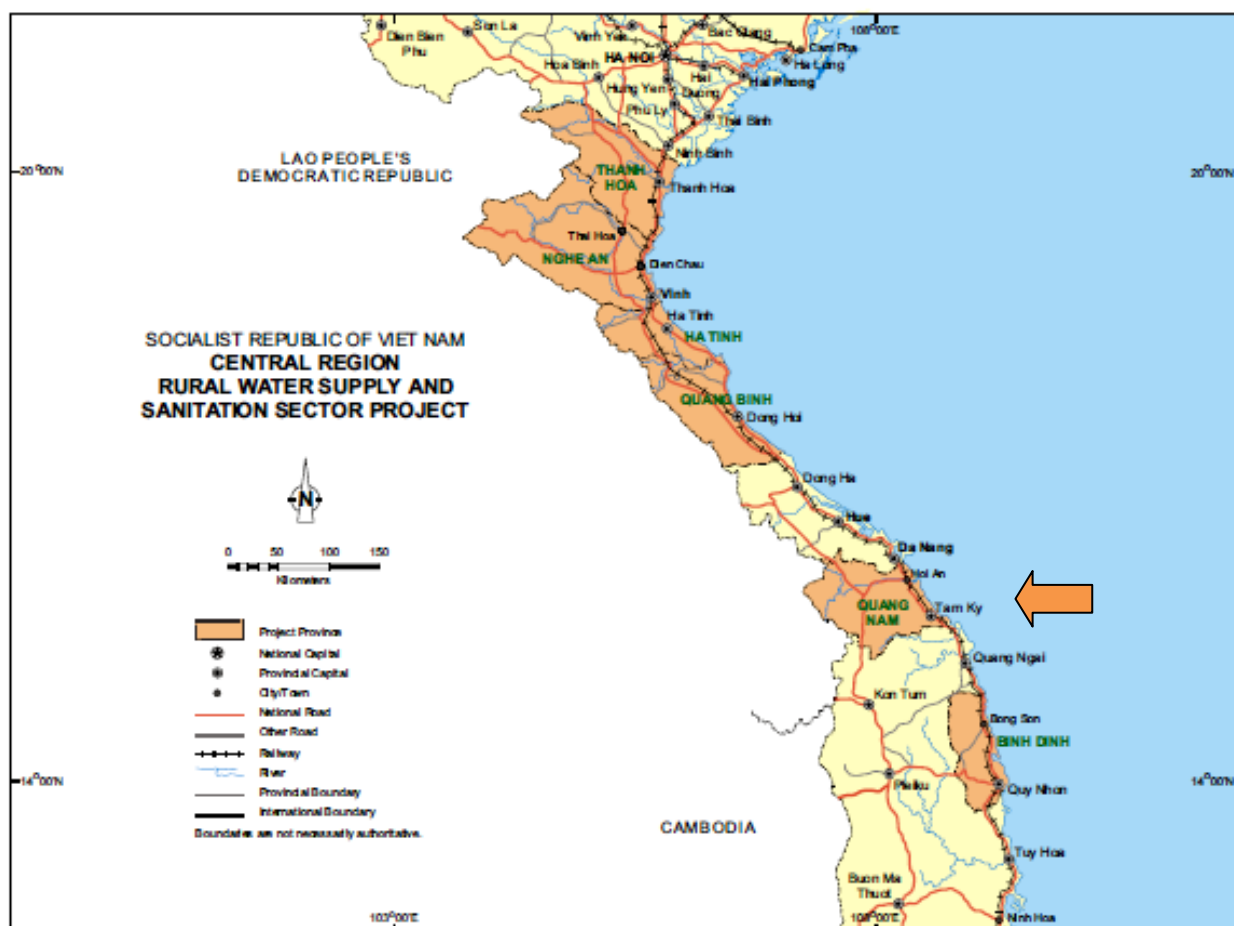


Figure 1 Location map of six Project Provinces of the central coastal region of Vietnam

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 completion by 31st, 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 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 on 25th August 2011.

This Safeguards Monitoring Report - July ÷ December 2016 covers main findings of the monitoring of safeguards issues of construction activities carried out during the reporting period from July to the end of December 2016. This report is prepared based on review of Subproject information/documentation of the Provincial Project Management Unit (PPMU) and Operating Unit (OU) during Water Treatment Plant's (WTP) operation, and desk reviews made by PIA Consultant during the Subproject implementation.

List of Abbreviations

ADB	Asian Development Bank
AHs	Affected Households
APs	Affected Persons
CARC	Compensation Assistance Resettlement Committee
CBA-IEC	Community-Based Approach and Information-Education-Community
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
EMD	Ethnic Minority Development
EMDP	Ethnic Minority Development Plan
EMP	Environmental Management Plan
EMoP	Environmental Monitoring Plan
EMPF	Ethnic Minority Development Framework
EO	Environmental Officer
FS	Feasibility Study
GoV	Government of Vietnam
HHs	Households
HIV	Human Immunodeficiency Virus
HSPs	Health and Sanitation Promoters
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
LARC	Land Acquisition and Resettlement Completion Report
LARP	Land Acquisition and Resettlement Report
lpcd	Liters per capita per day
MARD	Ministry of Agriculture and Rural Development
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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	Operating 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
Project	Central Region Rural Water Supply and Sanitation Sector Project
PVWU	Provincial Vietnam Women's Union
REA	Rapid Environmental Assessment
SAR	Subproject Appraisal Report
SIEE	Summary Initial Environmental Examination
SSO	Subproject Site Office
STDs	Sexually Transmitted Diseases
Subproject	Tay Giang - Quang Nam Pilot Subproject
VND	Vietnam Dong
VWU	Vietnam Women's Union
WSCC	Water and Sanitation Commune Committee
WTP	Water Treatment Plant

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1 INTRODUCTION AND PROJECT OVERVIEW

1.1 Introduction

The Water Supply and Sanitation Subproject for A Tieng Commune, Tay Giang District, Quang Nam Province is one of the 6 Pilot Subprojects of the Central Region 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 Project is designed as a sector investment project. The implementation of the Project is aimed to 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 is to construct a piped water supply systems, and sanitation facilities and promote safer hygiene practices by the commune's residents. The Project's components are: (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 Central Project Management Unit (CPMU), this Semi-annual Safeguards Monitoring Report is prepared for the Tay Giang – Quang Nam Pilot Subproject (Subproject) and it covers issues in the second half of 2016.

The Quang Nam Pilot Subproject is located in A Tieng commune of Tay Giang District. 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 includes construction of school and public latrines where school and public health education programs are being carried out.

The Design-Build package for Water Supply System of A Tieng Commune, Tay Giang District, Quang Nam Province was commenced in June 2013. The construction works of the Water Supply package were officially handed over in November 2014. Construction and handing over of latrines (Sanitation package) were completed in November 2014. The Subproject is currently under the O&M stage.

1.2 Subproject Overview and Progress

Table 1 Tay Giang - Quang Nam Pilot Subproject Safeguards Overview.

Project Number and Title:	ADB Loan No. 2609-VIE (SF) Central Region Rural Water Supply and Sanitation Sector Project Water Supply and Sanitation of A Tieng commune – Tay Giang district - Quang Nam province	
Safeguards Category	Environment	B
	Involuntary Resettlement	B
	Indigenous People	B
Reporting period:	July 2016 - December 2016	
Last report date:	October 2016	

<p>Key sub-project activities since last report:</p>	<ul style="list-style-type: none"> • Construction Component <ul style="list-style-type: none"> ❖ The Subproject of A Tieng commune includes two construction packages: <ul style="list-style-type: none"> (i) Water supply package was signed on the 7th June 2013, construction was completed on the 14th November 2014; and (ii) The D&B Contract of the Sanitation Package was signed on 17th July 2014. Construction and handing over of latrines were completed on 14th November 2014. • Progress of Work <ul style="list-style-type: none"> ❖ Main items of water supply component: <ul style="list-style-type: none"> (i) Water treatment plant with a capacity of 500 m³/d: 100% of all facilities (ii) Length of transmission, distribution and service pipelines have been installed: 18.5 km (iii) Service connections: 380 connections (achieving 98% of the total households who registered to connect) <p>→ The overall progress of water supply component is 100%. The O&M manual was available on November 10, 2014. The water supply works were handed over and put into use on November 14, 2014. The as-built drawings and the certificate of completion of this package were available on November 14, 2014.</p> ❖ Main items of sanitation component: <ul style="list-style-type: none"> (i) Toilet substructures for poor and near poor households with sole income made by women: 19 units (this number is lower than the estimated number of toilets in the signed contract as some households had already built their latrines before the construction phase) <p>→ The overall progress of sanitation component is 100 %. The sanitation works were handed over and put into use on November 14, 2014. The as-built drawings and the certificate of completion of this package were available in November 2014.</p> • Changes of Surrounding Environment: <p>The WTP is built on a hill next to a new resettlement area (set up by the District People's Committee of Tay Giang financed by the National Program, known as 30a-CP program). The construction of the WTP reforms the natural hill to a developed area, but the impacts on environment are minor and limited to this area only.</p>
<p>Report prepared by:</p>	<p>PIA consultant</p>

2 ENVIRONMENTAL PERFORMANCE MONITORING

2.1 EMP/EMoP Implementation and Compliance

EMP/EMoP Implementation by D&B Contractor

During the construction phase, the implementation of the Environmental Management Plan (EMP) was the responsibility of the D&B Contractor. The D&B Contractor's responsibility included appropriate and timely application of the mitigating measures stipulated in the approved EMP and Environmental Monitoring Plan (EMoP). The application and implementation of the mitigation measures were to provide the safeguards that will control, reduce if not eliminate unwanted effects during the Subproject implementation.

Regarding raw water quality, during the construction phase, the D&B Contractor conducted raw water quality analysis during the Detailed Design phase to verify any changes of raw water quality and to determine needed adjustment to the water treatment process; and another analysis in the end of construction when the WTP is already for operation, to monitor any changes in raw water quality.

EMP/EMoP Implementation by Operating Unit

During the O&M phase, the Operating Unit (OU) is responsible for adherence to mitigation measures and activities stipulated in the EMP and EMoP plans. They are primarily focused on safe operation of the WTP and distribution of treated water including: (i) regular testing of raw water quality and treated water quality; (ii) regular monitoring of the quality of effluent from sludge settling tank of WTP; and (iii) applying of the health and safety regulations specified in the EMP. The operators also need to carry out O&M procedures in accordance with the O&M manual.

2.2 Environmental Monitoring by CSC/PPMU

During the construction phase, the inspection, evaluation and recording of compliance to the EMP and EMoP as implemented by the D&B Contractors were among the tasks undertaken by the Design-Build Construction Supervision Consultant (CSC) in the field with the assistance of the PIA Consultant. The CSC carried 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 plans of the Subproject. The responsibilities of the CSC covered the period to the end of the commissioning stage including certifying of construction materials/equipment/items and final checking and acceptance for handing over to operation.

These inspection and evaluation records were 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 were summarized in matrix attached with the report to be submitted to the CPMU and PIA Consultant within 15 days after the end of each quarter.

During the operation 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 OU 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

During the construction phase, the PIA Consultant has provided support and advice to the CSC and D&B Contractors as well as the OU in implementation of EMP/EMoP and assisted CPMU in compiling monitoring reports for submission to ADB. The PIA Consultant regularly and/or as required goes on field visits for inspection of environmental performance during Subproject implementation.

The collation of the OU's quarterly monitoring reports and PIA Consultant's on-site visits 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* and results of water quality analysis in *Annex 2*.

2.4 Key Issues for Further Actions

Table 2 Environmental Issues for Further Action.

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports: none			
New Issues from This Report:			
The parameters, including color, odor, turbidity and residual chlorine are not listed in QCVN 09-MT:2015/BTNMT on raw water quality, but these parameters were tested in the raw water quality analysis in September 2016.	There is no need to test the following parameters, including color, odor, turbidity and residual chlorine in the raw water quality analysis.	The PPMU/OU is requested to remind the testing unit of not testing these parameters.	
Total coliform in the raw water quality analysis in September 2016 is higher than standard (430 MPN/100 ml vs 3 MPN/100 ml)	Though the total coliform can be removed by the proposed treatment technology, the PPMU is requested to continue monitoring raw groundwater quality closely and adjust the treatment dosing if needed to ensure safe drinking water.	The PPMU/OU is requested to continue monitoring raw groundwater quality closely and urgently adjust treatment dosing to ensure treated water meets QCVN 01:2009/BYT on drinking water quality.	

3 INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

3.1 PPMU's Compliance with RP Requirements

Quang Nam PPMU paid compensation to affected households and allowed the contractor to start construction before ADB approved the Updated Land Acquisition and Resettlement Report (LARP). As a consequence of non-compliance to the ADB's procedures, ADB issued a letter dated 21st January 2014 with instructions to stop construction of Quang Nam Subproject. Quang Nam PPMU updated the LARP and ADB by No Objection Letter dated 26th June 2014 allowed construction works to resume.

Through Compensation, Assistance and Resettlement Board the PPMU has fully paid to all 36 C'tu affected households, in which, 32 HHs were affected on both land and crops and four HHs were affected only on crops. The total amount paid is 444,269,755 VND.

On 24th & 25th, April 2014, PIA Consultant carried out a site review and had meeting with PPMU and other concerned stakeholders for preparing Due Diligence Report. Based on the findings and review of the LARP processes carried out by the PPMU and Compensation Assistance Resettlement Board, PIA Consultant prepared the Due Diligence Report and submitted it to ADB on 14th, July 2014. Table 4 below summarizes the compliance with LARP implementation requirements.

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

Up to December 2014, the land acquisition and resettlement activities in Tay Giang Subproject have been completed and no grievances have been raised. PPMU of Quang Nam has prepared the Land Acquisition and Resettlement Completion (LARC) Report, which has been validated by PIA Consultant. These reports were submitted to CPMU and ADB on 12 June 2015. ADB made minor comments on LARC on 17 June 2015.

The LARC has been revised according to ADB's comments and has been submitted again on 27th October 2015 and disclosed to AH on 12 January 2016.

Table 3 Summary of Compliance with LARP Implementation Requirements.

LARP Requirements	Compliance status	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action
Appointment of personnel in PPMU	Yes	Quang Nam Province People's Committee has been assigned for Centre for Development of land belonging to the Tay Giang District People's Committee to implement the compensation and clearance for all projects in the area.	
Public consultation and socialization process	Yes	Public consultation during the implementation phase on November 19, 2013.	
Land area to be acquired is identified and	Yes	Total permanent acquired land is 13,527 m ² of Agro-forest land that is reclaimed and used by C'tu households since 2002 and	

LARP Requirements	Compliance status	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action
finalized		882 m ² of public land.	
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.	
Establishment of Resettlement Site(s)	Not applicable		
Compensation payments for affected assets is completed	Yes	<ul style="list-style-type: none"> • Total Number of Eligible AHs and APs (as per agreed LARP): 36 households. • Number of AHs compensated as of this monitoring period: 36 households. • Total Budget allocation as per agreed LARP: Total budget for compensation for the affected people: 444,269,755 VND. • Total budget disbursed to AHs as of this monitoring period: The compensations are fully paid to AHs amounting 444,269,755 VND. 	
Transport assistance for relocating affected households	Not applicable		
Additional assistance to vulnerable affected household	Yes	<ul style="list-style-type: none"> • Total Number of vulnerable AHs and APs (as per agreed RP): 36C'tu households. • Agreed forms of assistance as per RP: By cash with 1,200,000 VND per household. Beside, assistance allowancing for hand-over the land on time for 32 HHs with amount of 6,930,500 VND. • Number of AHs and APs assisted as of this monitoring period: 36 HHs. 	
Income Restoration Program	Yes	<ul style="list-style-type: none"> • Provide the livelihood restoration for 32 households with amount of 2,076,000 VND. • Provide the transition assistance allowance for 01 household with 24,000,000 VND. • Support for vulnerable affected 	

LARP Requirements	Compliance status	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action
		household for 36 households with 1,200,000 VND per household. <ul style="list-style-type: none"> Supports for job change allowance when acquired land for 32 households with amount of 218,633,300 VND. 	
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)	Not applicable		
Capacity building activities	Yes	Training course on “ADB's social safeguard policies on environment and resettlement” from 2 April to 4 April, 2014 held in Quang Nam province.	
Disclosure the approved Updated LARP	Yes	PPMU of Quang Nam has disclosed the approved Updated LARP on 24 June 2014	
Prepare Land Acquisition and Resettlement Completion Report	Yes	Land Acquisition and Resettlement Completion Report to be revised based on the comments of ADB and submitted on 27 October 2015	
Disclosure the approved LARC	Yes	Disclosed to AH on 12 January 2016	

3.2 Resettlement Monitoring by PPMU

The resettlement activities have been integrated in common Quarterly Report. Because the resettlement activities have been completed, therefore no need to prepare Resettlement Internal Monitoring Report.

3.3 Monitoring Activities carried out PIA Consultant

On 24 May, 2014, PIA Consultant undertook due diligence review of LARP processes and to review that 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.

Up to now, the resettlement activities have been completed. The revised LARC report has been sent to ADB for approval on 27 October 2015 and disclosed to AH on 12 January 2016.

PIA Consultant visited the subproject in A Tieng from 29 to 30 June 2016 (ADB supervision mission) to see the resident's living condition. There were no claims or

complaints that have been raised or recorded. From June 2016 to now, no site visit was conducted.

3.4 Issues for Further Action

Table 4 LARP Issues for Further Action.

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports:			
Disclosure of LARC Report			Disclosed on 12 January 2016
New Issues from This Report			
None			

4 ETHNIC MINORITY DEVELOPMENT PERFORMANCE MONITORING

4.1 Ethnic Minority Development Plan Implementation and Compliance

Ethnic Minority Development Plan (EMDP) activities for A Tieng commune, Tay Giang district, Quang Nam province have been integrated and linked to specific activities in the resettlement plan (in section 3), environmental plan (in section 2) and Community-Based Approach and Information-Education-Community (CBA-IEC) action plan.

The Subproject in A Tieng commune is expected to provide positive impacts for C'tu ethnic minorities in Tay Giang District, such as: (i) The Subproject will improve the living conditions of about 3,000 people and 1,500 ethnic minority students in the Boarding Schools of Tay Giang District. C'tu people will have access to clean water and use of hygienic latrines, and be able to practice proper personal hygiene; (ii) The provision of clean water will facilitate and improve health and hygiene conditions and quality of life as well. With improved health, costs and time for medical treatments will be reduced and the C'tu ethnic minorities can spend more time in productive work; and (iii) Local women currently suffer from water-borne and sanitation-related diseases. They are also responsible for taking care of family members who suffer from waterborne and sanitation related diseases. Currently, the time for the people to take care of themselves is limited. The Subproject, therefore, would help to improve the quality of life for local people including women ethnic minorities.

However, the Subproject causes some negative impacts to local people. It required acquisition of some agro-forestry land of 36 C'tu households for construction of raw water pipeline, access road and water treatment plant. These households live in Aroh hamlet, Lang commune, Tay Giang district, boundary with A Tieng commune (the subproject) on

the south, in the new resettlement area¹. They were provided: (i) resident land equal to the area of their resident land before resettlement; (ii) free water supply and drainage; (iii) electricity; (iv) primary schools. This resettlement project is a separate government funded project. Therefore, the 36 C'tu households living in Aroh hamlet were the Subproject's affected households, but not the Subproject's beneficiaries, as they were not willing to use the paid water.

To ensure that the Subproject will impact positively on the C'tu group, besides constructing the water supply and sanitation works, the Project developed and implemented a separated CBA-IEC Action Plan and Ethnic Minority Development Plan (EMDP). To mitigate the negative impact of land acquisition, a LARP was developed and compensation has been paid to all negatively affected households/persons.

As per the Project principles poor and near poor female headed households where a woman is the only income provider, including ethnic minority households, have received water supply service connection and a latrine substructure (if not already have or provided from other sources) free of charge.

Participation of ethnic minorities in the activities of the project and CBA-IEC Action Plan from July to December 2016 as below:

- WSCC organized Green Saturday activities 5 times (on 25th July ; 15th August ; 2nd September, 30th November; and 29th December) with an attendance of 250 people - in which 108 were C'tu people, taking 43% of total attendance.
- Two hamlet meetings (on 17th August and 29th November 2016) were carried out to communicate about the Project's policies, using hygienic latrine, using tap water, protecting environment, with 255 participants in which 103 were C'tu people, taking 40%.
- There were C'tu households which were visited and communicated with by health and sanitation promoters (HSPs) with 59 participants 3rd and 4th quarterly, 2016 about using clean water, hygienic latrines and washing hands with soap.
- In the activities of hamlet meetings and visiting households, the WSCC members were not receive any comment from water user about water quality, interruption of water supply. The water fee monthly was pay on time and fully.
- Number of WSCC and HSP was not change until the end of 2016, with 5 C'tu people among the total of 7 people in the Water and Sanitation Commune Committee (WSCC), and 6 C'tu people among the total of 7 people in the Health and Sanitation Promoters (HSPs), taking nearly 80% of total.

Based on the above mentioned, it can be concluded that the EMDP activities have been implemented in compliance with the Project principles.

¹ The new resettlement hamlet has been developed by a separate government program, called 30a, implemented by Tay Giang District People's Committee from 2010 till 2013 - to support rapid and sustainable growth of 61 poorest district in the country.

4.2 EMDP Monitoring Activities Carried out by PPMU/WSCC and PIA Consultant

A Tieng Subproject is located far away from the PPMU's office. During the second half of 2016, the PPMU has conducted the EMDP site visit monitoring activities and other Subproject supervision activities two times (one time per quarter). Both PIA Consultant and PPMU have provided support to WSCC and HSPs by phone and correspondence to guide each specific activity to be implemented at the community.

During the reporting period, the WSCC and HSPs conducted two meetings and one survey & two reportings. The total number of participants was 44 and 50% of them were C'tu people to monitor and coordinate the CBA-IEC/EMDP activities.

4.3 Key Issues and Corrective Actions

Table 5 EMDP Issues for Further Action.

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports:			
In some remote areas the water operator had not collected water fee of C'tu households in 4 to 5 months	Collect water fee every month	PPMU, PCERWASS and WTP operator to implement monthly fee collection as soon as possible	The water fee monthly was pay on time and fully
New Issues from This Report: None			

5 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. There have been no remaining or newly emerging issues regarding to OHS during this reporting period as reported by OU/ PPMU's EO or observed by PIA Consultant.

5.1 OHS for Operators

All operators are adequately equipped with personal protective equipment during operation. The following issues related to OHS for operators have been detected during this monitoring period.

Table 6 Issues for Further Action on OHS for Operators.

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

5.2 Public Safety

No issue related to public safety has been detected and reported.

Table 7 Issues for Further Action on Public Safety.

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

6 INFORMATION DISCLOSURE AND SOCIALIZATION INCLUDING CAPABILITY BUILDING

6.1 Public Consultation and Information Disclosure

6.1.1 Environmental Public Consultation and Information Disclosure

There has been no public consultation meeting held during this reporting period yet. All of the updated information regarding the Subproject's implementation and policies has been announced to the local residents through the Commune's loudspeaker system.

All of the information regarding the Subproject's implementation and supply of clean water including water quality and tariff has been disseminated to all the beneficiaries through the loudspeaker system of the Subproject commune.

6.1.2 Resettlement Public Consultation and Information Disclosure

The approved LARP has been disclosed to AHs and community on 24 June 2014. The Land Acquisition and Resettlement Completion Report has been submitted to ADB for approval 27 October 2015. Once it is approved by ADB, PPMU will disclose it to affected households on the notice board of A Tieng CPC.

6.2 Training - Capacity Building

There are no training courses on safeguard policies organized for the Pilot Subprojects during the reporting period. The PIA Consultant specialists gave on-the-job training via phones and emails to check functional performance of each unit of the water supply system, and to clarify any queries from PPMU's staff and operators.

6.3 Press/Media Releases

In order to extend the publicity for the Project information, implementation status and lessons learnt from the ADB funded CRRWSSSP Project has 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 the network of Rural Water Supply and Sanitation Project (RWSSP), partners and interested stakeholders.

6.4 IEC Material Development/Production

A Project leaflet was prepared by the PIA consultant at the preparation phase and delivered to local people in the Orientation Workshop conducted on 4th October 2011 and in CBA-IEC activities and at households by HSPs and WSCC to promulgate and disclose information on Project objectives, activities, financial mechanism, and CBA-IEC approach and methods. The leaflet was presented in the simplest style of the national language as this is commonly used for other promotion papers considering that national language is understandable to most C'tu people living in the Subproject area. Most of C'tu people in the Subproject area (excluding the very old people) have learnt the national language at public schools or at illiteracy eradication classes within their community. They mostly use national language (Kinh language) in reading & writing and C'tu language in speaking. Most of C'tu people cannot write and read the C'tu language.

Five volumes of handbooks for HSPs and WSCC have been prepared by the PIA in consultation with local institutions, considering opinions of the PPMUs and CPMU to support HSPs and WSCC in implementing CBA-IEC activities. These communication handbooks were partly re-designed to introduce and use appropriate approaches with illustrating pictures, in simple national language, and printed in "14-Times New Roman"-font for farmers, ethnic minority HSPs, and WSCC members to easily apply and improve their communication skills. During the reporting period, the handbooks have been printed in a professional printing shop and these handbooks with high quality have been sent to all Subproject PPMUs for distribution to WSCCs and HSPs:

- Volume 1 provides general information about project principles, objectives, activities, guidelines on CBA-IEC Action Plan implementation, communication skills; and monitoring and reporting;
- Volume 2 provides knowledge and communication skills on using hygienic latrines;
- Volume 3 is on environmental sanitation;
- Volume 4 is on washing hands with soap; and
- Volume 5 is on using of tap water.

7 GRIEVANCE REDRESS MECHANISM

Environment

The Subproject facilities are under operation. There has not been any verbal or written complaint from local residents during this reporting period. The OU has been recommended to disclose the test results to the public.

Resettlement

There has not been resettlement of affected households and the payments to affected households have been made. No complaints on resettlement issues have been recorded up to reporting period.

Ethnic Minority

No written grievance has been received and no oral complaints have been raised during this reporting period.

8 CONCLUSIONS

Environment

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 Operating Unit during the Subproject operation. The issue arising in this reporting period is total coliform in the raw water quality analysis in September 2016 is higher than standard (430 MPN/100 ml vs 3 MPN/100 ml). The PPMU/OU is requested to urgently take remedial measures.

The overall implementation/compliance of the Quang Nam Pilot Subproject's OU to the EMP/EMoP during construction is rated as partially satisfactory. In the forthcoming operational phase, 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 take water samples as required.

Resettlement

PPMU of Quang Nam have to complete the Land Acquisition and Resettlement Completion Report and send it to PIA for review and validation. The LARC Report has been submitted again to ADB on 27 October 2015. The resettlement activities of A Tieng Subproject is appraised as satisfied under ADB's safeguard policies

Ethnic Minority

EMDP activities have been implemented in compliance with the Project principles. Public awareness campaigns have been effective and C'tu people have started using more tap water, hygienic latrines and participating in cleaning the hamlet roads.

However, to encourage them to using hygiene service as well as ensure equal participation and benefits of ethnic minority in the Subprojects, the PIA Consultant and PPMU need to continue to work closely and support WSCC, HSPs and relevant stakeholders to improve their capacity on implementation of Subproject's IEC activities towards behaviour change and hygienic sanitation.

Annex 1 Subproject Compliance with EMP 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
OPERATION & MAINTENANCE PHASE			
Operation at the WTP and Pumping stations			
<ul style="list-style-type: none"> Equip workers with gas masks and protective clothing and gears such as boots, helmets during working. 	Yes.	Operational unit has provided sufficient work wear for workers such as: work safety gears, helmets, boots, gloves, protection mask, etc.	
<ul style="list-style-type: none"> WTP's operator will strictly comply with instructions of use and storage of chemicals. If leakage or spillage events happen, the WTP's operator will inform to relevant agency to deal with immediately. 	Yes.	<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 regard 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.</p> <p>Along the pipelines, fire hydrants have been installed and are always ready for using at any time.</p>	

List of Abbreviations

EMP	Environmental Management Plan
O&M	Operation and Maintenance
WTP	Water Treatment Plan
OU	Operating Unit

(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
I. O&M PHASE			
1. Raw (ground) Water Quality Conduct raw water sample (taken from To Vieng spring) 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).	Yes.	Raw water was tested in September 2016. All the parameters, except total coliform meet the standards as total coliform in the raw water quality analysis is higher than standard (430 MPN/100 ml vs 3 MPN/100 ml).	The PPMU is requested to continue monitoring raw water quality closely.
2. Treated water Quality Conduct treated water sample and analysis quarterly	Yes.	Treated water samples were tested in September and November 2016 and meet the standards.	


List of Abbreviations

EMoP	Environmental Monitoring Plan
PCERWASS	Provincial Centre for Rural Water Supply and Environmental Sanitation
PPMU	Provincial Project Management Unit
OU	Operating Unit

Annex 2 Monitoring Data: Raw Water and Treated Water Sampling and Quality Analyses

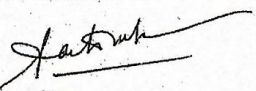
Original

Quang Nam Pilot Subproject: Raw water sampling and quality analyses on 15 September 2016


	SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG TỈNH QUẢNG NAM TRUNG TÂM QUAN TRẮC VÀ PHÂN TÍCH MÔI TRƯỜNG		Trụ sở: 84 - Phan Bội Châu - Tam Kỳ - Quảng Nam Tel: 0510. 3825499 - 3702260 Fax: 0150.3825588 Email: qmtquangnam@gmail.com Website: qmtquangnam.com	
	DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT OF QUANG NAM PROVINCE ENVIRONMENT MONITORING AND ANALYSING CENTER			
Số Ref: 193a/KQ-QTPTMT		PHIẾU KẾT QUẢ THỬ NGHIỆM Test report		Ngày/Date: 24/9/2016
1. Tên mẫu/Name of sample: Mẫu nước 2. Số lượng mẫu/Quantity of sample: 1 3. Ký hiệu mẫu/Mark of sample: NT1 4. Ngày nhận mẫu/Received date: 15/9/2016 5. Tình trạng mẫu/Sample status: Mẫu được bảo quản lạnh 6. Khách hàng/Client: Trung tâm Nước sạch và Tư vấn thủy lợi Quảng Nam 7. Địa chỉ/Address: Số 16, đường Lê Lợi, thành phố Tam Kỳ, tỉnh Quảng Nam				
STT (No)	Tên chỉ tiêu (Test properties)	Phương pháp thử (Test methods)	Đơn vị tính (Unit)	Kết quả thử nghiệm (Test results) NT1
1	pH ^(*)	TCVN 6492:2011	-	6,7
2	DO	TCVN 5499:1995	mg/l	5,4
3	Mùi	Cảm quan		Không mùi
4	Độ màu	TCVN 6185:2008	mgPt/l	25
5	Độ đục	TCVN 6184:2008	NTU	3,7
6	Độ cứng, tính theo CaCO ₃ ^(*)	TCVN 6224:21996	mg/l	22
7	Clorua ^(*)	TCVN 6194:21996	mg/l	22,6
8	Fe tổng ^(*)	TCVN 6177:1996	mg/l	0,12
9	Nitrat (NO ₃ -N) ^(*)	USEPA 352.1	mg/l	0,086
10	Nitrit (NO ₂ -N) ^(*)	TCVN 6187:1996	mg/l	<0,001
11	Sunphat (SO ₄ ²⁻) ^(*)	USEPA 375.4	mg/l	4,8
12	Mn	TCVN 6193:1996	mg/l	<0,036
13	Clor dư	TCVN 6625-3:1996	mg/l	<0,1
14	E.coli ^(*)	TCVN 6187-2:1996	mg/l	KPH
15	Coliform ^(*)	TCVN 6187-2:1996	mg/l	430

Ghi chú: - Mẫu do khách hàng mang đến;
 - NT1: Mẫu nước thô tại suối Aró;
 - KPH: Không phát hiện.

**PHÒNG QUAN TRẮC & PHÂN TÍCH
TRƯỞNG PHÒNG**


ThS. Nguyễn Văn Thanh

GIÁM ĐỐC


Nguyễn Văn Việt

1. Các kết quả có trong phiếu này chỉ có giá trị trên mẫu thử
 2. Không được in sao một phần văn bản này nếu không có sự đồng ý của Trung tâm QT&PTMT Quảng Nam
 3. Trong vòng 10 ngày sau khi trả kết quả, nếu khách hàng không có khiếu nại gì TT sẽ tiến hành hủy mẫu
 (*) Chỉ tiêu được công nhận
 (**) Chỉ tiêu sử dụng nhà thầu phụ

Translation

Quang Nam Pilot Subproject: Raw water sampling and quality analyses on 15 September 2016

No.	Parameter	Unit	Result (on 15 Sep 2016)	Limiting value set in QCVN 09:2008/BTNMT
1	Color	TCU	25	
2	Odor	-	No odor	
3	Turbidity	NTU	23.7	
4	Residual Chlorine	mg/l	<0.1	
5	pH	-	6.7	5.5÷8.5
6	Total Fe	mg/l	0.12	5
7	Hardness calculating by CaCO ₃	mg/l	22	500
8	Chloride (Cl ⁻)	mg/l	22.6	250
9	Manganese (Mn)	mg/l	<0.036	0.5
10	Nitrate	mg/l	0.086	1
11	Nitrate	mg/l	<0.001	15
12	Sulfate		4.8	400
13	Total Coliforms	MPN/100 ml	430	3
14	E – Coli	MPN/100 ml	BDL	BDL

Note:

- QCVN 09:2008/BTNMT National Technical Regulation on Groundwater quality

Original

Quang Nam Pilot Subproject: Treated water sampling and quality analyses

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: 22-2016/PTN-Q3

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Điểm cấp nước cuối tuyến ống - Hệ thống cấp nước trung tâm hành chính - huyện Tây Giang.

Số lượng: 1×1500ml, 1×500ml

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

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	10,5
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	5	0
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,3
5	pH	Mettler Toledo SG2-FK	-	6,0-8,5	7,4
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,1
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,5	0,1
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	4	1,5

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.

1

9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	350	19,5
10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	300	2,8
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	0,3
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	50	35
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

Kết luận:

- Hóa lý nước: Mẫu không đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 02:2009/BYT (đối với chỉ tiêu Clo dư).
- Vi sinh nước: Mẫu không đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 02:2009/BYT (đối với chỉ tiêu Coliform và E.coli).
- 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 9 năm 2016

PHÒNG KIỂM NGHIỆM CLNS

Nhân viên phân tích

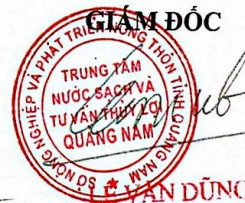


Huỳnh Thị Thìn

Trưởng phòng



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

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

Độc lập - Tự do - Hạnh phúc.

16 Lê Lợi – Tam Kỳ - Quảng Nam

Số: 21-2016/PTN-Q3

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Bể xử lý - Hệ thống trung tâm hành chính huyện Tây Giang

Số lượng: 1×1500ml, 1×500ml

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

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	11.6
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	5	3,5
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,3
5	pH	Mettler Toledo SG2-FK	-	6,0-8,5	7,4
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0.08
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,5	0.1
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	4	1.5

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.

9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	350	20
10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	300	2,8
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	0,3
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	50	46
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 02:2009/BYT.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 02:2009/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 30 tháng 9 năm 2016

PHÒNG KIỂM NGHIỆM CLNS

Nhân viên phân tích



Huỳnh Thị Thìn

Trưởng phòng



Nguyễn Trí Đại



LE 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
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: 22-2016/PTN-Q4

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Điểm cấp nước cuối tuyến ống - Hệ thống cấp nước xã A Tiên, huyện Tây Giang.

Số lượng: 1×1500ml, 1×500ml

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

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 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	10,5
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	5	1,5
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,3
5	pH	Mettler Toledo SG2-FK	-	6,0-8,5	7,4
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0,1
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,5	0,1
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	4	1,5

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.

9	Độ cứng theo CaCO ₃	TCVN 6224-1996	Mg/l	350	19,5
10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	300	2,8
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	0,3
II. Vi Sinh					
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	50	4,6x10 ¹
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 02:2009/BYT.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 02:2009/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 20 tháng 11 năm 2016

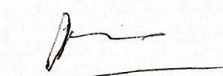
PHÒNG KIỂM NGHIỆM CLN

Nhân viên phân tích



Huỳnh Thị Thuận

Trưởng phòng



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

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

Độc lập - Tự do - Hạnh phúc.

16 Lê Lợi – Tam Kỳ - Quảng Nam

Số: 21-2016/PTN-Q4

PHIẾU KẾT QUẢ XÉT NGHIỆM

Loại mẫu nước: Nước sinh hoạt

Địa điểm lấy mẫu: Bể xử lý - Hệ thống cấp nước xã A Tieng huyện Tây Giang.

Số lượng: 1×1500ml, 1×500ml

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

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 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	8,4
2	Mùi vị	Cảm quan	-	Không có mùi vị lạ	Không có mùi vị lạ
3	Độ đục	HANNA HI 93703C	NTU	5	1,7
4	Clo dư	HACH Chlorine, Free	Mg/l	0,3-0,5	0,3
5	pH	Mettler Toledo SG2-FK	-	6,0-8,5	7,1
6	Hàm lượng Amoni	USEPA Nessler Method 8038	Mg/l	3	0.08
7	Hàm lượng Sắt tổng	TCVN 6177-1996	Mg/l	0,5	0.05
8	Chỉ số Pemanganat	TCVN 6186-1996	Mg/l	4	1.5
9	Độ cứng	TCVN 6224-1996	Mg/l	350	19,1

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.

	theo CaCO ₃				
10	Hàm lượng Clorua	TCVN 6195-1996	Mg/l	300	2,8
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	0,3
13	Coliform tổng	TCVN 6187-2:1996	MPN/100ml	50	3,5x10 ¹
14	E.coli	TCVN 6187-2:1996	MPN/100ml	0	0

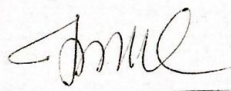
Kết luận:

- Hóa lý nước: Mẫu đạt tiêu chuẩn vệ sinh về Hóa lý nước theo QCVN 02:2009/BYT.
- Vi sinh nước: Mẫu đạt tiêu chuẩn vệ sinh về Vi sinh nước theo QCVN 02:2009/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 20 tháng 11 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 Pilot Subproject: Treated water sampling and quality analyses

No.	Parameter	Unit	Quality analysis results				Limiting value set in QCVN 02:2009/BYT
			At clean water reservoir (on 20 Sep 2016)	At the end of the network (on 20 Sep 2016)	At clean water reservoir (on 3 Nov 2016)	At the end of the network (on 3 Nov 2016)	
1	Color	TCU	11.6	10.5	8.4	10.5	15
2	Odor	-	No odor	No odor	No odor	No odor	No odor
3	Turbidity	NTU	3.5	0	1.7	1.5	5
4	Residual Chlorine	mg/l	0.3	0.3	0.3	0.3	0.3÷0.5
5	pH	-	7.4	7.4	7.1	7.4	6.0÷8.5
6	Ammonium (NH ₄ ⁺)	mg/l	0.08	0.1	0.08	0.1	3
7	Total Fe	mg/l	0.1	0.1	0.05	0.1	0.5
8	Permanganate index		1.5	1.5	1.5	1.5	4
9	Hardness (calculating by CaCO ₃)	mg/l	20	19.5	19.1	19.5	350
10	Chloride (Cl ⁻)	mg/l	2.8	2.8	2.8	2.8	300
11	Total Arsenic	mg/l	0	0	0	0	0.01
12	Fluoride (F ⁻)	mg/l	0.3	0.3	0.3	0.3	1.5
13	Total Coliforms	MPN/100 ml	46	35	3.5x10 ¹	4.6x10 ¹	50
14	E - Coli	MPN/100 ml	0	0	0	0	0

Note:

- QCVN 02:2009/ BYT National Technical Regulation on domestic water quality

Annex 3: Photographs



Figure 2 The WTP's precinct



Figure 3 Water treatment tanks without internal handrails



Figure 4 PAC tanks



Figure 5 Chlorine gas injection



Figure 6 Chlorine gas detector



Figure 7 Ceiling water sprinkler system in chlorination room



Figure 8 Household latrine without superstructure



Figure 9 Using tap water in a C'tu household, Agrong hamlet

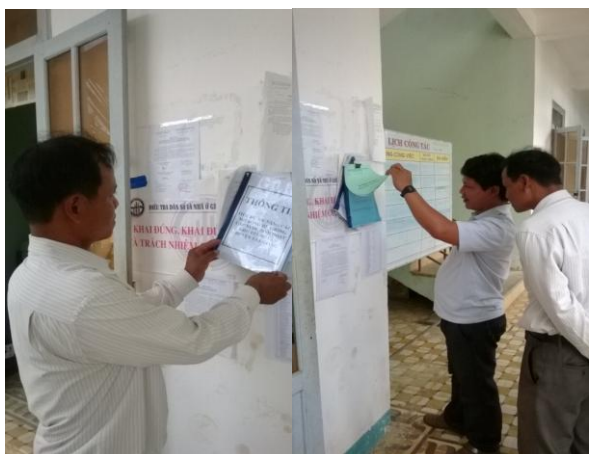


Figure 10 Approved Updated LARP has been disclosed at office of CPC