Environmental Monitoring Report

Semi-Annual Report
July – December 2012

VIE: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project
(A Roang Hydropower Project)

Prepared by Central Power Corporation for the Electricity Vietnam and the Asian Development Bank.

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CURRENCY EQUIVALENTS

(as of 31 December 2012)

Currency unit	–	Vietnamese Dong (VND)
VND1.00	=	$0.000048
$1.00	=	VND20,840

ABBREVIATIONS

VIE	-	Viet Nam
ADB	-	Asian Development Bank
BOD	-	Biochemical Oxygen Demand
CEP	-	Commitment on Environmental Protection
CPC	-	Central Power Company
CREB	-	Central Rural Electricity Project Management Board
DO	-	Dissolved Oxygen
EARF	-	Environmental Assessment and Review Framework
EMP	-	Environmental Management Plan
EVN	-	Electricity Vietnam
CREB	-	Central Rural Electricity Project Management Board
ESDC	-	Environment and Social Development Cell
DONRE	-	Department of Natural Resources and Environment
IEE	-	Initial Environmental Examination
SONRE	-	Section on Natural Resources and Environment
PPE	-	Personal Protection Equipment

WEIGHTS AND MEASURES

MW	–	Megawatt
Km	–	Kilometer
km^2	–	square kilometers
l/s	–	litres per second
m	–	metre
m^3	–	cubic metre
m^2	–	square metre
mm	–	millimeter
s	–	seconds
mg/l	–	milligram/litre
dBA	–	decibels
$\mu g/m^3$	-	Microgram per cubic meter
MPN	-	Most Probable Number

NOTES

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

I. INTRODUCTION

The A Roang hydropower project is a sub-project of Loan 2517-VIE: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project which is funded by the Asian Development Bank (ADB). The implementing agency of this sub-project is Central Power Corporation (CPC).

The project is a 7.2MW hydropower project designed to provide electricity to the rural electricity system in A Roang commune, A Luoi District in Thua Thien Hue Province. The project site is close to the main international Ho Chi Minh Highway 14. The project is about 25km from the centre of A Luoi District to the south and about 70km by road from Hue city to the southwest. The plant is located at 107^0 23' Eastern longitude and 16^0 07' Northern latitude. **Figure 1** presents the location map.

The project is designed to take the waters from the A Lung river which has a small catchment area of only 46 km^2. The A Lung river is an upstream branch of the A Roang river which in turn feeds into the Bo river.

The project consists of a concrete gravity dam, cresting approximately 8 m above the riverbed, an overflow spillway, intake works, a tunnel to pipe water to the penstock, a powerhouse and tailrace. Water taken from the A Lung River will be delivered to the powerhouse and returned to the river some 1.3 km downstream. The water delivery system is designed to provide a maximum of 4.9 m^3 to two turbines and supply peak power to the national grid system.

A. Purpose of the Report

The Central Rural Electricity Project Management Board (CREB) of the Central Power Corporation has been appointed as the department to undertake the management of the implementation of sub-projects of Loan 2517-VIE. The CREB consists of the Hydropower Section, directly monitoring the implementation of A Roang Hydropower project. The CREB is also tasked to establish and assess the environmental performance of the sub-project and its contractors with a view of improving the environmental performance of the overall project.

This Environmental Monitoring Report presents the results of the monitoring of the construction of A Roang hydropower project covering the period July to December 2012. The report documents the status of project implementation, compliance with the Environmental Management Plan (EMP), and also compliance with the environmental regulatory requirements of the Government of Vietnam. The report also aims to present corrective or remedial measures for environmental impacts observed during the monitoring period.

The CREB reviewed and monitored the implementation of the EMP based on the Initial Environmental Examination (IEE) report which was submitted to ADB. The Environmental Compliance and Monitoring Form and Environmental Monitoring Checklist provided by ADB was used to assess the compliance of the contractors with the EMP and with ADB's Environment Safeguards. Site visits were carried out to validate implementation of the mitigation measures.

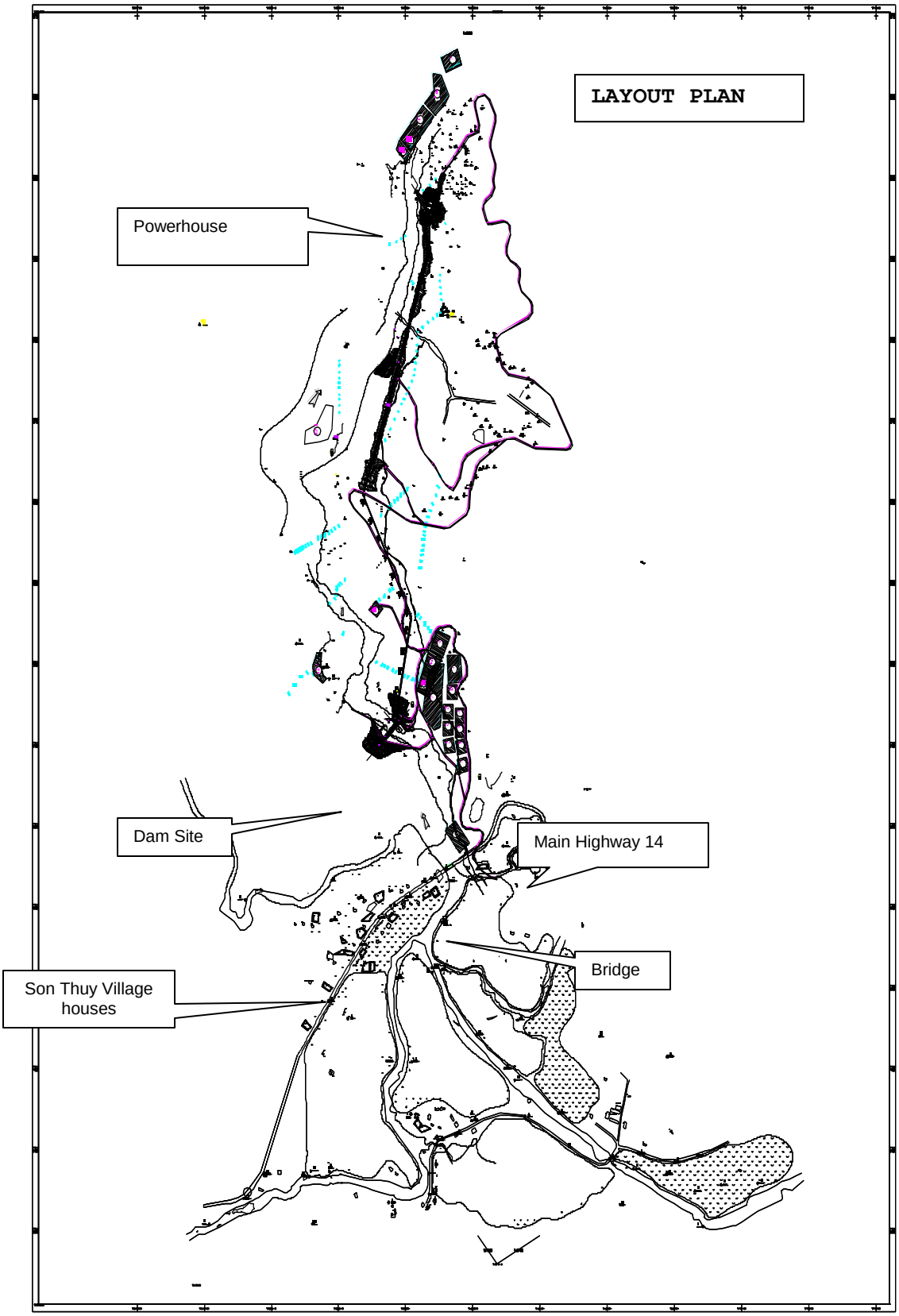

Figure 1. Location of the A Roang Hydropower Project and Components

The objectives of the monitoring are:

a) Monitor the sub-project's compliance with Vietnam Technical Regulations and Law on Environment
b) Monitor the sub-project's compliance with ADB's Environment Safeguards requirements
c) Monitor compliance of the contractors with mitigation measures to address construction impacts on the environment as per Contract Conditions and the EMP
d) Determine corrective actions to minimize negative impacts on the environment during the construction phase.

B. Progress of Project Implementation

The project started construction works of the Stage 2 - access road leading to the powerhouse in November 2012 and Stage 1 – access road from NH11 to the damsite in August 2010. The Stage 1 access road was funded by own budget of CPC.

The access road to the dam and the administration office has been completed. The administration office was completed in May 2012. The construction of the dam is ongoing and which started in September 2012. Table 1 outlines the progress of the project construction:

Table 1. Status of Project Implementation

Project Component	% Completed (as of December 31, 2012)	Remarks
Access Road (4km) Stage 1 Stage 2	100% 5%	
Administration Office	100%	
35kV line - Huong Lam – A Roang - Bot Do – Huong Lam	90% 0	The remaining part of Huong Lam – A Roang will be continued at the same time as the access road – stage 2
Dam	15%	Ongoing
Overflow weir	0%	Not yet implemented
Diversion channel	0%	Not yet implemented
Intake gate	0%	Not yet implemented
Sand sluicing	0%	Not yet implemented
Valve house	0%	Not yet implemented
Bridge crane	0%	Not yet implemented
Surge tank	0%	Not yet implemented
Tunnel	0%	Not yet implemented
Tailrace	0%	Not yet implemented
Penstock	0%	Not yet implemented
Powerhouse	0%	Not yet implemented
Tailrace	0%	Not yet implemented
Substation	0%	Not yet implemented

II. INCORPORATION OF ENVIRONMENTAL REQUIREMENTS INTO PROJECT CONTRACTUAL ARRANGEMENTS

EVN is the implementing agency of the sub-projects under Loan 2517. According to the Environmental Assessment and Review Framework (EARF) of this loan, the sub-projects should comply with the government regulations. The sub-project should also not involve activities located in the core zone, or as much as possible, in or near the buffer zone of designated special use forests consisting of national parks, protected landscapes and nature reserves or nature conservation areas and other protected areas where the proposed development is prohibited. The sub-project should as much as possible not involve activities located in or near ecologically sensitive and significant areas as recognized by the Government or any area that is internationally significant. In addition, the sub-project should, as much as possible, not involve activities located in or near any cultural heritage and historical sites designated by the Government or by international agencies such as UNESCO.

The A Roang hydropower project and its components were designed after detailed surveys to ensure strict compliance with the above conditions. The A Roang hydropower project and components are not passing through any wildlife sanctuary or national park. There are no sensitive areas or monuments of cultural and historical importance that is affected by the project activities.

The Commitment on Environmental Protection (CEP) of A Roang Hydropower project was approved by the People's Committee of A Luoi District on 24 June, 2010. The IEE was also endorsed by ADB. The EMP as contained in the approved IEE was included in the bid document with the contractors. The responsibility of EMP implementation during the construction phase of the project was entrusted to the contractors of the project. The implementation of the EMP by the contractors is being monitored by the field officers of the CREB of CPC.

The Environment and Social Development Cell has not been created by CPC. Instead, a focal person on environmental matters has been appointed within CREB to audit the implementation of the EMP by the contractor and to coordinate activities related to the EMP implementation and monitoring. A monitoring system will be developed and implemented on a regular basis. Documentation of monitoring activities will be retained at the project site by the CREB.

The following are the personnel assigned by CPC and the contractor to monitor compliance with environmental mitigation measures:

Table 2. List of Personnel In-Charge of Environmental Mitigation and Monitoring

Name of Personnel	Organization	Responsibilities
Tran Van Tung	Hydropower section of CREB	Monitor of road-stage 2
Doan Van So	Hydropower section of CREB	Monitor of dam
Chung Quy Hoang	Hydropower section of CREB	Head monitor
Nguyen Thanh Minh	Hydropower section of CREB	Monitor of tunnel
Le Huy Hoang	Joint venture between no.564 Construction Co.,Ltd & no.412 Construction Co.,Ltd	Commander, Contractor of road – stage 2
Trinh Xuan Khanh	Joint venture between Song Da no 9.01 JSC & Song Da no 505 JSC	Commander, Contractor of dam

III. SUMMARY OF ENVIRONMENTAL MITIGATIONS AND COMPENSATION MEASURES IMPLEMENTED

The mitigation measures performed during the pre-construction and construction phase as suggested in the EMP and its implementation status is presented in Table 3.

Table 3. Status of Implementation of Environmental Management Plan (EMP)

Environmental Aspect & Potential Impact	Mitigation Measure	Status of Implementation	Proposed Improvement
Design/Pre-Construction Components			
Project construction & potential loss of agricultural, forestry & grazing land	Design for maximize use of waste cut and fill materials. Reservoir design and alignment of tunnel, penstock, power house and tail race to avoid existing land uses wherever possible Compensation at market rates, prior to work commencement.	Acceptable compensation of affected agricultural land was done. The compensation rates were approved by the People's Committee.	None
Excavation of construction materials and development of quarries & borrow areas causing loss of alternative land use	Use of existing permitted quarry & borrow areas already in operation. Degraded, barren, riverbeds & waste lands with permits from the Government to be used for borrow materials.	Contractors buy materials from existing quarry sites.	
Reduced water flows and reduction in water quality in the existing river course.	Ensure that dam construction is phased to ensure diversion of the river with coffer dams during separate construction of left & right abutments & ensure construction activities avoid soil & construction materials entering river flow. Ensure a minimum flow is retained in the river	Included in the detailed design.	
Water diverted from the river resulting to reduced water flow which could impact aquatic life.	Design to keep residual water flow in river to meet aquatic needs.	Included in the detailed design.	
Construction Phase			
Earthworks for new access roads and construction of penstock on steep slopes leading to erosion & encroachment	Slopes along access roads & penstock will be provided with: Catchments/ cut-off drains, silt traps & chutes to minimize soil erosion. Masonry retaining structures. Formation of sediment basins & slope drains. Maximum usage of material in fill areas. Spoils planning particularly on steep slopes with bench terracing for high cut areas & avoidance of any erosion and runoff of material on down slopes Planting grass and revegetation on disturbed areas and	The contractor undertook provision of catchments/cut-off drains, silt traps & chutes, masonry retaining structures, sediment basins & slope drains, maximum use of material in fill areas, and bench terracing	Require contractor to immediately rehabilitate disturbed areas. Bench terracing of spoils on steep slopes.

Environmental Aspect & Potential Impact	Mitigation Measure	Status of Implementation	Proposed Improvement
	maintaining of landscaping.	of soils on steep slopes. Trees and grasses were planted at slopes of Stage 1 – access road.	
Use of Borrow Materials with potential for loss and degradation of land	No earth will be borrowed from cultivable and arable lands. Borrowing to take place from barren, wastelands, & riverbeds. For new borrow areas, all measures will be taken to avoid loss of any productive soil. Any borrow areas will be refilled, re-vegetated & landscaped.	Earth materials were taken only from the site. There were no materials taken from agricultural land.	Contractor will continue this measure.
Taking of Quarry Materials with loss and degradation of land	Quarry materials will be obtained from existing operating sites with proper licenses & environmental clearances. New quarries to be opened only with permission of respective authorities.	Existing quarries were used by the contractor.	Continue this measure
Operation of construction equipment and construction activities and contamination of soils, loss of water quality & water pollution	Fuel storage & refuelling will have adequate containment, away from water bodies/channel. Equipment will be properly maintained. Precautions to be taken to prevent water pollution due to increased siltation & turbidity for weir site & road construction particularly in dry month when flows are low. Approved sites defined for storage & disposal of wastes materials Any waste petroleum products will be collected, stored, & disposed of at approved sites.	The diesel fuel tank was not provided with adequate containment by the contractor of the access road.	Require contractor to provide containment below the tank to avoid spill of oil.
Construction activities causing disruption of existing surface drains.	Appropriate rain-storm-water channels will be constructed. Provision for cross drainage structures will be made.	Rain-storm water channels were provided at the access road, construction area and administration office.	To be provided at Stage 2 – access road, damsite, and powerhouse.
Construction Camp & Residential colony. Social impacts & pollution from wastewater & solid waste	Construction camps will be located adjoining the dam and powerhouse sites & away from any settlement. Manual labour will be employed locally. Camps & residential colony will have properly designed sewage treatment system for wastewater effluent. Likewise, solid waste collection system will be employed.	Construction camps are located far from residential communities. The contractor hired 10 workers from the community.. Septic tanks are provided at the administration office but construction camps do not have adequate wastewater and solid waste disposal system.	Require contractors to provide wastewater and solid waste system and to maintain sanitary conditions at the construction camps.
Emission from Construction	Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards.	Contractors were required to maintain	Continue monitoring this measure.

Environmental Aspect & Potential Impact	Mitigation Measure	Status of Implementation	Proposed Improvement
Vehicles & Equipment causing air pollution	Pollutant parameters will be monitored during construction. Crushing, & concrete plants will be away from population centres at dam and powerhouse sites.	construction vehicles & equipment regularly. Ambient air quality sampling at the site was conducted on 25 Dec,2012. Results show compliance with Vietnamese standards. Concrete plants are located away from population centers.	
Dust particulates causing health impacts for workers and villagers	All precautions to be taken to reduce dust level emissions from batching plants & portable crushers at dam and powerhouse sites. Regular water spraying at all mixing sites & temporary service roads will be undertaken. All delivery vehicles will be covered with tarpaulin.	The construction site itself is located away from residential community. Water spraying on roads and dusty areas was not being undertaken by the contractors. There were delivery vehicles not covered with tarpaulins.	Require contractors and delivery vehicles to cover trucks with tarpaulin. Require delivery vehicles to slow down speed when passing through unpaved road. Require the road contractor to undertake water spraying during periods of dust emission.
Construction activity Noise from Vehicles, Plant & Equipment causing noise pollution	All construction equipment & plants will conform to Vietnamese noise standards. All vehicles & equipment to be fitted with noise abatement devices. Construction workers will be provided with personal protection.	Noise sampling was conducted on25 Dec,2012. Results show compliance with Vietnamese standards. Some construction workers were not wearing personal protection.	Require contractor and workers to wear personal protection.
Noise pollution from any blasting activities at dam and power tunnel and penstock,	Any blasting works will be in accordance with Vietnamese Explosives Act. No blasting between dusk & dawn. Residents close by will be informed well in advance of blasting times. Workers associated with blasting sites will be provided with earplugs, helmets & other personal safety devices.	There was no blasting done during the monitoring period.	
Construction of dam, reservoir, tunnel, penstock with loss of	No trees to be removed without prior approval, Compensation for lost trees on private land, Planting grass and maintaining Tree plantation implemented at dam area, tunnel,	Trees that were removed were compensated.	Tree plantation to be undertaken after construction of the dam facilities.

Environmental Aspect & Potential Impact	Mitigation Measure	Status of Implementation	Proposed Improvement
vegetation & tree cover.	penstock, temporary construction areas, roads and other elements of the project. Indigenous tree species being accorded priority over exotic species such as: Acacia Aurculiformis A.Cunn.ex Benth	No tree plantation is implemented at this time because the dam is still under construction.	
Work force during construction causing impacts to wildlife	Construction workers to be educated for wildlife conservation with no hunting & poaching to be allowed for workers.	Construction workers are directed not to hunt or poach for wildlife in the area.	Continue monitoring.
Construction Activities & Accident Risks	All blasting sites will have warning & clearance signals. Site will be inspected prior/after blasting. Workers will be provided with helmets, masks, safety goggles, etc. A readily available first aid unit will be available with dressing materials etc. Road safety education will be given to construction vehicle drivers. Traffic management will be ensured during road construction periods. Information dissemination will take place through the Commune's People Committee regarding activities causing disruption.	There is still not blasting activities at the site. Some workers were not wearing helmets, masks, safety googles, etc. First-aid kit is available at the administration office.	Contractors and workers will be required to wear personal protection.
Construction Activities causing disruption to Public Utilities	- Any public utilities likely to be impacted, such as water supply pipe system, power/phone lines etc. must be relocated to suitable places, in consultation with local beneficiaries.	There were no public utilities affected by the project.	
Any discovery of artifacts or articles of historical interest and importance	- For all finds of an historical or cultural value, work will be stopped and the find reported to the nearest office of the Department Culture, Sport and Tourism or the Department of Culture and Information	There were no historical or cultural sites affected by the project.	

A. Environmental Permits and Licenses Secured

The A Roang Hydropower Project has secured the following licenses and clearances for its implementation:

Table 4. Environmental Permits and Licenses Secured

License/Clearance	License/Clearance No.	Issued by	Date Issued
CEP Approval	07/GXN-UBND	A Luoi District People Committee	24 June 2010
UXO Clearance		Van Tuong Co.,Ltd	7 June 2010

There are no other environmental permits and licenses that are pending and needs to be gathered.

IV. SUMMARY OF ENVIRONMENTAL COMPLIANCE MONITORING

A. Summary of Inspection Activities

Daily monitoring is being conducted by the staff of the Hydropower Management Department of CPC. There are about four (4) staff assigned at the site to monitor the progress of work as well as the implementation of the EMP. In addition, the contractor submits monthly progress reports to CREB/CREB.

Inspection was conducted on 27 – 29 November 2012 and on 25-28 December 2012 to validate the reports submitted by the contractors. Table 3 outlines the findings during these site inspections related to environmental management.

Table 5. Summary of Inspection Findings

Environmental Incident	Date/Location	Reported by	Description	Action Taken	Further Action Required
Workers were not wearing personal protection	Nov 27,2012	Doan Van So	Workers were not wearing personal protection when working at the road and the damsite	CREB reminded contractor to wear PPE	Issue verbal warning and check action taken by contractor
Oil tank was not provided with containment system	Nov 27,2012	Tran Van Tung	Oil tank was located on the road site, the spillage of oil directly on the soil	CREB reminded contractor to provide containment	Issue verbal warning and check action taken by contractor
Soil runoff was noted at the river	Nov 27,2012	Tran Van Tung	At the damsite	CREB reminded contractor to cover the delivery vehicles and collect soil to the waste material site	Issue written warning to contractor and check action taken by contractor
Dusty road	Nov 27,2012	Tran Van Tung	The movement of vehicles on the road cause dust emission	CREB reminded contractor to implement the measures of mitigation in EMP	Issue verbal warning and check action taken by contractor
Warning sign	Dec, 2012	Doan Van So	There are	CREB	Issue

Environmental Incident	Date/Location	Reported by	Description	Action Taken	Further Action Required
for the dangerous site			warning signs at the damsite, not at access road	reminded contractor to supply the warning sign	written warning to contractor and check action taken by contractor of road

There are no complaints received from the public or community against the project activities since the start of construction up to 31 December 2012.

B. Mitigation Compliance and Effectiveness

The monitoring of the project was evaluated based on compliance and effectiveness. Ranking that was used in the evaluation is: 1 – Very Good; 2 – Good; 3 – Fair; 4 – Poor; and 5 – Very Poor. Table 6 presents the overall compliance and effectiveness of the mitigation measures.

Table 6. Overall Compliance and Effectiveness of the EMP Implementation

Mitigation Measure	Compliance	Effectiveness	Impact Observed/Location	Action Required	Contractor Response/Comment
Slopes along access roads and penstock will be provided with catchments/cut-off drains, silt traps & chutes, masonry retaining structures, sediment basins & slope drains	2	2	The measure was not adequately implemented by the contractor resulting to evidence of soil runoff in the river. There were soil and silt along the canals.	Require contractor to immediately rehabilitate disturbed areas.	Contractor implemented these measures in Dec. 2012
Maximum usage of material in fill areas	2	2		Continue thís measure	Contractor agreed
Spoils planning on steep slopes with bench terracing	2	2	The measure was not adequately implemented by the contractor resulting to evidence of soil runoff in the river.	Require contractor to immediately provide bench terracing of spoils on steep slopes.	Contractor implemented these measures in Dec. 2012
Planting of grass and revegetation	2	2	Trees and grasses were planted at slopes of stage 1- access road	Require contractor to plant grass and trees of stage 2- road, damsite	Contractor agreed to implement when building stage 2- road and damsite
Fuel storage and refueling will have adequate containment, away from water bodies/channel	2	3	The diesel fuel tank was not provided with adequate containment by the contractor of the	Require contractor to provide containment below the tank to	Contractor provided the containment below tank in Dec-2012

Mitigation Measure	Compliance	Effectiveness	Impact Observed/Location	Action Required	Contractor Response/Comment
			access road until Nov-2012	avoid spill of oil	
Approved sites defined for storage & disposal of waste materials	3	4	Contractor has not provided until Nov-2012	Require contractor to implement	Contractor provided site for waste material in Dec-2012
Construction camps will be located adjoining the dam and powerhouse sites and away from settlement.	1	1			
Camps will have properly designed sewage treatment system and solid waste collection system	2	4	Camps do not have adequate wastewater and solid waste disposal system	Require contractor to implement	Contractor of damsite provided septic tanks in Dec-2012 Contractor of stage 2- road agreed to implement
Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards	2	2	The result are in compliance with Vietnamese standard	Require contractor to pay attention to emission	Contractor agreed
Air pollution will be monitored during construction	2	3		Monitor and contractor have to monitor every actions on the site to mitigate the air pollution	Monitor and Contractor agreed
Crushing & concrete plants will be away from population centers	1	1			
Regular water spraying at all mixing sites and temporary service roads	2	3	Water spraying on roads and dusty areas were not being undertaken by the contractor	Require contractor to implement regularly	Contractor agreed
All delivery vehicles will be covered with tarpaulin	2	3	Some vehicles were not covered	Require contractor to cover all of delivery vehicles	All of delivery vehicles were covered in Dec-2012
Construction workers will be provided with personal protection.	3	4	They were not wearing personal protection	Require contractor and workers to wear personal protection	Contractor and workers wore personal protection in Dec-2012. This issue has to be continued
Any blasting works will be in accordance with Vietnamese Explosives Act			There was no blasting done during the monitoring period		
Residents will be informed in advance of blasting times			There was no blasting done during the monitoring period		
Workers associated with blasting sites will be			There was no blasting done during		

Mitigation Measure	Compliance	Effectiveness	Impact Observed/Location	Action Required	Contractor Response/Comment
provided with earplugs, helmets & other personal safety devices			the monitoring period		
All blasting sites will have warning & clearance signals			There was no blasting done during the monitoring period		
First-aid kit will be available at the site	3	4	There were not first-aid kit at the site	Require to provide the first-aid kit at the camps and administration house	Contractor agreed to implement
Compensation for lost trees on private land	1	1	Compensated for lost trees on private land		
Tree planting			Trees plantation to be undertaken after construction		
Construction workers to be educated on wildlife conservation with no hunting & poaching	1	1	Workers have not hunted or poached	Require workers to continue	Workers agreed to conserve wildlife
Construction driver will be given road safety education	1	2	All of drivers have license for driving	Require drivers to go slowly and carefully	Contractor agreed
Traffic management will be ensured during road construction periods	1	1	Now, there are not many delivery vehicles on the site	In the future, there will be many vehicles, require contractor to manage traffic during road	Contractor agreed to implement
All historical or cultural finds will be reported to the Department of Culture, Sport and Tourism			There are not historical or cultural near the site		

C. Ambient Monitoring

Ambient air quality, water quality and noise monitoring was conducted on 25 December 2012. Sampling stations were located at Stage 2 – access road, administration office, and at the A Lung River. The results of the monitoring was compared with the standards of Vietnam and presented as follows:

Table 7. Results of Ambient Air Quality Sampling

Parameter	Sampling Station (A Roang bridge)	Vietnam Standard	Remarks
Total suspended particulates	186.2 µg/m^3	200 µg/m^3	Pass
PM10	58.4 µg/m^3	150 µg/m^3	Pass

Table 8. Noise Quality Monitoring

Sampling Station (A Roang bridge)	Vietnam Standard	Remarks
64.7dBA	70 dBA	Pass

Table 9. Water Quality Monitoring

Parameter	Sampling Station 1	Sampling Station 2	Sampling Station 3	Vietnam Standard				Remarks
				A1	A2	B1	B2	
Fecal coliform (MPN/100 ml)	$2.2*10^3$	$2.6*10^3$	$2.5*10^3$	$2.5*10^3$	$2.5*10^3$	$2.5*10^3$	$2.5*10^3$	Pass
Dissolved oxygen (mg/l)	6.2	6.7	6.6	≥6	≥5	≥4	≥2	Pass
pH	6.1	6.1	6.1	6 - 8.5	6 - 8.5	5.5 - 9	5.5 - 9	Pass
Total suspended particulates	5	7	12	No specified	No specified	No specified	No specified	-
Oil and grease (mg/l)	<0.3	<0.3	<0.3	0.01	0.02	0.1	0.3	Pass
BOD5 (mg/l)	6.8	7.8	12.4	4	6	15	25	Pass

Sampling station 1: Upstream of dam
Sampling station 2: Downstream of dam
Sampling station 3: Downstream of powerhouse
- A1: Use for the purpose of supplying the running water and others purposes as: A2, B1, B2
- A2: Use for the purpose of supplying the running water after treating, preserving the aquatic life and others purposes as: B1, B2
- B1: Use for the purpose of the irrigation and others purposes as: B2
- B2: Use for the purpose of the river traffic and other purposes required the low quality water.

V. KEY ENVIRONMENTAL ISSUES

The following are the key issues and follow-up actions that were identified.

A. Lack of Orientation of Workers on Occupational and Construction Safety

The contractors failed to carry out training on occupational safety and environmental hygiene for their staff and workers at the beginning of implementation. The training should be done by the Contractors' environment and safety offices. To improve occupational safety practices at the site, the contractors are notified to conduct orientation of workers on the following aspects:

- Regulations on environmental hygiene and site exit/entry;
- Regulations on using labor protection equipment for groups of workers
- Strict requirements of safety-ensured operations for groups of workers doing different jobs.
- Training to respond to risks: fire prevention/fighting, first aid, bandaging injured people on site and plans to take them to the nearest medical center.
- Procedures for report and actions in the event of incident/accident.
- Experience sharing: (i) from experienced people, (ii) gathering safety-, environmental-hygiene-related video clips to raise awareness about this.
- Proper implementation of relevant EMP items.

B. Soil runoff into the A Lung River

Evidence of soil runoff from the construction activities was found at the river. The contractor was advised to conduct immediate rehabilitation of disturbed areas and to implement soil erosion control methods. Particular attention should be done at the spoils disposal area and at the site of the access road going to the powerhouse.

C. Containment for Diesel Fuel Tank

In November 2012, the diesel fuel tank used by the road contractor is not provided with adequate containment system. This could lead to possible leak of oil on the soil and then to the river. The contractor was advised to provide a containment system to avoid soil contamination.
In December 2012, the contractor has provided the diesel fuel tank following to the requirement of CREB.

D. Dust Emission from Movement of Hauling Trucks

At some locations, hauling trucks do not provide tarpaulin cover causing spill of materials. Also, transport vehicles do not slow down in unpaved roads causing excessive dust emission in the surroundings. The road contractor was advised to conduct watering or sprinkling of dusty areas while the hauling trucks are reminded to cover materials with tarpaulin and to slow down when passing through these dusty areas.

Table 10 summarizes the key issues, follow-up actions and the timeframe for implementation:

Table 10. Follow-Up Actions Required

Follow-up Actions Required	Timeframe	Responsible Parties
Contractor and workers to observe safety and wearing of PPEs	Immediately	- Joint venture between No.564 Construction Co. Ltd & No.412 Construction Co. Ltd

		- Joint venture between Song Da No.9.01 JSC & Song Da No.505 JSC
Road contractor to conduct water sprinkling in dusty road areas	Immediately	- Joint venture between No.564 Construction Co. Ltd & No.412 Construction Co. Ltd

VI. CONCLUSION

As of December 31, 2012, the project has completed the Stage 1 access road and the administration office. The project has accomplished 90% of the 35kV line of Huong Lam – A Roang. The remaining part of Huong Lam – A Roang will be continued simultaneous with the construction of Stage 2 access road. The clearing for the dam is ongoing with about 15% accomplishment while Stage 2 access road is about 5% completed.

In terms of implementation of the environmental management plan, some lapses of the contractor were noted such as:

1. workers were not wearing personal protection
2. oil tank was not provided with containment system
3. soil runoff was noted at the river
4. water sprinkling was not done in dusty road sections
5. lack of warning signs for dangerous/hazardous sites.

The contractors were immediately notified about these lapses in the implementation of EMP, to which they immediately agreed to implement.

As of December 31, 2012, the contractor implemented the following measures:

1. rehabilitation of slopes
2. bench terracing of spoils on steep slopes
3. containment for fuel tank
4. provided a site for storage/disposal of waste materials
5. provided septic tanks at the campsite
6. delivery vehicles are now covered with tarpaulin
7. workers wear personal protection.

CREB also conducted ambient air quality, noise and water quality monitoring. Ambient air and noise levels were taken at A Roang bridge which is an area where settlements are located. The site was selected to validate potential impacts of the construction of the project to the community. The levels of total suspended particulates, PM10, and noise show compliance with the Vietnamese standards.

Water quality samples were taken at three (3) sampling points, i.e. upstream of dam, downstream of dam, and downstream of powerhouse. The samples were analyzed for fecal coliform, Dissolved Oxygen (DO), pH, total suspended particulates, oil and grease, and BOD_5. The laboratory results show that all the samples are in conformance with the Vietnamese standard.

Based on the results of the monitoring, some of the anticipated environmental impacts during the construction period have been mitigated by implementing the EMP. Proper implementation of the EMP and monitoring mechanism throughout the project life cycle, supported by strong institutional arrangement has considerably minimized the adverse impacts of the project activities. CREB will continue to monitor the contractor's performance in terms of sustaining the implementation of the EMP.

APPENDICES

Appendix 1: Environmental Compliance and Monitoring Forms covering the period July – December 2012
Appendix 2: Environmental Monitoring Checklist covering the period July – December 2012
Appendix 3: Copies of permits and clearances secured
Appendix 4: Photographs of the project site
Appendix 5: Test Reports for Water Quality and Air Quality

Appendix 1: Environmental Compliance and Monitoring Forms covering the period July – December 2012

Environmental Compliance Inspection and Monitoring Form 1

Project: Renewable Energy Development and Network Expansion and Rehabilitation For Remote Communes Sector Project

Implementing Agency: Central Rural Electric Project Management Board

Sub-Project :A Roang Hydropower Plant Project

Monitoring Agency : Central Rural Electric Project Management Board

Location :A Luoi District, Thua Thien Hue province

Enforcement Agency: Central Power Corporation

Date :9th January 2013

Contractor(s): JV between Construction Co., Ltd No.564 and Investment and Construction JSC No.412

Reporting Period : Monthly

Implementation Phase: Construction Stage

1. Contractor(s)

Contractor(s) Environmental Awareness	Yes / No	Actions Required	Contractor Response / Comment
Contractor(s) aware of mitigation requirements?	Yes	Request contractor to follow up the mitigation requirement made by Monitoring Agency	Obey the instruction and requirement of Monitoring Agency
Contractor(s) have a copy of EMP?	Yes	Request contractor to be mind of EMP attached with Construction Contract	Obey the instruction and requirement of Monitoring Agency

2. Mitigation Compliance Inspection

Impact / Mitigation Measure (From EMP)	Mitigations Implemented (Yes, No)	Mitigations Effective? (1 to 5)*	Impact Observed / Location	Action Required	Contractor Response / Comment	Endorsed by:	
						Implementing Agency	Monitoring Agency
Slopes along access roads & penstock will be provided with: - Catchments/ cut-off drains, silt traps & chutes to minimize soil erosion.	Yes	2	Checking on site				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
- Masonry retaining structures. - Formation of sediment basins & slope drains. - Maximum usage of material in fill areas. - Spoils planning particularly on steep slopes with bench terracing for high cut areas & avoidance of any erosion and runoff of material on down slopes - Planting grass and revegetation on disturbed areas and maintaining of landscaping.							
- No earth will be borrowed from cultivable and arable lands. - Borrowing to take place from barren, wastelands, & riverbeds. - For new borrow areas, all measures will be taken to avoid loss of any productive soil. -Any borrow areas will be refilled, re-vegetated & landscaped.	Yes	2	Checking on site				
- Quarry materials will be obtained from existing operating sites with proper licenses & environmental clearances. - New quarries to be opened only with permission of respective authorities.	Yes	1	Checking on site				
- Fuel storage & refuelling will have adequate containment, away from water bodies/channel. Equipment will be properly maintained. - Precautions to be taken to prevent water pollution due to increased siltation & turbidity for weir site & road construction particularly in dry month when flows are low. - Approved sites defined for storage & disposal of wastes materials Any waste petroleum products will be collected, stored, & disposed of at approved sites.	Yes	4	Checking on site				
- Appropriate rain-storm-water channels will be constructed. - Provision for cross drainage structures will be made.	Yes	2	Checking on site				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
- Construction camps will be located adjoining the dam and powerhouse sites & away from any settlement. Manual labour will be employed locally. - Camps & residential colony will have properly designed sewage treatment system for wastewater effluent. Likewise, solid waste collection system will be employed.	Yes	4	Checking on site	Required to build resting system/ house	Implementation fairly slow		
- Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards. - Pollutant parameters will be monitored during construction. Crushing, & concrete plants will be away from population centres at dam and powerhouse sites.	Yes	3	Checking on site				
- All precautions to be taken to reduce dust level emissions from batching plants & portable crushers at dam and powerhouse sites. - Regular water spraying at all mixing sites & temporary service roads will be undertaken. -All delivery vehicles will be covered with tarpaulin.	Yes	2	Checking on site				
- All construction equipment & plants will conform to Vietnamese noise standards. - All vehicles & equipment to be fitted with noise abatement devices. Construction workers will be provided with personal protection.	Yes	2	Checking on site				
- Any blasting works will be in accordance with Vietnamese Explosives Act. - No blasting between dusk & dawn. - Residents close by will be informed well in advance of blasting times. Workers associated with blasting sites will be provided with earplugs, helmets & other personal safety devices.	Not yet been executed						
- No trees to be removed without prior approval,	Yes	2	Checking				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
- Compensation for lost trees on private land, - Planting grass and maintaining -Tree plantation implemented at dam area, tunnel, penstock, temporary construction areas, roads and other elements of the project. Indigenous tree species being accorded priority over exotic species such as: Acacia Aurculiformis A.Cunn.ex Benth			on site				
-Construction workers to be educated for wildlife conservation with no hunting & poaching to be allowed for workers.	Yes	1	Checking on site				
- All blasting sites will have warning & clearance signals. Site will be inspected prior/after blasting. - Workers will be provided with helmets, masks, safety goggles, etc. - A readily available first aid unit will be available with dressing materials etc. - Road safety education will be given to construction vehicle drivers. - Traffic management will be ensured during road construction periods. Information dissemination will take place through the Commune's People Committee regarding activities causing disruption.	Yes	4	Checking on site	-Required Contractor to equip First Aid Kit and medical box for any accident occur - Install warning plate at some dangerous position	Response acceptable		
- Any public utilities likely to be impacted, such as water supply pipe system, power/phone lines etc. must be relocated to suitable places, in consultation with local beneficiaries.	Yes	1	Checking on site				
- For all finds of an historical or cultural value, work will be stopped and the find reported to the nearest office of the Department Culture, Sport and Tourism or the Department of Culture and Information	Yes	1	Checking on site				

Mitigation Effectiveness Rating Criteria

1. Very Good (all required mitigations implemented)
2. Good (the majority of required mitigations implemented)
3. Fair (some mitigations implemented)
4. Poor (few mitigations implemented)
5. Very Poor (very few mitigations implemented)

3. Emission Discharge Monitoring (if relevant)

Parameter	Date / Location	Measured by	Monitoring Equipment	Result	Standard	% Exceedence	Action Required	Contractor Responses/ Comments	Endorsed by:	
									Implementing Agency	Monitoring Agency
Not applicable										

4. Ambient Monitoring (if relevant)

Parameter	Date / Location	Measured by	Monitoring Equipment	Result	Standard	% Exceedence	Action Required	Contractor Responses/ Comments	Endorsed by:	
									Implementing Agency	**Monitoring Agency**
1.Ambient air	Dec 25,2012	TCVN 5067:1995	L-15P				Always observe the measures to mitigate ambient air pollution following to EMP	Contractor agreed	CREB	CREB
- TSP (µg/m3)				186.2	200	Passed				
- PM10 (µg/m3)				58.4	150	Passed				
2. Noise (dBA)	Dec 25,2012	TCVN 7878	Data Logging Sound Level Meter CR: 704B	64.7	70	Passed				
3.Surface water	Dec 25,2012						Contractor need not	In the construction		

(upstream of dam)							to discharge the waste, soil, oil and to the river	time, it's too difficult not to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharged to the river		
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	5	-	-				
- DO (mg/l)		Horiba 52U	OM-51	6.2	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	6.8	25	Passed				
- Oil & grease (mg/l)		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				
- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.2*10^3$	$10*10^3$	Passed				
4.Surface water (downstream of dam)	Dec 25,2012						Contractor need not to discharge the waste, soil, oil and to the river	In the construction time, it's too difficult not to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharge to the river	CREB	CREB
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	7		-				
- DO (mg/l)		Horiba 52U	OM-51	6.7	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	7.8	25	Passed				
- Oil & grease (mg/l)		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				

- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.6*10^3$	$10*10^3$	-				
5.Surface water (Downstream of powweerhouse)	Dec 25,2012						Contractor need not to discharge the waste, soil, oil and to the river	In the construction time, it's too difficult not to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharge to the river	CREB	CREB
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	12		-				
- DO (mg/l)		Horiba 52U	OM-51	6.6	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	12.4	25	Passed				
- Oil & grease (mg/l)		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				
- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.5*10^3$	$10*10^3$	Passed				

5. Environmental Incidents During Reporting Period (if relevant)

Environmental Incidents (accidents, spills, complaint)	Date / Location	Reported by	Description / Location	Action Taken	Further Action Required	Endorsed by:	
						Implementing Agency	Monitoring Agency
No Incident occurred							

6. Summary of Actions Required and Follow-up

Action Required	Timeframe	Responsible Parties	Follow-up (to be completed if inspection/monitoring indicates actions are required)
-Request to build resting system/house	1months	Contractor, Monitoring Agency	**Required Action Taken:** Has been built, but the implementation progress was too slow
			Effectiveness: Not so good
-First Aid Kit and Medical box must be equipped when accident occur	3 weeks	Contractor, Monitoring Agency	**Required Action Taken:** Contractor provided the required items
			Effectiveness: Fairly good
- Install warning plates at some dangerous position	1 weeks	Contractor, Monitoring Agency	**Required Action Taken:** Done by Contractor
			Effectiveness: Good

Inspection Completed by: Central Rural Electric Project Management Board

Date: 9th January 2013

Signature: Tran Van Tung

Environmental Compliance Inspection and Monitoring Form 2

Project: Renewable Energy Development and Network Expansion and Rehabilitation For Remote Communes Sector Project

Implementing Agency: Central Rural Electric Project Management Board

Sub-Project :A Roang Hydropower Plant Project

Monitoring Agency : Central Rural Electric Project Management Board

Location :A Luoi District, Thua Thien Hue province

Enforcement Agency: Central Power Corporation

Date :9th January 2013

Contractor(s): JV between Song Da 9.01JSC and Song Da 505 JSC

Reporting Period : Monthly

Implementation Phase: Construction Stage

1. Contractor(s)

Contractor(s) Environmental Awareness	Yes / No	Actions Required	Contractor Response / Comment
Contractor(s) aware of mitigation requirements?	Yes	Request contractor to follow up the mitigation requirement made by Monitoring Agency	Obey the instruction and requirement of Monitoring Agency
Contractor(s) have a copy of EMP?	Yes	Request contractor to be mind of EMP attached with Construction Contract	Obey the instruction and requirement of Monitoring Agency

2. Mitigation Compliance Inspection

Impact / Mitigation Measure (From EMP)	Mitigations Implemented (Yes, No)	Mitigations Effective? (1 to 5)*	Impact Observed / Location	Action Required	Contractor Response / Comment	Endorsed by:	
						Implementing Agency	Monitoring Agency
Slopes along access roads & penstock will be provided with: - Catchments/ cut-off drains, silt traps & chutes to minimize soil erosion.	Yes	2	Checking on site				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
- Masonry retaining structures. - Formation of sediment basins & slope drains. - Maximum usage of material in fill areas. - Spoils planning particularly on steep slopes with bench terracing for high cut areas & avoidance of any erosion and runoff of material on down slopes - Planting grass and revegetation on disturbed areas and maintaining of landscaping.							
- No earth will be borrowed from cultivable and arable lands. - Borrowing to take place from barren, wastelands, & riverbeds. - For new borrow areas, all measures will be taken to avoid loss of any productive soil. -Any borrow areas will be refilled, re-vegetated & landscaped.	Yes	2	Checking on site				
- Quarry materials will be obtained from existing operating sites with proper licenses & environmental clearances. - New quarries to be opened only with permission of respective authorities.	Yes	1	Checking on site				
- Fuel storage & refuelling will have adequate containment, away from water bodies/channel. Equipment will be properly maintained. - Precautions to be taken to prevent water pollution due to increased siltation & turbidity for weir site & road construction particularly in dry month when flows are low. - Approved sites defined for storage & disposal of wastes materials Any waste petroleum products will be collected,	Yes	2	Checking on site				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
stored, & disposed of at approved sites.							
- Appropriate rain-storm-water channels will be constructed. - Provision for cross drainage structures will be made.	Yes	2	Checking on site				
- Construction camps will be located adjoining the dam and powerhouse sites & away from any settlement. Manual labour will be employed locally. - Camps & residential colony will have properly designed sewage treatment system for wastewater effluent. Likewise, solid waste collection system will be employed.	Yes	2	Checking on site				
- Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards. - Pollutant parameters will be monitored during construction. Crushing, & concrete plants will be away from population centres at dam and powerhouse sites.	Yes	3	Checking on site				
- All precautions to be taken to reduce dust level emissions from batching plants & portable crushers at dam and powerhouse sites. - Regular water spraying at all mixing sites & temporary service roads will be undertaken. -All delivery vehicles will be covered with tarpaulin.	Yes	2	Checking on site				
- All construction equipment & plants will conform to Vietnamese noise standards. - All vehicles & equipment to be fitted with noise abatement devices. Construction workers will be provided with personal	Yes	2	Checking on site				

Impact / Mitigation Measure (From EMP)	**Mitigations Implemented** (Yes, No)	**Mitigations Effective?** (1 to 5)*	**Impact Observed / Location**	**Action Required**	**Contractor Response / Comment**	**Endorsed by:**	
						Implementing Agency	Monitoring Agency
protection.							
- Any blasting works will be in accordance with Vietnamese Explosives Act. - No blasting between dusk & dawn. - Residents close by will be informed well in advance of blasting times. Workers associated with blasting sites will be provided with earplugs, helmets & other personal safety devices.	Yes	1	Checking on site				
- No trees to be removed without prior approval, - Compensation for lost trees on private land, - Planting grass and maintaining -Tree plantation implemented at dam area, tunnel, penstock, temporary construction areas, roads and other elements of the project. Indigenous tree species being accorded priority over exotic species such as: Acacia Aurculiformis A.Cunn.ex Benth	Yes	2	Checking on site				
-Construction workers to be educated for wildlife conservation with no hunting & poaching to be allowed for workers.	Yes	1	Checking on site				
- All blasting sites will have warning & clearance signals. Site will be inspected prior/after blasting. - Workers will be provided with helmets, masks, safety goggles, etc. - A readily available first aid unit will be available with dressing materials etc. - Road safety education will be given to construction vehicle drivers. - Traffic management will be ensured during road construction periods. Information dissemination will take place through the Commune's People Committee regarding activities causing disruption.	Yes	4	Checking on site	Required Contractor to equip First Aid Kit and medical box for any accident occur	Response acceptable		

Impact / Mitigation Measure (From EMP)	Mitigations Implemented (Yes, No)	Mitigations Effective? (1 to 5)*	Impact Observed / Location	Action Required	Contractor Response / Comment	Endorsed by:	
						Implementing Agency	Monitoring Agency
- Any public utilities likely to be impacted, such as water supply pipe system, power/phone lines etc. must be relocated to suitable places, in consultation with local beneficiaries.	Yes	1	Checking on site				
- For all finds of an historical or cultural value, work will be stopped and the find reported to the nearest office of the Department Culture, Sport and Tourism or the Department of Culture and Information	Yes	1	Checking on site				

Mitigation Effectiveness Rating Criteria (Indicative examples)

1. Very Good (all required mitigations implemented)
2. Good (the majority of required mitigations implemented)
3. Fair (some mitigations implemented)
4. Poor (few mitigations implemented)
5. Very Poor (very few mitigations implemented)

3. Emission Discharge Monitoring (if relevant)

Parameter	Date / Location	Measured by	Monitoring Equipment	Result	Standard	% Exceedence	Action Required	Contractor Responses/ Comments	Endorsed by:	
									Implementing Agency	Monitoring Agency
Not applicable										

4. Ambient Monitoring (if relevant)

Parameter	Date / Location	Measured by	Monitoring Equipment	Result	Standard	% Exceedence	Action Required	Contractor Responses/ Comments	Endorsed by:	
									Implementing Agency	Monitoring Agency
1.Ambient air	Dec 25,2012	TCVN 5067:1995	L-15P				Always observe	Contractor agreed	CREB	CREB

							the measures to mitigate ambient air pollution following to EMP			
- TSP (µg/m3)				186.2	200	Passed				
- PM10 (µg/m3)				58.4	150	Passed				
2. Noise (dBA)	Dec 25,2012	TCVN 7878	Data Logging Sound Level Meter CR: 704B	64.7	70	Passed				
3.Surface water (upstream of dam)	Dec 25,2012						Contractor need not to discharge the waste, soil, oil and to the river	In the construction time, it's too difficult not to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharge to the river		
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	5		-				
- DO (mg/l)		Horiba 52U	OM-51	6.2	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	6.8	25	Passed				
- Oil & grease (mg/l)		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				
- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.2*10^3$	$10*10^3$	Passed				
4.Surface water (downstream of	Dec 25,2012						Contractor need not to discharge	In the construction time, it's too difficult not	CREB	CREB

dam)							the waste, soil, oil and to the river	to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharge to the river		
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	7		-				
- DO (mg/l)		Horiba 52U	OM-51	6.7	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	7.8	25	Passed				
- Oil & grease (mg/l)		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				
- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.6*10^3$	$10*10^3$	Passed				
5.Surface water (Downstream of powerhouse)	Dec 25,2012						Contractor need not to discharge the waste, soil, oil and to the river	In the construction time, it's too difficult not to discharge anyone to the river. But the contractor will to reduce the waste, soil or oil which are discharge to the river	CREB	CREB
- PH		Horiba 52U	pH f-51BW	6.1	5.5-9	Passed				
- TSP		Horiba 52U	Horiba52U	12		-				
- DO (mg/l)		Horiba 52U	OM-51	6.6	≥2	Passed				
- BOD5 (mg/l)		TCVN 6001-1:2008	PR205740R	12.4	25	Passed				
- Oil & grease		TCVN 5070:1995	MS204S	<0.3	0.3	Passed				

(mg/l)										
- Coliform (MPN/100 ml)		TCVN 6187-2:1996		$2.5*10^3$	$10*10^3$	Passed				

5. Environmental Incidents During Reporting Period (if relevant)

Environmental Incidents (accidents, spills, complaint)	Date / Location	Reported by	Description / Location	Action Taken	Further Action Required	Endorsed by:	
						Implementing Agency	Monitoring Agency
No Incident occured							

6. Summary of Actions Required and Follow-up (if relevant)

Action Required	Timeframe	Responsible Parties	Follow-up (to be completed if inspection/monitoring indicates actions are required)
Fist Aid Kit and Medical box must be equipped when accident occur	3 weeks	Contractor, Monitoring Agency	**Required Action Taken:** Contractor has provided all required items
			Effectiveness: Fairly good
			Further Action Required: N/A
			Prepared by: Doan Van So

Inspection Completed by: Central Rural Electric Project Management Board

Date: 9th January 2013

Signature: Doan Van So

Appendix 2: Environmental Monitoring Checklist covering the period July – December 2012

Environmental Monitoring Checklist 1

PROJECT: A Roang Hydropower Plant
MONITOR NAME: Central Rural Electric Project Management Board
CONTRACTOR NAME: JV between 564 Construction Co., Ltd and 412 Construction JSC (Responsible for Package 10-AR: Construction of road to operation house)
MONITORING TIMING: December 2012
WEATHER CONDITIONS: Fair

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
Construction stage					
Earthworks for new access roads and construction of penstock on steep slopes leading to erosion & encroachment	Slopes along access roads & penstock will be provided with:	4/12/12	Y		
	- Catchments/ cut-off drains, silt traps & chutes to minimize soil erosion.	11/12/12	Y		
	- Masonry retaining structures.	19/12/12	Y		
	- Formation of sediment basins & slope drains. - Maximum usage of material in fill areas. - Spoils planning particularly on steep slopes with bench terracing for high cut areas & avoidance of any erosion and runoff of material on down slopes - Planting grass and revegetation on disturbed areas and maintaining of landscaping.	26/12/12	Y		
Use of Borrow Materials with potential for loss and degradation of land	- No earth will be borrowed from cultivable and arable lands.	4/12/12	Y		
	- Borrowing to take place from barren, wastelands, & riverbeds.	11/12/12	Y		

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
	- For new borrow areas, all measures will be taken to avoid loss of any productive soil. - Any borrow areas will be refilled, re-vegetated & landscaped.	19/12/12	Y		
		26/12/12	Y		
Taking of Quarry Materials with loss and degradation of land	- Quarry materials will be obtained from existing operating sites with proper licenses & environmental clearances. - New quarries to be opened only with permission of respective authorities.	4/12/12	Y	Taking from Quarry that was licensed by local authority	
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Operation of construction equipment and construction activities and contamination of soils, loss of water quality & water pollution	- Fuel storage & refuelling will have adequate containment, away from water bodies/channel. Equipment will be properly maintained. - Precautions to be taken to prevent water pollution due to increased siltation & turbidity for weir site & road construction particularly in dry month when flows are low. - Approved sites defined for storage & disposal of wastes materials - Any waste petroleum products will be collected, stored, & disposed of at approved sites.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Construction activities causing disruption of existing surface drains.	- Appropriate rain-storm-water channels will be constructed. - Provision for cross drainage structures will be made.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Construction Camp & Residential colony. Social impacts & pollution	- Construction camps will be located adjoining the dam and powerhouse sites & away from any settlement. Manual labour will be employed locally. - Camps & residential colony will have properly	4/12/12	N	Resting system has not been built yet	Request to execute as soon as possible
		11/12/12	N		

Environmental Impact/issue Contract/EMP ref	**Mitigation Measures**	**Specific Date Item Monitored**	**Compliant Yes/No**	**Remark**	**Follow-up actions needed**
from wastewater & solid waste	designed sewage treatment system for wastewater effluent. Likewise, solid waste collection system will be employed.	19/12/12	N		
		26/12/12	N	Resting system under construction	Fairly slow, do not meet the working schedule
Emission from Construction Vehicles & Equipment causing air pollution	- Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards. - Pollutant parameters will be monitored during construction. - Crushing, & concrete plants will be away from population centres at dam and powerhouse sites.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Dust particulates causing health impacts for workers and villagers	- All precautions to be taken to reduce dust level emissions from batching plants & portable crushers at dam and powerhouse sites. - Regular water spraying at all mixing sites & temporary service roads will be undertaken. - All delivery vehicles will be covered with tarpaulin.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Construction activity Noise from Vehicles, Plant & Equipment causing noise pollution	- All construction equipment & plants will conform to Vietnamese noise standards. - All vehicles & equipment to be fitted with noise abatement devices. - Construction workers will be provided with personal protection.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Noise pollution from any blasting activities at dam and power tunnel and	- Any blasting works will be in accordance with Vietnamese Explosives Act. - No blasting between dusk & dawn. - Residents close by will be informed well in advance of	4/12/12	N/A	Not been executed yet	
		11/12/12	N/A		

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
penstock,	blasting times. - Workers associated with blasting sites will be provided with earplugs, helmets & other personal safety devices.	19/12/12	N/A		
		26/12/12	N/A		
Construction of dam, reservoir, tunnel, penstock with loss of vegetation & tree cover.	- No trees to be removed without prior approval, - Compensation for lost trees on private land, - Planting grass and maintaining - Tree plantation implemented at dam area, tunnel, penstock, temporary construction areas, roads and other elements of the project. Indigenous tree species being accorded priority over exotic species such as: Acacia Aurculiformis A.Cunn.ex Benth	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Work force during construction causing impacts to wildlife	- Construction workers to be educated for wildlife conservation with no hunting & poaching to be allowed for workers.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Construction Activities & Accident Risks	- All blasting sites will have warning & clearance signals. Site will be inspected prior/after blasting. - Workers will be provided with helmets, masks, safety goggles, etc. - A readily available first aid unit will be available with dressing materials etc. - Road safety education will be given to construction vehicle drivers. - Traffic management will be ensured during road construction periods. - Information dissemination will take place through the Commune's People Committee regarding activities causing disruption.	4/12/12	N	- First Aid Kit and medical box have not been provided - Warning plate has not been installed at some dangerous position	- Require to complete as soon as possible in case of accident occur
		11/12/12	N		
		19/12/12	N		
		26/12/12	Y	Comply	

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
Construction Activities causing disruption to Public Utilities	- Any public utilities likely to be impacted, such as water supply pipe system, power/phone lines etc. must be relocated to suitable places, in consultation with local beneficiaries.	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		
Any discovery of artifacts or articles of historical interest and importance	- For all finds of an historical or cultural value, work will be stopped and the find reported to the nearest office of the Department Culture, Sport and Tourism or the Department of Culture and Information	4/12/12	Y		
		11/12/12	Y		
		19/12/12	Y		
		26/12/12	Y		

Supervisor

Signed

Tran Van Tung

Environmental Monitoring Checklist 2

PROJECT: A Roang Hydropower Plant
MONITOR NAME: Central Rural Electric Project Management Board
CONTRACTOR NAME: JV between Song Da 9.01 JSC and Song Da 505 JSC (Responsible for Package 19-AR: Construction of head work)
MONITORING TIMING: December 2012
WEATHER CONDITIONS: Fair

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
Construction stage					
Earthworks for new access roads and construction of penstock on steep slopes leading to erosion & encroachment	Slopes along access roads & penstock will be provided with:	3/12/12	Y		
	- Catchments/ cut-off drains, silt traps & chutes to minimize soil erosion.	10/12/12	Y		
	- Masonry retaining structures.	18/12/12	Y		
	- Formation of sediment basins & slope drains. - Maximum usage of material in fill areas. - Spoils planning particularly on steep slopes with bench terracing for high cut areas & avoidance of any erosion and runoff of material on down slopes - Planting grass and revegetation on disturbed areas and maintaining of landscaping.	25/12/12	Y		
Use of Borrow Materials with potential for loss and degradation of land	- No earth will be borrowed from cultivable and arable lands.	3/12/12	Y		
	- Borrowing to take place from barren, wastelands, & riverbeds.	10/12/12	Y		
	- For new borrow areas, all measures will be taken to avoid loss of any productive soil.	18/12/12	Y		

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
	- Any borrow areas will be refilled, re-vegetated & landscaped.	25/12/12	Y		
Taking of Quarry Materials with loss and degradation of land	- Quarry materials will be obtained from existing operating sites with proper licenses & environmental clearances. - New quarries to be opened only with permission of respective authorities.	3/12/12	Y	Taking from existed Quarry that was licensed by local authority	
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Operation of construction equipment and construction activities and contamination of soils, loss of water quality & water pollution	- Fuel storage & refuelling will have adequate containment, away from water bodies/channel. Equipment will be properly maintained. - Precautions to be taken to prevent water pollution due to increased siltation & turbidity for weir site & road construction particularly in dry month when flows are low. - Approved sites defined for storage & disposal of wastes materials - Any waste petroleum products will be collected, stored, & disposed of at approved sites.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Construction activities causing disruption of existing surface drains.	- Appropriate rain-storm-water channels will be constructed. - Provision for cross drainage structures will be made.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Construction Camp & Residential colony. Social impacts & pollution	- Construction camps will be located adjoining the dam and powerhouse sites & away from any settlement. Manual labour will be employed locally. - Camps & residential colony will have properly	3/12/12	Y		
		10/12/12	Y		

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
from wastewater & solid waste	designed sewage treatment system for wastewater effluent. Likewise, solid waste collection system will be employed.	18/12/12	Y		
		25/12/12	Y		
Emission from Construction Vehicles & Equipment causing air pollution	- Emission levels of all construction vehicles & equipment will conform to Vietnamese emission standards. - Pollutant parameters will be monitored during construction. - Crushing, & concrete plants will be away from population centres at dam and powerhouse sites.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Dust particulates causing health impacts for workers and villagers	- All precautions to be taken to reduce dust level emissions from batching plants & portable crushers at dam and powerhouse sites. - Regular water spraying at all mixing sites & temporary service roads will be undertaken. - All delivery vehicles will be covered with tarpaulin.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Construction activity Noise from Vehicles, Plant & Equipment causing noise pollution	- All construction equipment & plants will conform to Vietnamese noise standards. - All vehicles & equipment to be fitted with noise abatement devices. - Construction workers will be provided with personal protection.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Noise pollution from any blasting activities at dam and power tunnel and	- Any blasting works will be in accordance with Vietnamese Explosives Act. - No blasting between dusk & dawn. - Residents close by will be informed well in advance	3/12/12	Y		
		10/12/12	Y		

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
penstock,	of blasting times. - Workers associated with blasting sites will be provided with earplugs, helmets & other personal safety devices.	18/12/12	Y		
		25/12/12	Y		
Construction of dam, reservoir, tunnel, penstock with loss of vegetation & tree cover.	- No trees to be removed without prior approval, - Compensation for lost trees on private land, - Planting grass and maintaining - Tree plantation implemented at dam area, tunnel, penstock, temporary construction areas, roads and other elements of the project. Indigenous tree species being accorded priority over exotic species such as: Acacia Aurculiformis A.Cunn.ex Benth	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Work force during construction causing impacts to wildlife	- Construction workers to be educated for wildlife conservation with no hunting & poaching to be allowed for workers.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Construction Activities & Accident Risks	- All blasting sites will have warning & clearance signals. Site will be inspected prior/after blasting. - Workers will be provided with helmets, masks, safety goggles, etc. - A readily available first aid unit will be available with dressing materials etc. - Road safety education will be given to construction vehicle drivers. - Traffic management will be ensured during road construction periods. - Information dissemination will take place through the Commune's People Committee regarding activities	3/12/12	N	- First Aid Kit and medical box have not been provided	- Require to complete as soon as possible in case of accident occur
		10/12/12	N		
		18/12/12	N		
		25/12/12	Y	Comply	

Environmental Impact/issue Contract/EMP ref	Mitigation Measures	Specific Date Item Monitored	Compliant Yes/No	Remark	Follow-up actions needed
	causing disruption.				
Construction Activities causing disruption to Public Utilities	- Any public utilities likely to be impacted, such as water supply pipe system, power/phone lines etc. must be relocated to suitable places, in consultation with local beneficiaries.	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		
Any discovery of artifacts or articles of historical interest and importance	- For all finds of an historical or cultural value, work will be stopped and the find reported to the nearest office of the Department Culture, Sport and Tourism or the Department of Culture and Information	3/12/12	Y		
		10/12/12	Y		
		18/12/12	Y		
		25/12/12	Y		

Supervisor

Signed

Doan Van So

Appendix 3:
Certificate of Registration of Environmental Protection Commitment for A Roang Hydropower Project

UỶ BAN NHÂN DÂN **HUYỆN A LƯỚI** Số: 07 /GXN - UBND	**CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập - Tự do - Hạnh phúc** *A Lưới, ngày 24 tháng 6 năm 2010*

GIẤY XÁC NHẬN ĐĂNG KÝ
BẢN CAM KẾT BẢO VỆ MÔI TRƯỜNG
Của Dự án nhà máy thuỷ điện A Roàng

Căn cứ Luật Tổ chức Hội đồng Nhân dân và Uỷ ban Nhân dân ngày 26 tháng 11 năm 2003;

Căn cứ Luật Bảo vệ môi trường ngày 29 tháng 11 năm 2005;

Căn cứ Nghị định số 80/2006/NĐ-CP ngày 09 tháng 8 năm 2006 của Chính phủ về việc Quy định chi tiết và hướng dẫn thi hành một số điều của Luật Bảo vệ môi trường;

Căn cứ Nghị định số 21/2008/NĐ-CP ngày 28 tháng 02 năm 2008 của Chính phủ về sửa đổi, bổ sung một số điều của Nghị định số 80/2006/NĐ-CP ngày 09 tháng 8 năm 2006 của Chính phủ về việc quy định chi tiết và hướng dẫn thi hành một số điều của Luật Bảo vệ môi trường;

Căn cứ Thông tư số 05/2008/TT-BTNMT ngày 08 tháng 12 năm 2008 của Bộ Tài nguyên và Môi trường hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường;

Theo đề nghị của Trưởng Phòng Tài nguyên và Môi trường,

UỶ BAN NHÂN DÂN HUYỆN XÁC NHẬN:

Điều 1. Chủ dự án là Ban quản lý dự án năng lượng nông thôn khu vực miền Trung đã có công văn số 1145/DANT-TD ngày 7 tháng 4 năm 2010 về việc đề nghị xác nhận đăng ký bản cam kết bảo vệ môi trường dự án nhà máy thuỷ điện A Roàng.

Điều 2. Chủ Dự án có trách nhiệm thực hiện đúng và đầy đủ những nội dung về bảo vệ môi trường nêu trong bản cam kết bảo vệ môi trường và những yêu cầu bắt buộc sau đây:

1. Phải lập, đăng ký và xác nhận bản cam kết bảo vệ môi trường bổ sung:

Khi dự án có một trong những thay đổi cơ bản về công nghệ hoặc quy mô, công suất hoặc địa điểm thực hiện; trường hợp việc thay đổi địa điểm của dự án xảy ra đồng thời với việc thay đổi cơ quan có thẩm quyền xác nhận, chủ dự án phải lập lại hồ sơ đăng ký bản cam kết bảo vệ môi trường;

2. Bản cam kết bảo vệ môi trường bổ sung phải được thể hiện theo đúng cấu trúc và đáp ứng yêu cầu về nội dung theo quy định tại Phụ lục 28 ban hành kèm theo Thông tư số 05/2008/TT-BTNMT ngày 08 tháng 12 năm 2008 của Bộ Tài nguyên và Môi trường hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường.

3. Khi cần thiết sử dụng nước ngầm bằng giếng khoan phải chấp hành nghiêm Luật Tài nguyên nước số 08/1998/QH10 ngày 20 tháng 5 năm 1998; Quyết định số 84/2008/QĐ-UBND ngày 11 tháng 01 năm 2008 của Uỷ ban Nhân dân tỉnh Thừa Thiên

Huế về việc ban hành Quy định về quản lý, sử dụng, bảo vệ tài nguyên nước và xả nước thải vào nguồn nước trên địa bàn tỉnh.

4. Bổ sung vào bản cam kết bảo vệ môi trường của dự án các nội dung theo quy định tại Thông tư số 05/ 2008/ TT-BTNMT ngày 08 tháng 12 năm 2008 của Bộ Tài nguyên và Môi trường hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường.

Điều 3. Bản cam kết bảo vệ môi trường của Dự án và Giấy xác nhận này là cơ sở để các cơ quan quản lý nhà nước về bảo vệ môi trường giám sát, kiểm tra, thanh tra việc thực hiện bảo vệ môi trường trong suốt quá trình thi công xây dựng và vận hành dự án.

Điều 4. Giấy xác nhận này có hiệu lực kể từ ngày ký./.

Nơi nhận:
- Chủ dự án;
- Chi cục BVMT tỉnh;
- Thường vụ Huyện uỷ;
- TT. HĐND Huyện;
- CT và các PCT UBND Huyện;
- Phòng TN&MT Huyện;
- UBND xã Phú Vinh;
- VP: LĐ, CV, VT;
- Lưu VT, LT.

TM. UỶ BAN NHÂN DÂN
KT. CHỦ TỊCH

PHÓ CHỦ TỊCH
Nguyễn Quốc Cường

A Luoi District People Committee	**Socialist Republic of Vietnam** **Independence - Freedom - Happiness**
Ref No 07/GXN-UBND	*A Luoi, 24/06/2010*

CERTIFICATE
of Registration of Environmental Protection Commitments
for A Roang Hydropower Project

A Luoi District People Committee
CERTIFIES

Article 1: On 07 April 2010, the Project Owner, Central Rural Electricity Project Management Board, submitted Official Letter 1145/DANT-TD to register environmental protection commitments for A Roang hydropower project at A Roang commune, A Luoi District, Thua Thien Hue Province.

Article 2: The Project Owner has responsibilities to fully implement the content of the stated environmental protection commitments and requirements as follows:

1. Establish, register and certify the additional registration of Environmental Protection Commitments if this project has basic changes on technology or size, capacity, project location; in case change of project location and change of appropriate Authority for approval occur at the same time, Owner has to re-prepare document for Registration of Environmental Protection Commitments
2. The additional Environmental Protection Commitments has to fully implement following Circular no.05/2008/TT-BTNMT on 08 Dec-2008 of MONRE and guideline of assessment of strategic environment, environmental impact assessment and environmental protection commitments.
3. If need to use the underground water, the Owner has to fully implement the Water Resource Law, Decision no.84/2008/QD-UBND on 11 Jan,2008 of Thua Thien Hue District People Committee providing regulations on management, using and protecting of water resource and discharge waste water to water resource in Thua Thien Hue Province.
4. Addition into Environmental Protection Commitments the contents followed to Circular no.05/2008/TT-BTNMT.

Article 3: The environmental protection commitments of the Project and this certificate constitute the basis for environmental state management agencies to supervise, control and inspect the implementation of environmental protection of the Project during whole time of construction and operation phase
Article 4: This Certificate is effective from the date of issuance.

Recipients: - Project Owner; - District's Environmental Protection Department; - District People Committee; - DONRE; - Archives	**On behalf of A Luoi District People Committee** **Vice Chairman** (signature and stamp) **Nguyen Quoc Cuong**

Appendix 4:
Safeguard Commitment of Ground Clearance Detected explosive and mine

BỘ TƯ LỆNH QUÂN KHU 5
CÔNG TY TNHH MTV ĐẦU TƯ XÂY DỰNG VẠN TƯỜNG

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

Đà Nẵng, Ngày 7 tháng 6 năm 2010

CAM KẾT AN TOÀN
MẶT BẰNG ĐÃ ĐƯỢC RÀ PHÁ BOM MÌN VẬT NỔ

Kính gửi: - Ban Quản lý dự án Điện nông thôn miền Trung;
- Các đơn vị xây lắp có liên quan trên địa bàn.

Thực hiện hợp đồng kinh tế số: 52/3/10/HĐ-DANL/KH ngày 10/03/2010 ký giữa Ban quản lý dự án Điện nông thôn miền Trung với Công ty TNHH MTV Đầu tư Xây dựng Vạn Tường về việc dò tìm và xử lý bom, mìn, vật nổ dự án: Nhà máy thủy điện A Roàng, tỉnh Thừa Thiên Huế. Nay Công ty TNHH MTV Đầu tư Xây dựng Vạn Tường cam kết như sau:

1. Phạm vi diện tích, độ sâu đã được dò tìm, xử lý bom mìn - Vật nổ:

Phạm vi thi công rà phá bom mìn, vật nổ được xác định trên thực địa bằng các cọc gỗ hoặc sơn đỏ có bình đồ hoàn công kèm theo, với tổng diện tích đã được dò tìm và xử lý bom mìn, vật nổ theo đúng yêu cầu của chủ đầu tư. Cụ thể như sau:

**** Phạm vi thi công:*** Theo đúng ranh giới cọc, mốc do chủ đầu tư bàn giao tại hiện trường theo biên bản bàn giao tim, mốc thi công rà phá bom, mìn, vật nổ.

**** Tổng diện tích:***

- Dò tìm trên cạn : 21,48 ha
- Dò tìm dưới nước : 0,50 ha

**** Độ sâu rà phá bom mìn vật nổ:***

+ Phần trên cạn

- Đến 0,3m tính từ mặt đất tự nhiên hiện tại trở xuống : 21,48 ha
- Đến 3,0m tính từ mặt đất tự nhiên hiện tại trở xuống : 13,78 ha
- Đến 5,0m tính từ mặt đất tự nhiên hiện tại trở xuống : 6,58 ha

+ Phần dưới nước

- Đến 0,5m tính từ đáy nước hiện tại trở xuống : 0,50 ha
- Đến 5,0m tính từ đáy nước hiện tại trở xuống : 0,50 ha

2. Hành lang an toàn:

**** Phần trên cạn:***

- Đường thi công vận hành và đường ống áp lực: Tính từ chân ta luy thiết kế ra mỗi bên 3m

- Nhà quản lý vận hành; khu phụ trợ, lán trại; Cụm công trình đầu mối; Tháp điều áp + Nhà van + Cửa ra hầm dẫn nước và Nhà máy + Kênh xả + Trạm biến áp tính từ mép ta luy thiết kế : ra mỗi bên 5m

**** Phần dưới nước:***

Cụm công trình đầu mối phần dưới nước: Tính từ chân ta luy thiết kế ra 2 bên mỗi bên 20 mét về phía thượng lưu và hạ lưu.

3. Cam kết:

Công ty TNHH MTV ĐTXD Vạn Tường cam kết đã dọn sạch bom mìn vật nổ và chịu hoàn toàn trách nhiệm về mặt bom mìn, vật nổ nếu còn sót lại trong phạm vi diện tích mặt bằng và các độ sâu kể trên./.

TỔNG GIÁM ĐỐC

CÔNG TY TNHH 1 TV ĐẦU TƯ XÂY DỰNG VẠN TƯỜNG

Đại tá Lê Thanh Hậu

Nơi nhận
- Như trên;
- Lưu: Phm

Đội trưởng thi công : ..... *Bùi Xuân Lượng*
Kỹ thuật thi công : ..... *Đặng Hùng*

High Command of Military zone no.5
Investment & Construction
Van Tuong One Member Co.,Ltd

Socialist Republic of Vietnam
Independence - Freedom - Happiness

Danang, June 7, 2010

SAFEGUARD COMMITMENT
of Ground Clearance Detected mine and exposive

To: - Central Rural Electricity Project Management Board
- Related construction companies in the same area

The Investment and Construction Van Tuong One Member Co.,Ltd commits below as:

Article 1: The area, depth of the ground finded and detected mine- explosive:

The range of detecting mine- explosive is determined at the site by the wooden stakes or red paint, the total area detected mine – explosive following the investor requirement. The details as below:

- ***The range of finding and detecting:*** Following to the range of stakes, landmarks which the investor hand-overed at the site.
- ***The total area:***

  Detecting on the ground: 21.48 ha

  Detecting under the water: 0.5 ha

- ***The depth of detecting mine – explosive:***

  + On the ground:

  0.3m from the ground flowing down: 21.48 ha

  3m from the ground flowing down: 13.78 ha

5m from the ground flowing down: 6.58 ha

+ Under the water:

0.5m from the bed of lake following down: 0.5 ha

5m from the bed of lake following down: 0.5 ha

Article 2: Secure corridor:

- ***On the ground:***

  + Access road and penstock: distance from steep slope to 2 sides is 3m

  + Administration house; service zone, camps; head-works; surge tank + valve house + outlet door to intake tunnel and powerhouse + tailrace + transformer station: distance from steep slope to 2 sides is 5m

- ***Under water:***

  The part under water of the head work : Distance from steep slope to 2 sides is 20m following to the direction of upstream and downstream .

Article 3: Commitment

- The Investment and Construction Van Tuong One Member Co.,Ltd commits that detecting all of mine and explosive; is responsible for residual mine and explosive on the site and the depth as above.

Recipients:
- As above
- Archives

GENERAL DIRECTOR

(signature and stamp)
Colonel Le Thanh Hau

Appendix 4: Photographs of the project site

Sign for speed warning at damsite: Limit speed below 5km/h

Containment system of the diesel fuel tank

Workers wearing personal protection and the warning of danger

Construction at the damsite
Reinforcing the steep slope of dam

Appendix 5: Test Reports for Water Quality and Air Quality

CHI CỤC BẢO VỆ MÔI TRƯỜNG TỈNH THỪA THIÊN HUẾ
TRẠM QUAN TRẮC VÀ PHÂN TÍCH MÔI TRƯỜNG
ENVIRONMENTAL PROTECTION AGENCY OF THUA THIEN HUE PROVINCE
STATION OF ENVIRONMENTAL MONITORING AND ANALYSIS
Add: 173 Phan Van Dang St., Hue City
Email: Tramquantracmoitruong@gmail.com
Tel: 054 3935266- 3932626
Fax: 054 3935266

Số/Ref: 001/130103/KQPT

Ngày/*Date:* 03/01/2013

PHIẾU KẾT QUẢ THỬ NGHIỆM
TEST REPORT
(Kết quả trong phiếu này chỉ có giá trị trên mẫu)
(These test result are valid only for this tested sample)

1. Tên mẫu /*Name of sample* :Không khí
2. Ký hiệu mẫu/*Mark of sample* :K_{AR}
3. Số phiếu yêu cầu TN/*N° of sample* :KH01-1
4. Ngày nhận mẫu/*Date of Receiving* :25/12/2012
5. Số lượng mẫu/*Quantity* :01
6. Tên khách hàng/*Client* : **Nhà máy thủy điện A Roàng**
7. Thông tin mẫu/*Information of sample* :

K_{AR}: Cầu A Roàng

KẾT QUẢ THỬ NGHIỆM *(Test Results)*

TT N°	Tên chỉ tiêu (Characteristics)	Phương pháp thử (Test methods)	DV (Unit)	Kết quả (Results)
				K_{AR}
1	Bụi lơ lửng (TSP)	TCVN 5067:1995	µg/m³	186,2
2	Bụi PM10	TCVN 5067:1995	µg/m³	58,4
3	Tiếng ồn	Đo trực tiếp bằng máy Data Logging Sound Level Meter CR: 704B	dB	64,7

PHÒNG PHÂN TÍCH HÓA SINH
(Biochemistry Laboratory)

Nguyễn Đình Phước

TRẠM TRƯỞNG
(Head of Station)

ThS. Nguyễn Hoàng Phước

CHI CỤC BẢO VỆ MÔI TRƯỜNG TỈNH THỪA THIÊN HUẾ
TRẠM QUAN TRẮC VÀ PHÂN TÍCH MÔI TRƯỜNG
ENVIRONMENTAL PROTECTION AGENCY OF THUA THIEN HUE PROVINCE
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Số/Ref: 001/130103/KQPT **Ngày/Date:** *03/01/2013*

PHIẾU KẾT QUẢ THỬ NGHIỆM
TEST REPORT

(Kết quả trong phiếu này chỉ có giá trị trên mẫu)
(These test result are valid only for this tested sample)

1. Tên mẫu */Name of sample* :Nước mặt
2. Ký hiệu mẫu/*Mark of sample* :N_{AR1}; N_{AR2}; N_{AR3}
3. Số phiếu yêu cầu TN/*N° of sample* :KH01-1
4. Ngày nhận mẫu/*Date of Receiving* :25 12/2012
5. Số lượng mẫu/*Quantity* :03
6. Tên khách hàng/*Clien* : **Nhà máy thủy điện A Roàng**
7. Thông tin mẫu/*Information of sample* :

N_{AR1}: Thượng lưu đập;
N_{AR2}: Hạ lưu đập;
N_{AR3}: Sau nhà máy.

KẾT QUẢ THỬ NGHIỆM *(Test Results)*

TT (*N°*)	Tên chỉ tiêu *(Characteristics)*	Phương pháp thử *(Test methods)*	ĐV *(Unit)*	Kết quả *(Test results)*		
				N_{AR1}	N_{AR2}	N_{AR3}
1.	pH	Horiba 52U	-	6,1	6,1	6,1
2.	Độ đục	Horiba 52U	-	5	7	12
3.	DO	Horiba 52U	mg/l	6,2	6,7	6,6
4.	BOD_5	TCVN 6001-1:2008	mg/l	6,8	7,8	12,4
5.	Dầu mỡ khoáng	TCVN 5070:1995	mg/l	<0,3	<0,3	<0,3
6.	Coliform	TCVN 6187-2:1996	MPN/100ml	$2,2.10^3$	$2,6.10^3$	$2,5.10^3$

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TRẠM QUAN TRẮC VÀ PHÂN TÍCH MÔI TRƯỜNG

ThS. Nguyễn Hoàng Phước

Lưu ý: Không được trích sao một phần kết quả khi chưa được sự đồng ý bằng văn bản của phòng phân tích Hóa Sinh – TQAPTMT TTH

BM. 13.01 Lần ban hành: 01