

# Initial Environmental Examination

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Project Number: 37097-044

December 2015

**VIE: INTEGRATED RURAL DEVELOPMENT  
SECTOR PROJECT IN THE CENTRAL  
PROVINCES (Additional Financing)**

**Subproject: Upgrading and rehabilitating Cham  
canal and access road of the South main canal  
under Nha Trinh – Lam Cam Irrigation Scheme,  
Ninh Thuan province**

## **CURRENCY EQUIVALENTS**

(as of 10 June 2014)

Currency unit – Vietnamese Dong (VND)

\$1.00 = VND 21,00

## **ABBREVIATIONS**

ADB	Asian Development Bank
AP	Affected persons
CPC	Communal People's committee
CPMU	Central Project Management Unit
DARD	Department of Agriculture and Rural Development
DONRE	Department of Natural Resources and Environment
DPC	District People's Committee
EIAR	Environmental Impact Assessment Report
EMDF	Ethnic Minority Development Framework
EMP	Environmental Management Plan
DARD	Department of Agriculture and Rural Development
IEE	Initial Environmental Examination
IPM	Integrated Pest Management
IRDSPCP	Integrated Rural Development Sector Project in Central Provinces
LIC	Loan Implementation Consultant
MONRE	Ministry of Natural Resources and Environment
PC	People's Committee
PPC	Provincial Peoples Committee
PPMU	Provincial Project Management Unit
RF	Resettlement Framework
SIR	Subproject Investment Report
The Project	The IRDSPCP – Additional Financing
UXO	Unexploded Ordnance

## **WEIGHTS AND MEASURES**

km	–	kilometer
kg	–	kilogram
ha	–	hectare
m	–	meter

## **NOTE**

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

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*Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province*

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### **I. INTRODUCTION**

1. Loan 2357(SF) for the Integrated Rural Development Sector Project in the Central Provinces (IRDSPCP) was approved by ADB on 15 October 2007. The total cost of the Project was estimated at \$168.2 million and is jointly financed by ADB and Agence Francaise de Developpement. The IRDSPCP focuses on upgrading and rehabilitating rural infrastructure (rural roads and irrigation systems, flood control, markets and other key infrastructure). To date, 129 subprojects have either been completed or are nearing completion. Review missions had determined that the quality of construction of subprojects was good. The executing agency (EA) has developed the expertise needed to effectively implement the project and significant benefits are already accruing.

2. At the request of the Government, the potential for additional financing was investigated during the Mid-Term Review in 2011 and two review missions in 2012. About 39 new subprojects were found eligible for consideration in the additional financing. The amount of \$70 million has been recommended and included in the country program for ADB Board consideration in 2013. The IRDSPCP - Additional Financing (the Project) aims to rehabilitate and upgrade deteriorated critical productive rural infrastructure in support of the Government of Viet Nam's new National Target Program for Rural Development

3. In consultation with the relevant provincial government and field investigation by the CPMU, a total of 23-24 eligible subprojects were initially identified based on 7 screening criteria which are focused on social economic development, safeguards, integrated development model, feasibility and sustainability. The types of subprojects are as follows:

- (1) Small & medium-sized dam and reservoir improvements e.g., spillways, head-works, reservoir walls, and leakage control;
- (2) Rehabilitation of primary and secondary irrigation canals and river bank stabilization. Wherever possible key strategic investments such as the lining of critical lengths of canal or the reinforcing of existing water control structures will be chosen;
- (3) Rehabilitation of commune to district, and inter-commune roads to improve linkages between higher level alignments (provincial and national routes) and lower level commune to village and inter-village roads. In addressing key issues of sustainability, designs will take into account the increased intensity and frequency of climatic hazards anticipated to result from global climate change, the local geology and terrain, potential change in utilization patterns (type and volume of traffic), and the longer-term availability of recurrent expenditure for operations and maintenance (O&M)..

4. As part of the Project, Upgrading and rehabilitating Cham canal and access road of the South main canal under Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province will be implemented in Ninh Phuoc district, Ninh Thuan province.

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5. This Initial Environmental Examination has been prepared under the environmental safeguards requirements by ADB<sup>1</sup> and GoV<sup>2</sup>. The IEE contains the following information:

- (1) Section I contains an introduction
- (2) Section II contains a description of the subproject;
- (3) Section III contains a description of environmental conditions in the vicinity of the subproject;
- (4) Section IV contains a describes potential environmental impacts of the subproject;
- (5) Section V contains the environmental management plan including mitigation measures, monitoring system and cost estimation for Environmental Monitoring System (EMS) implementation;
- (6) Section VI contains activities description on community consultation and subproject disclosure;
- (7) Section VII contains conclusion and recommendation including summarization of main impacts and typical mitigation measures in the subproject's implementation.

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<sup>1</sup> ADB Environmental Assessment Guidelines (2003)

<sup>2</sup> Law on Environment Protection 2014; Decree 18/2015/ND-CP and Circular No. 27/2015/TT-BTNMT

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**II. PROJECT DESCRIPTION****Table 1: General information of the Subproject**

DATA ITEM	SUBPROJECT DATA
<b>GENERAL INFORMATION</b>	
Subproject Name	Upgrading and rehabilitating Cham canal and access road of the South main canal under Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province
Subproject Type	Irrigation and transportation
Executing Agency	Ninh Thuan PPC
Sub-project owner	Ninh Thuan DARD
Sub-project Management Unit	Ninh Thuan PPMU of IRDSPCP
Address of PPMU's office	No 36 Street 16/4, Phan Rang city – Thap Cham, Ninh Thuan province
Name and Title of Head of sub-project owner	Mr Nguyen Hai Director of the PPMU
Telephone, fax and email details of Project owner	0683.834152;      FAX : 0683.823730
Name of Safeguard Officer	Tran Ba Luat
Telephone and email details	0915 017 367 Email: <a href="mailto:tuat3320@gmail.com">tuat3320@gmail.com</a>
<b>SUBPROJECT DESCRIPTION</b>	
<b>Rehabilitation and upgrading Cham canal</b>	
New project or rehabilitation project?	Rehabilitation and upgrading project
Surface water or groundwater source	Surface water
Determination of water source	The Cham canal received water from the Southern main canal under the irrigation system in Nha Trinh – Lam Cam in Cai River (Kinh Dinh river).
Is this water used for domestic purposes or not?	No. The design of the canal is only for irrigation purpose.
Length of upgrading canals	Total length of the canal: 4,604m
Width and depth of upgraded canals	<ul style="list-style-type: none"> <li>- The cross section of canal is in the shape of trapezoidal with reinforced concrete and stone structure 1x2 M200.</li> <li>- The canal is divided into 06 different pieces with the width from 1.1-1.5m; height from 1.4-1.9m, and slope of canal's roof 1.5.</li> <li>- The embankment of canal will be used as management road in combination with rural road with the width of 5m, gravel soils should be lined up on the surface with the thickness level of 20cm. The embankment which is not management road is 2m in width.</li> </ul>
Facilities on canals	- Cham canal has a total of 77 facilities which were designed for new construction and repairing: 02 discharge doors with regulator; 39 culverts; 07 highway bridges; 06 regular bridges; 06 spillways, 08 bathing wharfs and 02 other facilities( 01 culvert at the beginning of canal and 01 connector at the beginning of canal).
<b>Upgrading rural road in combination with management of Southern main canal</b>	
New project or rehabilitation project?	Rehabilitation and upgrading project
Grade of traffic road ( <i>Technical Standard</i> )	Rural road type A (Decision 315/QD-BGTVT)



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DATA ITEM	SUBPROJECT DATA		
Designed velocity (km/h)	15km/h		
Designed load	6-ton axis		
Length and width of the road (km)	<ul style="list-style-type: none"> <li>- Length of the road: 13.97 km</li> <li>- Width of road's surface: 3.5m</li> <li>- Width of road's foundation: 4 - 5m.</li> </ul>		
Road surface ( <i>lining asphalt, concrete, soil and so on</i> )	Cement concrete 1x2, M250, 20cm at thickness		
Number and length of the bridge:	Newly construct 3 bridges crossing Southern main canal (2 bridges with L= 12m, 1 bridge with L=8m)		
Number and dimension of cross culverts	Spillway (4): L= 92,3m Remain water culverts on the embankment side of management road		
Length of longitudinal ditches	- Water drainage on the side of road: L=1.458m.		
Width of land clearance area:	The upgraded road located in the area of protection corridor of Southern main canal therefore it doesn't generate negative impacts on land clearance.		
Number of other rural roads crossing the subproject road	<ul style="list-style-type: none"> <li>- 01 large-scale asphalt road route at Cau Lau.</li> <li>- 03 inter-communal road routes: 02 earth roads and 01 concrete road.</li> <li>- In addition, there are small-scale inter-villages road routes along with two embankment of the Southern main canal.</li> </ul>		
Number of major runoffs through the road <ul style="list-style-type: none"> <li>- River</li> <li>- Lake</li> <li>- Others</li> </ul>	Routes are through big rivers included: Quao river, Ta Ranh river and Lanh Ra river. However, spillway and siphon in combination with emergency road were established at the intersection on the Southern main canal system There are not other runoffs through the road.		
Number of hills and mountain crossing the road	No		
<b>CONSTRUCTION ACTIVITIES</b>			
Construction commencement date (month/year)	Expected May 2016		
Construction completion date (month/year)	Expected October 2016 (6 months for construction activities, of which in the first 45 days, water will be cut for the main work)		
Number of construction workers	Approx 600 workers		
Construction camp required (Yes/No)	Yes. About 10 camps		
Construction in rainy season (Yes/No)	No.		
Asphalt/concrete mixing plant?	There is no asphalt mixing plant due to the fact that the road is made up with concrete. Only some mobile concrete mixing machines have been used with the capacity of 250l and 500l.		
Number of construction vehicles and equipments	<u><b>Vehicle/equipment</b></u> + Excavator + Bulldozer + Truck + Compressor 16T, 9T + Penetrating vibrator, plate vibrator and rammer + Cropper + Batch Mixer 250l + Batch Mixer 500l	<u><b>Canal</b></u> 05 items 05 items 05 trucks 05 items 08 items 05 items 10 items	<u><b>Road</b></u>  02 items 05 trucks  18 items 01 item  15 items 07 items

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DATA ITEM	SUBPROJECT DATA		
	+ Grout Mixer 80l		
Type and approximate quantity of raw construction materials	<p><b>Quantity</b></p> <p>Reinforced concrete M200 stone 1x2</p> <p>Concrete lining with M100 stone 4x6</p> <p>Encasement</p> <p>2-layer asphalt bags</p> <p>Engineer fabric</p> <p>Nylon lining fabric</p> <p>Drainage asphalt pipe D32</p> <p>Different types of reinforcing</p> <p>Sand</p> <p>Gravel</p> <p>Lining mortar M75 5cm thickness</p> <p>Construction stones</p> <p>Surface road concrete M250, stone 2x4</p>	<p><b>Canal</b></p> <p>4,355.53m<sup>3</sup></p> <p>578.36m<sup>3</sup></p> <p>5,508.60m<sup>2</sup></p> <p>3,104.02m<sup>2</sup></p> <p>3,457.28m<sup>2</sup></p> <p>23,714.62m<sup>2</sup></p> <p>1,815.07m</p> <p>204,919.97kg</p> <p>2,326.23m<sup>3</sup></p> <p>4,707.57m<sup>3</sup></p>	<p><b>Road</b></p> <p>10,105.88m<sup>2</sup></p> <p>4,633.13m<sup>2</sup></p> <p>53,286.42m<sup>2</sup></p> <p>1,880.62m<sup>3</sup></p> <p>9,616.93m<sup>3</sup></p>
Quantity of solid waste generated from construction	<p><b>Items</b></p> <p>- Quantity of evacuated soil (m<sup>3</sup>)</p> <p>- Quantity of decomposition removal soil</p> <p>- Quantity of filled-up ground (m<sup>3</sup>)</p> <p>- Balance quantity of evacuated soil</p>	<p><b>Canal</b></p> <p>15,451.51</p> <p>13,366.30</p> <p>80,030.45</p> <p>51,215.64</p>	<p><b>Road</b></p> <p>13,290.37</p> <p>5,703.31</p> <p>-7,587.06</p>
Measures for management and balancing the quantity of evacuated and filled-up ground.	<p>- The canal is upgraded basing on the existing canal therefore the quantity of evacuated soil along the canal is not great, filled-up ground required a large quantity for upgrading activities;</p> <p>- Waste soil from organic digging and decomposition removal would be used for backfilling and levelling embankment.</p>		
Quantity of solid waste generated from construction (calculated monthly following m <sup>3</sup> )	<p>- Construction wastes: mainly waste soils, sludge and stone with estimated quantity of 5,763 tons. Sludge will be dried naturally and be used for back filling, leveling embankment and management road. Local people could utilize dried sludge for their garden and field. The remains will be transported to the designated disposal area in Phuoc Thai commune. In addition, there are some other different types of waste including cement bags, scap-iron and etc recycled.</p> <p>- Domestic wastes: estimated the quantity of 600 workers work during 6 months, total quantity of domestic wastes is estimated 54,000kg (on average 0.5kg/person day).</p>		
Disposal site and source of materials	<p>- Almost all quantity of evacuated soil and decomposition removal soil will be utilized for levelling embankment. Sludge will be dried and reuse for back filling and embankment. The rest will be transfer to the disposal site in Phuoc Thai commune, Ninh Phuoc district. This site has been established with the approval of Phuoc Thai CPC and located about 6 km to the South of the subproject site.</p> <p>- Source of materials:</p> <p>+ Material site is from Lanh Ra Pond in Lien Son village, Phuoc Vinh commune, Ninh Phuoc district with 3 km far from Cham canal (Cau Lau).</p> <p>+ Sand will be taken from the licensed mines of Ninh Quy or exploited from Dinh river. It is far from the sub project area about 5km.</p> <p>+ Stone will be taken from the licensed quarry Deo Cau. It is far from the sub project area about 21km.</p> <p>+ Other material such as steel, cement will be taken from city of Phan</p>		

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DATA ITEM	SUBPROJECT DATA
	Rang – Thap Cham. It is far from the sub project area of 16km.
Roads for construction material transportation:	Roads for construction material transportation: + Road August 21 + National road 27 + Provincial road 703 + Inter-communal road from Cau Mong to Phuoc Son, Phuoc Vinh + Inter-communal road from Phuoc Son to Phuoc Hau, Phuoc Thuan
<b>OPERATION AND MAINTANCE</b>	
<b>Canal</b>	
Water discharge at the beginning section of the canal: (m <sup>3</sup> /s)	Designed discharge: Q <sub>tk</sub> = 4,55 m <sup>3</sup> /s
Irrigation area (ha)	3,036 ha
Water treatment process	No. Water is directly taken from the Southern main canal under irrigation system of Nha Trinh – Lam Cam and water is provided under the model of gravity irrigation.
Descriptions of periodical maintenance activities	Ninh Thuan Irrigation Schemes Exploitation One-member Ltd Company is responsible for operation, management and maintenance of schemes (i) Regular operation and maintenance: This activity is regularly conducted to avoid any damages of single details and schemes including: Removing sedimentation in the canal, clear water-plants and mosses and grass, line damage canal with construction materials, oil maintenance and paint to prevent rusting of mechanical devices. (ii) Periodically conduct operation and maintenance: This activity will be conducted in case that some damages or downgrading parts of some details or items are found to make sure that the quality of schemes would be the same with the initial situation. Detailed activities included: removing some detailed parts of mechanical devices of intake gate, fixing some damages on concrete parts and lining stone of some schemes, dredge and upgrade canal on the periodical basis with the frequency of twice per year. (iii) Conduct large scale operation and maintenance in case of emergency: This activity will be conducted in case of large-scale downgrading or heavy damages due to natural disasters at different types of schemes in order to ensure the initial quality of schemes. Detailed activities included checking and evaluation of damages or downgrading and proposing technical solutions and cost estimates to fix problems in accordance with current regulations of the Government.
<b>Management road for the Southern main canal</b>	
Allowed velocity	15 km/h (within the limited condition)
Expected load	6-ton axis
Expected traffic volumes	20 vehicles/day and night
Descriptions of periodical maintenance activities	- Maintenance activities: + Gather all solid wastes on the road (stone, gravel and so on) and dispose + Additionally level erosion parts on the road - Repairing small and large scale damages: + Periodically conduct maintenance activities such as levelling or fixing slope roof + Repair the surface of road

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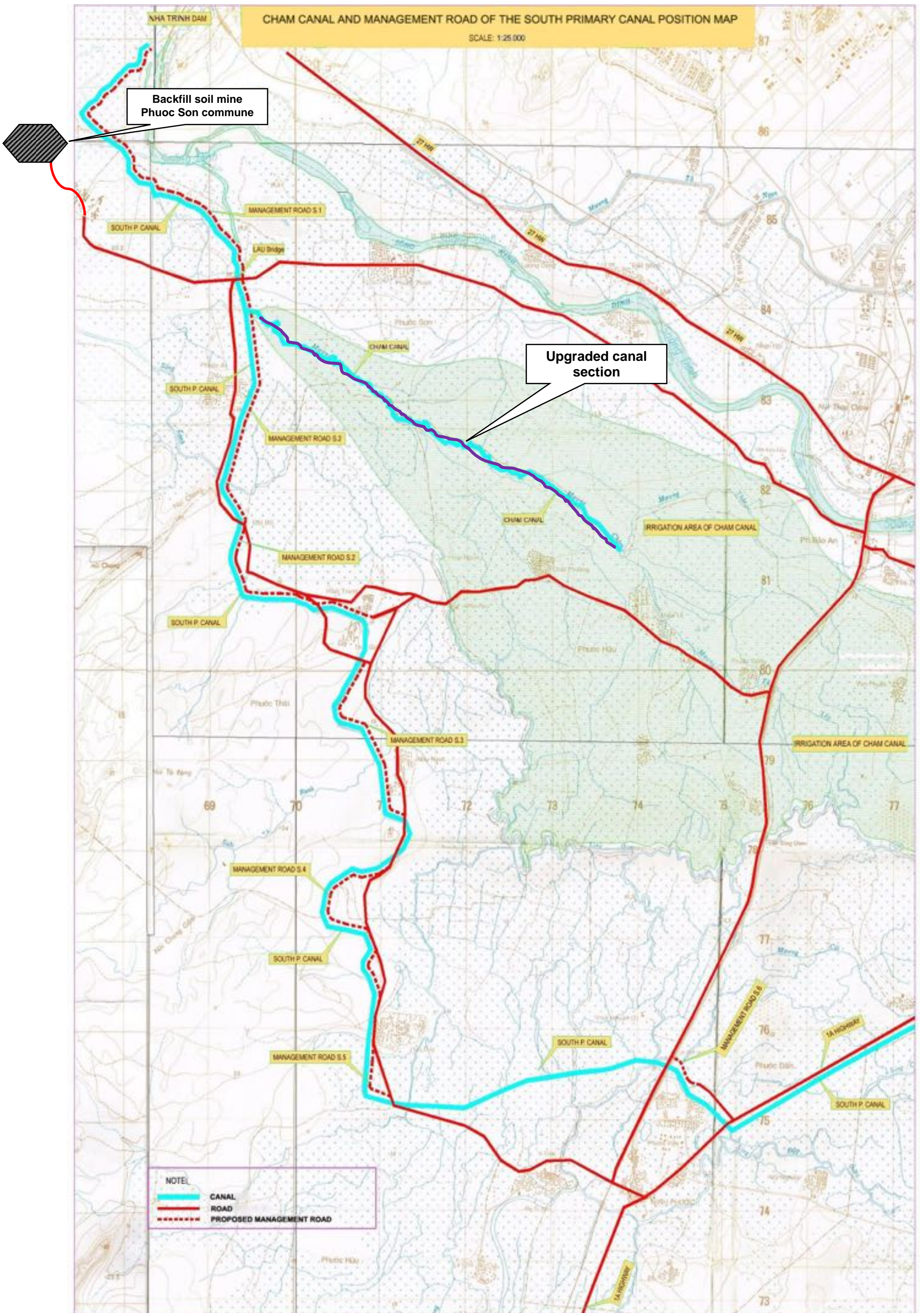
DATA ITEM	SUBPROJECT DATA	
<b>RESETTLEMENT AND LAND ACQUISITION<sup>3</sup></b>		
Affected households	138	
Number of severely affected APs	No	
Number of APs that must relocate	No	
Number of power poles that must relocate	No	
Total land area to be acquired	Temporary - N/A	Permanent – 93,414 m <sup>2</sup>
Agricultural land area to be acquired	Temporary – N/A	Permanent – 46,662 m <sup>2</sup>
Forestry land area to be acquired (m <sup>2</sup> )	Temporary - No	Permanent - No
Aquacultural land to be acquired (ha)	Temporary – N/A	Permanent – No
Garden land to be acquired (m <sup>2</sup> )	Temporary – N/A	Permanent – 9,649m <sup>2</sup>
Garden land to be acquired (m <sup>2</sup> )	Temporary – N/A	Permanent - No
Other land to be acquired (m <sup>2</sup> )	Temporary – N/A	Permanent - No
Other impacts	Animal barns would be negatively impacted including wall construction, floor lining, slope roof with the area of 100m <sup>2</sup>	
<b>SUBPROJECT COST</b>		
<b>Total subproject cost (VND and \$USD)</b>	105,538,265,000 VND (5,025,632 USD currency rate 1 USD = 21000 VND)	

<sup>3</sup> This data is obtained from Resettlement Plan of the subproject

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**III. DESCRIPTION OF EXISTING ENVIRONMENT****Table 2: Environmental baseline**

DATA ITEM	SUBPROJECT DATA
<b>PROJECT LOCATION</b>	
Commune (s):	Phuoc Son, Phuoc Thai, Phuoc Hau, Phuoc Thuan
District:	Ninh Phuoc
Province:	Ninh Thuan
Geographic location:	108 <sup>0</sup> 53'10" – 108 <sup>0</sup> 56'43" E 11 <sup>0</sup> 34'15" – 11 <sup>0</sup> 35'56" N;
<b>PHYSICAL ENVIRONMENT CONDITIONS</b>	
Air quality	<p>The subproject is constructed in rural area, mainly on field and nearby some areas where population density is sparse. According to the survey result, there are not many vehicles participating in the traffic, agriculture production and other activity which may affect air quality. In general, air quality is still good.</p> <p>Environmental monitoring result in some residential areas of Phan Rang - Thap Cham city and 21 Thang 8 Road where population and traffic density is much higher than those in project areas. The result shows that TSP (50-200 µg/m<sup>3</sup>), noise of PM10 (10-60 µg/m<sup>3</sup>), CO (1000-4000 µg/m<sup>3</sup>), SO<sub>2</sub> (17-88 µg/m<sup>3</sup>), NO<sub>x</sub> (38-100) (17-88 µg/m<sup>3</sup>) (converted to NO<sub>2</sub>) and O<sub>3</sub> (17-100 µg/m<sup>3</sup>) are still within the limits of National standard-QCVN 05:2009/BTNMT.</p> <p>(Source: Thesis of Waste management and Environment improvement Department, General Department of Environment– 2013).</p>
Noise and vibration	<p>The subproject is located in rural area and field so that noise and vibration level is low which does not much affect local people.</p> <p>The noise level at some monitoring locations in some residential areas of wards of Phan Rang – Thap Cham city and 21 August, Road where population and traffic density is much higher than project areas but it is in 59,5 – 69,7 dBA, lower than the limits of National standards -QCVN 26:2009/BNTMT. (Source: Thesis of Waste management and Environment improvement Department, General Department of Environment– 2013)</p>
Climate and natural disasters	<p>* The project area is located in the the tropical monsoon region and the average rainfall in the project area reaches 700mm in recent years. There are two separate seasons in the region: the rainy season and the dry season. The dry season lasts from January to August. And the rainy season lasts from September to December, accounting for 70% - 80% of the total rainfall in a year.</p> <p>- Average temperature : T = 27,1°C</p> <p>- Average moisture : UCP = 78%</p> <p>- Average annual wind speed: 2,7m/s. Popular wind direction include: Northeast direction from the middle of October to the beginning of summer; Southeast –East direction in summer; Southwest direction from the end of summer to the middle of winter.</p> <p>- Average rainfall : Xo = 794mm/year</p> <p>- Average annual evaporation : 1.722,7 mm.</p> <p>* The natural disasters are mainly raining and flood. Ninh Thuan province is seldom affected by stom.</p> <p>Yearly, there are about 85 thunderstorms annually during rainy season.</p>

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DATA ITEM	SUBPROJECT DATA
Topography and soils	<p>+ <i>Topography</i>: Cham cannal directly recieved water from Nam main cannal at location of K4+626. The topography is rather in flat shape. The area where Cham cannal is constructed has average height from +14.50m +11.0 m. The main slope direction is from northwest and southeast in accordance with the flow direction of Cham cannal.</p> <p>+ <i>Soils</i>:</p> <p>Divided into five layers: first layer is evacuated soil including gravel soils and clay with the thickness of 1-1.6m; second layer is clay mixed with gravel with the thickness of 1-3.3m; third layer is yellow-grey sandy soil with the thickness of 0.5-3.5m; fourth layer is grey dark clay and the last layer is clay mixing with shells.</p>
Water bodies	<p>The Dinh is the biggest river in the region and is the main water source supplying for Phan Rang delta region. Area of the river up to Nha Trinh dam is 2,140km<sup>2</sup>.</p> <p>Beside natural flow, the Cai river is also supplemented water form Da Nhim hydropower plant.</p> <p>From Nha Trinh dam to downstream, there are two main branches which are the Quao and Lu rivers. The braches are the drainage systems of the project area.</p>
Underground water	<p>Depth of underground water ranges from five to ten meters and is usually contaminated with alum.</p> <p>In Phuoc Son commune, the depth of wells is usually from 18 to 20 m and water quality is not good.</p> <p>People living in the subproject communes now have clean water system used for their living.</p>
Water quality	<p>The parameters of water quality analysis in Nam main cannal such as pH, DO, PO<sub>4</sub><sup>3-</sup>, NH<sub>4</sub><sup>+</sup>, NO<sub>2</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, BOD<sub>5</sub>, COD are quite stable and within the allowed limits compared to Vietnamese Standards (QCVN 08: 2008/BTNMT, Column B1), except TSS, Fe and coliforms are beyond the allowed limits compared to Vietnamese standards (QCVN 08: 2008/BTNMT, Column B1) at some monitoring locations. And the parameters are changed in accordance with the rainy and dry seasons. (Source: Thesis of Waste management and Environment improvement Department, General Department of Environment– 2013).</p>
Flooding	<p>Flooding is usually appeared after heavy rain. At the project area, there are small floods appearing in May or June and big floods appearing in October or November.</p>
Terrestrial flora and fauna	<p>+ <i>Terrestrial flora</i>: mainly rice field, grapes, apples and other crops such as peppers, green beans, and tomato. Along the sides of drain ditches, there area some types of trees such as bamboo, fruit trees, fig tree and other trees.</p> <p>+ <i>Terrestrial fauna</i>: natural faunas are mainly reptiles, birds and rats; livestocks are mainly goats, sheeps, cattles and poultry such as chickens and ducks.</p> <p>+ <i>Terrestrial flora and fauna</i> in subproject area are not listed in Vietnam's Red Data Book.</p>
Aquatic flora and fauna	<p>+ <i>Aquatic fauna</i>: mainly fishes, shrimp and crabs living in rice field or drainage ditch;</p> <p>+ <i>Aquatic flora</i>: mainly floating plants, moss and Water-fern;</p> <p>+ <i>Aquatic flora and fauna</i> in subproject area are not listed in Vietnam's Red Data Book.</p>
Protected areas	<p>In subproject area, there is no historical vestiges and pagodas;</p>
<b>SOCIOECONOMIC CONDITIONS</b>	
UXO	<p>Currently, there is no possibility of UXO along the route because the subpeoject will be constructed based on the existing route, old drainage ditch and field.</p>

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DATA ITEM	SUBPROJECT DATA				
Land use (2012) Unit = ha	<i>Subproject communes</i>	<i>Natural land</i>	<i>Agricultural land</i>	<i>Non agricultural land</i>	<i>Non-used land</i>
	Phuoc Thai	11,889,79	10.911,18	360,97	616,94
	Phuoc Son	1,432,12	988,94	344,18	99,00
	Phuoc Hau	1,460,37	1,221,64	233,78	4,95
	Phuoc Thuan	6,043,25	4389,77	736,86	916,62
The nearest residential land	The subproject runs through some residential areas such as Nhu Ngoc, Hoai Trung and Hoai Ni villages of Phuoc Thai commune. According to survey result, The distance between residential houses and the proposed route ranges from 3m to 5m;				
Rural infrastructure	<p>- Education: the subproject communes have focused on investment of infrastructure and facilities training. In the territory of the subproject communes, there are training levels from kindergarten to high schools including 9 kindergarten schools, 13 Primary Schools, four secondary schools and one high school in territory of four subproject communes.</p> <p>- Electricity supply: All subproject communes are equipped with national electricity network to serve living.</p> <p>- Water supply: All subproject communes are supplied clean water using for living and the ratio of household using clean water account from 85,9% to 97,3%.</p> <p>- Traffic: in the territory of the subproject communes, there is Provincial Road 703, 708 and inter commune roads, inter district roads and inter village roads. Rural roads will be used to transport construction materials. Currently, the remaining main Southern Canal management road which was prepared to upgrade is earth road and smooth traffic movement; The construction material transport routes and access to schemes are mostly inter-communal and inter-village roads with less than 8 tons of payload; Current traffic volumes are very small, only serve the travel and production of local people; Main type in traffics including: pedestrians, bicycles and motorcycles; or carts, tractors, combined harvesters used during the harvesting time; There are 03 temporary bridges made of bamboo and wood along the canal serving the travelling by local people. Canal crossing one inter-communal bridge has been reinforced.</p> <p>- Environmental sanitation: Most of the subproject communes have developed the plan of waste treatment and collection. Phuoc Thai and Phuoc Thuan have carried out waste collection in territory of some villages.</p>				
Agriculture and Fishery	<p>+ <i>Agriculture:</i></p> <p>- Cultivation: there are three cultivating crops including winter-spring crop (from December to April), summer-autumn crop (from May to August) and Mua crop (from September to December). In addition, there are some other fruit trees such as grapes, apples, corn, peppers, beans, vegetables, green beans, peanuts, soybeans</p> <p>- Livestock: are mainly buffaloes, cows, goats, sheep and poultry such as chickens and ducks.</p> <p>+ <i>Fishery:</i></p> <p>- Aquaculture in Ninh Phuoc district is mainly meat shrimp with an area of 156ha</p>				
Population (2013)	<b>Communes</b>	<b>Population</b>	<b>Ethnic minority</b>	<b>Poor households</b>	
	Phuoc Thai	11,764 (2,377 HHs)	7176 (61%)	366 (15,4%)	
	Phuoc Son	15,212 (3,470 HHs)	218 (1,43%)	32 (0,92%)	
	Phuoc Hau	19,182 (3,740 HHs)	9.504 (49,5%)	266 hộ (7,1%)	



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DATA ITEM	SUBPROJECT DATA			
	Phuoc Thuan	18,175 (3,797 HHs)	11.094 (61,1%)	226 (5,9%)
Ethnic minority groups	There are ethnic minority groups living in the subproject areas, mainly are Cham and Raglai people.			
Livelihoods	<p>The main employment of the community is cultivation and livestock.</p> <ul style="list-style-type: none"> <li>- Cultivation: the main trees are rice, crops, grapes, apples, peppers, corn, corn, watermelon, tobacco, grass for livestock</li> <li>- Livestock: are mainly buffaloes, cows, goats, sheep and poultry such as chickens and ducks.</li> </ul> <p>In addition, there are some small business services.</p>			
Physical and cultural heritages	There is no cultural heritage or preservation area in the subproject region			
Public health	<p>The public health service at localities is quite good. There is one health care centre for each commune of Phuoc Thai, Phuoc Son and Phuoc Hau which is responsible for taking care of people's health.</p> <p>The common diseases are mainly ordinary fever, bronchitis, pink eye and diarrhea ... According to the results of consultation, there is no epidemic occurring in the area in recent years.</p>			
Traffic and transportation characteristics	<ul style="list-style-type: none"> <li>- Currently, the remaining main Southern canal going to be upgraded is the soil road and traffic condition is favourable.</li> <li>- Roads used for material transport and access to the subproject are mainly inter-commune and inter- village roads and limited heavy load is lower than 8 ton.</li> <li>- Current traffic flow is small, only serving traversing and production of local people;</li> <li>- The main vehicles participating in traffic include: walking, bicycles and motorcycles; in harvesting season, there are some other vehicles such as carts, tractors, combine harvesters;</li> <li>- There are three temporary bamboo and wood bridges along the cannal to serve traversing of people. On the canal crossing one strengthened inter-communal rural road.</li> </ul>			

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**IV. ENVIRONMENTAL IMPACT SCREENING****Table 3: Environmental impact screening**

IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
<b>Pre-Construction Stage</b>					
Location assigned and detail design should reduce risk of climate change	Yes	N/A	N/A	N/A	Subproject location and detail design of the subproject should consider minimizing the impact by climate conditions including extreme weather related events such as floods, droughts, storms, landslides.
Environmentally responsible procurement	Yes	N/A	N/A	N/A	Including environmental requirements in bidding documents and civil work contracts will take importance role to fully reflect environmental protection cost of the civil works and engage the environmental responsibilities of civil contractors. Any missing of environmental management cost will create high risks of implementing mitigation measures during the construction phase due to lack of resources and capacity thus, environmental protection cost and responsibility need to involved at the beginning.
Plan construction materials management	Yes	N/A	N/A	N/A	Materials Management Plan detailing arrangements to be made to facilitate the timely production and supply of construction materials to avoid impacts due to unnecessary stockpiling outside the Project site. Soil will be exploited from Lanh Ra lake which is 13 km away from the construction site.
Plan Spoil and Waste Disposal	Yes	N/A	N/A	N/A	Waste Management and Spoil Disposal Plan are prepared for handling, storage, treatment, transport and disposal of solid and liquid wastes, hazardous materials, hazardous wastes and excavation spoils. Ensuring disposal of excavation spoils will not cause negative visual impacts. The plan will also provide details of a trip ticket system to ensure that contractors dispose excavation spoils in approved areas. Such system will be designed so that the PPMU and construction supervisors could readily monitor the volume and disposal site of excavation spoils, and to

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					ensure that the total volume of spoils disposed will not exceed the maximum capacity of designated disposal site. Domestic waste collection and management also need to set plan during this phase to avoid missing implementation resources and sanitation issues on the site.
Disturbance of UXO	Yes	Minor	Negative	Temporary	<p><b>Description:</b> UXO can be left in some areas that have not been used for construction. Mine detector in subproject area may obstruct moving or agricultural works of local people. However, it helps in securing safety for people.</p> <p><b>Location:</b> Phuoc Hau, Phuoc Son, Phuoc Thai, Phuoc Thuan communes.</p> <p><b>Objects:</b> Local people living and cultivate in the subproject area.</p> <p><b>Affected level:</b> Minor due to this affect will be temporary and can be controlled by hiring mine detector team.</p> <p><b>Time of impact:</b> Temporary</p>
Effects on households from loss of agricultural land	Yes	Minor	Negative	Permanent	<p><b>Description:</b> No household must be relocated in the subproject area. According to the statistics, 43,993m<sup>2</sup> of agriculture land area used for planting rice is permanently acquired. In addition, 2,815m<sup>2</sup> of land used for planting crops and 2802 trees are also permanently acquired.</p> <p><b>Location:</b> Phuoc Hau, Phuoc Son, Phuoc Thai, Phuoc Thuan</p> <p><b>Objects:</b> Local households</p> <p><b>Affected level:</b> The impact is considered not significant since there are no significantly affected households, no one that will require physical relocation, no production land loss of more than 10% of the total. The affected households will receive support and compensation for their acquired land from the subproject.</p> <p><b>Time of impact:</b> Permanent</p>
Effects on households from loss of residential land	No				There is no residential land area affected by land acquisition for the implementation of subproject

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
<b>Impacts during the Construction Stage</b>					
Dust, vegetation clearing, noise, water quality or other impacts from development of borrow areas for canal and road construction materials	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Stone, sand and soil will be purchased from licensed mines as mentioned above. These mines are operated in accordance with environment protection requirements of Ninh Thuan DONRE. The owners of these mines take responsibilities for any environmental problems related to vegetation clearing and water quality. Materials from these mines will be transported to construction sites by contractors. Transportation of material to the construction sites will generate noise, dust which affect local residents along transportation routes and near the construction sites.</p> <p><b>Location:</b> Filling soil will be taken from Lanh Ra lake - 13 km from the subproject site. This mine has a license from Ninh Phuoc DPC. Sand from Ninh Quy mine – 5 km from the subproject site. Stone from Deo Cau mine – 21 km from the subproject area. Transporting roads are concrete (inter-communal road and asphalt (road August 21, national Road No. 27, provincial road No. 703).</p> <p><b>Affected objects:</b> Local households</p> <p><b>Affected level:</b> Small</p> <p>Dust and noise will not be seriously affected because (i) loading capacity of vehicles is less than 10 tons, (ii) inter-communal roads are structured of concrete;</p> <p><b>Time of impact:</b> 6 months</p>
Erosion or sedimentation caused during site clearance, material exploiting or earthworks	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Earthwork activities will change soil structure and raise the amount of unconsolidated sediments. When it rains, runoff of rain water will take away them into the surrounding water bodies causing sedimentation and erosion also.</p> <p><b>Location:</b> Along the segments of the access road to Southern main road which include:            K0÷K3+618, K3+625÷K8+436,            K9+222÷K11+645, K12+081÷K13+957,            K15+197÷K16+078, K19+478÷K19+842            - Along the Cham cannal.            - Material pits of Lanh Ra lake.</p> <p><b>Affected objects:</b> Canal, lake, pond and other</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<p>water resources in the subproject area.</p> <p><b>Affected level:</b> it is minor because the construction will be implemented in dry season. The water in the canal will be cut off for 45 days from April to May so that it is almost no rain causing erosion. Amount of organic soil dredged from road surface is minor (13.290,37m<sup>3</sup>) which is utilized for embanking the canal.</p> <p>In addition, the contractors can control construction activities by applying reasonable construction methods: , road compacting activities would be conducted in line with the road upgrading therefore the amount of evacuated soil would be efficiently used.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
<p>Pollution of waterway and aquatic environment due to waste soil, wastewater or grease of construction machinery</p>	Yes	Average	Negative	Temporary	<p><b>Description:</b> If it is not managed properly, domestic waste from workers or leakage oil from machine will cause pollution of local water bodies</p> <p><b>Location:</b> Along the constructed segments of access road to Southern main canal. - Along Cham canal.</p> <p><b>Affected objects:</b> local waterways, aquatic environments and ground waters at the bridge construction areas</p> <p><b>Affected level:</b> Activities of machinery can spill over oil into environment and create waste that affects water quality of southern main canal and water quality of Cham canal.</p> <p>About 600 workers will be mobilized to work during the construction phase. However the limited number of construction machineries and short construction duration (mainly concentrate in the first 45 days of cut off water) as well as arising waste is well controlled and frequently collected, these impacts will be minimize and take place only at construction site.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
Soil contamination	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Soil at the material gathering location and the vicinity area could be</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
from spillage of oil or other chemical substances					contaminated if oil and grease are not managed properly. <b>Location:</b> Oil and grease gathering location; location of machinery repair and maintenance. <b>Affected objects:</b> soil at the material and chemical substances gathering location <b>Affected level:</b> impact level is minor and can be controlled due to small number of machineries. Fuel is stored at high location, which is impervious. <b>Time of impact:</b> it is about 6 months.
Impacts from temporary storage site for construction materials.	Yes	Minor	Negative	Temporary	<b>Description:</b> Air pollution caused by dust and impact by increasing traffic volume at the temporary storage sites. Run off water from disposal site pollute surrounding water bodies. <b>Location:</b> the construction material storages are located along roads and canals in Huu Duc village of Phuoc Hau commune; Nhu Ngoc, Hoai Trung, Hoai Ni and Chat Thuong villages of Phuoc Thai commune; <b>Affected objects:</b> local people living near the temporary storage sites of the subproject <b>Affected level:</b> impact caused by the temporary storage sites can cause dust or affect traffic. Impact level is minor because the subproject is far from residential areas or near area where population density is sparse. <b>Time of impact:</b> it is about 6 months.
Making sensitive flora disappeared and deteriorated	No				Floras along the subproject are mainly rice, bamboo, grapes, apples and shrubs ...There is no sensitive flora surrounding the subproject area.
Changes of flooding situation and irrigation works used for surface water exploitation	No				Management road segments of Southern main road are constructed based on the existing roadbeds. Spillways are also upgraded based on the existing spillways so that flooding situation is not changed and irrigation works taken water from the southern main canal is not affected.
Air pollution from dust or exhaust emissions	Yes	Moderate	Negative	Temporary	<b>Description:</b> dust and exhaust fume from material exploitation, excavation, levelling and transportation activities. <b>Location:</b>

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<ul style="list-style-type: none"> <li>- Borrow pit area of Lanh Ra lake;</li> <li>- Along material transport roads such as National Road 1 A, Provincial Road 708 and 703, 21 Thang 8 Road, inter village roads: from Phuoc Son village to Phuoc Hau village, from Phuoc Son to Phuoc Vinh and management road of southern main road.</li> <li>- Some residential areas of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni, Chat Thuong and Phuoc Thien villages.</li> <li>- Some construction sites along the route which are under construction.</li> </ul> <p><b>Affected objects:</b> Local people living in the residential area near the material exploitation and transportation route, construction sites.</p> <p><b>Affected level:</b></p> <ul style="list-style-type: none"> <li>- Dust and exhaust emissions are mainly arisen from activities of material transport and construction.</li> <li>- However, impact level is minor because amount of transport is not much and the main construction site is far from residential areas and construction duration is short.</li> </ul> <p><b>Time of impact:</b> it is about 6 months.</p>
Noise from construction equipment and transport vehicles	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Noise generating from construction equipment and transportation vehicles during construction time About 5 excavators; 7 bulldozers; 10 trucks and 5 compressors (16t-9t) will be mobilized during the construction period.</p> <p><b>Location:</b> Construction site and material transport roads.</p> <p><b>Affected objects:</b> Local people living along the transportation route and near the construction site</p> <p><b>Affected level:</b></p> <p>Impact level caused by noise is minor because the construction sites are along the route and there are different material transport roads. Construction sites are almost far from residential areas so impact level is not remarkable.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
Changes to road safety /	Yes	Minor	Negative	Temporary	<p><b>Description:</b> During the construction time for canal and road upgrade, construction</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
traffic movements, trading activities and property access					<p>activities, transport materials, equipments arrangement will be limited the movement of local people in the material transportation route and the management road. Increase traffic volume will also increase the risk of traffic accident.</p> <p><b>Location:</b> Management road of Southern main canal; material transport roads, especially segments of the road near residential area.</p> <p><b>Affected objects:</b> People living along the material transportation roads</p> <p><b>Affected level:</b> In residential areas of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni and Chat Thuong villages, it may cause insecurity for local people due to small and narrow inter-village roads. However, impact level is minor because traffic density of the management road of Southern main canal is small. Vehicles participating in the traffic are mainly bicycle, motorbike.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
Disposal of solid wastes generated by construction activities or domestic wastes generated from construction camps	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Construction wastes generated during construction include: wastes removed from surface layer of the existing management road; sludge excavated from the canal bed; cement cover, fuel can, spoil...and domestic wastes from workers at the worker camps may pollute soil and water at the construction area. About 5763 tons of construction waste 54 tons of domestic wastes will be generated during 6 months of construction phase.</p> <p><b>Location:</b> At construction sites along the route.</p> <p><b>Affected object:</b> local residential area</p> <p><b>Affected level:</b> Sludge will be dried and reuse so the impact is not much. Besides, waste will be collected regularly and transfer to the designated temporary disposal site.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
Affect public infrastructure system such as communication	Yes	Minor	Negative	Temporary	<p><b>Description:</b> construction activities and material transportation may affect on public infrastructure system such as electric cables as they usually were arranged in parallel with</p>



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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
system, traffic network, water-drainage system, etc.					<p>the roads (current management road and material transportation roads). Electric cables may be affected by construction machine and vehicles if they are over height. Local roads may be damaged by trucks during material transportation if trucks are overload.</p> <p><b>Location:</b> Inter-village roads and inter-commune roads in Phuoc Thai, Phuoc Son, Phuoc Huu and Phuoc Hau communes; electricity grid and water pipe line along Southern main cannal, bridges and spillways (Km2+335) along Cham cannal. Traffic bridge traversing from Phuoc Son to Phuoc Hau (Km2+417)</p> <p><b>Affected objects:</b> inter-commune roads, drainage and electricity systems in the construction area and along the material transportation roads</p> <p><b>Affected level:</b> Quality of the roads and bridge may be affected by over load – material transport (Lau bridge &lt;13 ton, permitted load of inter-village road &lt;6 ton/axis). Location of electricity pole Km3+618 near Lau bridge should avoid causing effect. In addition, there is no impact on other infrastructures. Impact level is minor and can be controlled by mitigation measures.</p> <p><b>Time of impact:</b> it is about 6 months.</p>
Employment or livelihood benefits from employment of local people	Yes	Minor	Positive	Temporary	<p><b>Description:</b> Contractors will use local labours for simple works such as smooth the road, embankment, moving soil, give priority to poor families, female householders, woman if they need jobs. It aims to raise their income, create more jobs and contribute to poverty reduction for community.</p> <p><b>Location:</b> Communes of Phuoc Thai, Phuoc Son, Phuoc Thuan, Phuoc Hau and so on.</p> <p><b>Affected objects:</b> Local people in the subproject area and along the upgraded road.</p> <p><b>Affected level:</b> The benefits included creating jobs, promoting the development of services. However, the level is small due to short construction time; the number of local workers with high skills is not many, mostly taking care of simple tasks such as digging and so on.</p>

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<b>Affected time:</b> Estimated 6 months of construction phase
Effects on social aspect due to workers at site	Yes	Minor	Negative	Temporary	<p><b>Description:</b> Construction workers can cause social effects or disease transmission such as sore eyes, cholera, flu and other respiratory disease.</p> <p>Social aspect: some social problems can appear such as gambling, drug addiction, prostitute, violence, conflict amongst workers, or between workers with local people</p> <p><b>Location:</b> Communes of Phuoc Thai, Phuoc Son, Phuoc Thuan, Phuoc Hau and so on.</p> <p><b>Affected objects:</b> Affected directly on worker themselves and indirectly on the community near the construction sites.</p> <p><b>Affected level:</b> Level of impact will be small if there is a strict control from contractor and the local government where the subproject is implemented. Moreover, effect level is likely to be insignificant because of short construction time</p> <p><b>Affected time:</b> Estimated 6 months of construction</p>
Risks on health or safety toward people and workers	Yes	Average	Negative	Temporary	<p><b>Description:</b> Dust, exhaust gas and noise generating from earthworks, transporting of material, construction activities and operation of machines, etc. These factors have direct affects on health of workers and local residents;</p> <p>Material transport and construction activities on the existing road may create the risk of affects on traffic safety and houses structure on road sides; Traffic signs and signals are insufficiently arranged, awareness of residents in rural areas on traffic safety is not high. Besides, unsafe of transportation materials will endanger the traffic along the route;</p> <p>Sewage from construction activities and domestic use of workers. This causes some respiratory diseases for local people as well as workers. Accidents may occur if during the construction, workers are not provided with safety equipment and obey construction</p>

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<p>regulations</p> <p><b>Location:</b> Villages of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni, Chat Thuong; at the site of workers' camps and construction sites.</p> <p><b>Affected level:</b> The risk of health and safety of people and construction workers can occur due to factors of dust, gases, noise, infectious diseases, traffic accidents, labor accidents. However, the duration of impact is short and can be controlled. In addition, health services in the area are rather good.</p> <p><b>Affected time:</b> Estimated 6 months of construction.</p>
Effects on cultural buildings or historical monuments.	No				There are no cultural buildings or historical monuments nearby the subproject site.
Risks of natural calamity	Yes	Minor	Negative	Temporary	<p><b>Description:</b> In the project area during the construction phase, flood (May-June) could occur in line with construction time. Flood could cause negative effects on the quality of construction, causing submerging situation or landslides on new construction areas.</p> <p><b>Location:</b> Along with the main Southern canal and upgrading parts of Cham canal</p> <p><b>Affected objects:</b> The construction objects on the Southern canal and upgrading parts of Cham canal</p> <p><b>Affected level:</b> The impact is minor because a suitable construction plan and a plan to cope with potential natural risks should be developed.</p> <p><b>Affected time:</b> Estimated 6 months of construction.</p>
Generation of amount of unused soil/materials from the activity of digging which could be reused	Yes	Minor	Positive	Temporary	<p><b>Description:</b> Digging soil could be reused for embankment, leveling, tree planting and other activities.</p> <p><b>Location:</b> Along the management road and the proposed canal</p> <p><b>Affected objects:</b> Local household</p> <p><b>Affected level:</b> Quantity of organic digging</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					soil from management road of the main Southern canal which is about 13,290.37 m <sup>3</sup> has been reused for Cham canal upgrading; Quantity of digging soil during the construction of Cham canal is about 15,451.51m <sup>3</sup> . Local people could also using digging soil for their gardent but as almost all amount of digging soil has been reused for canal upgrading activities, this impact is minor impact only <b>Affected time:</b> Estimated 6 months of construction
Effects on agricultural production causing temporarily delay the provison of water in order to construct Cham canal	Yes	Medium	Negative	Temporary	<b>Description:</b> The process of temporarily delaying of water provision would impact on the production due to the fact that one Summer-Autumn crop will not be planted. Total affected area accordingly would be 2,984ha in which 1,595ha are of rice area and 1,389ha are of other crops. <b>Location:</b> Production areas of Phuoc Son, Phuoc Hau, Phuoc Thai, Phuoc Thuan communes and Bao An ward. <b>Affected objects:</b> local people who farming in the subproject area <b>Affected level:</b> The impact would be temporarily occurred during 1 production cycle and under proper mitigation measures impacts would be minimized on agricultural production in provinces. <b>Affected time:</b> Estimated 6 months of construction
Site clearance and environmental recovery	Yes	Minor	Negative	Temporary and Permanent	<b>Description:</b> If after construction work has been completed, the sites are not cleaned up, construction and domestic waste will pollute surrounding environment. If site restoration such as replanting trees; grass; filling up construction pit; removing camp site have not been implemented in accordance with environmental regulation then the environmental issues like erosion, sedimentation and accident may occur. <b>Location:</b> construction site; disposal areas and borrow areas. <b>Affected object,</b> borrow areas.

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<p>- Land and water near the proposed canal and disposal, borrow areas.</p> <p>- People who living near the proposed canal and camp sites, disposal and borrow areas.</p> <p><b>Affected level:</b> This impact is minor impact. Even the construction sites are scattered in a large area, the construction volume is small for each site and the construction time is short.</p> <p><b>Affected time:</b> Estimated 6 months of construction</p>
<b>Operation phase</b>					
Increase the possibility of market access, schools, job generation, health care centers and other services?	Yes	Major	Positive	Long-term	<p><b>Description:</b> The upgrading road mainly facilitated the transportation of local people in the village and commune and canal management purposes. In addition, the road supported the transportation of agricultural products.</p> <p><b>Location:</b> Subproject communes and surrounding commune such as Phuoc Huu commune.</p> <p><b>Affected objects:</b> Local people and small merchants who doing business in the subproject area.</p> <p><b>Affected level:</b> This is a major positive impact thanks to trading activities among Phuoc Son commune and Phuoc Hau commune and other regions would be strengthened. Management of operation of the main Southern canal and Cham canal would be strengthened thanks to easy travelling.</p>
Effects on traffic safety	Yes	Minor	Positive	Long-term	<p><b>Description:</b> The existing road is upgraded to concrete road generating favourable conditions for the use of the transportation vehicles and convenient travelling, ensuring safety especially during rainy season. 7 slab bridges and 6 regular bridges passing through Cham canal will ensure the safety for travelling by people and vehicles in comparison with temporary bridges.</p> <p><b>Location:</b> Along the upgraded road</p> <p><b>Affected objects:</b> Local people and small merchants who doing business in the subproject area.</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					<b>Affected level:</b> Minor due to the small trading scale in the area and also small amount of traffic volume
Changes risk of environmental damage from accidents involving spills of chemicals or other hazardous substances	No				The upgrading road mainly facilitated the transportation of local people in the village and commune and canal management purposes. In addition, the road supported the transportation of agricultural products. There is almost not including the transportation of chemicals through the road.
Effects on amount of dust and quality of air	Yes	Minor	Positive	Long-term	<b>Description:</b> The upgraded road would help to reduce amount of dust generating from the transportation of vehicles. <b>Location:</b> Along the upgraded road <b>Affected objects:</b> Local people and visitors who travelling on the upgraded road. <b>Affected level:</b> Minor due to the small trading scale in the area and also small amount of traffic volume
Risks of natural calamity	Yes	Major	Positive	Long-term	<b>Description:</b> Natural calamity will have serious affects on residential life as well as economic growth in the region. <b>Location:</b> Along with the main Southern canal and upgrading parts of Cham canal. <b>Affected objects:</b> local people in the subproject area and subproject canals <b>Affected level:</b> Upgrading different routs of the main Southern canal and upgrading Cham canal together with schemes of intake spillway and outtake spillway, discharge door with regulator and culverts help to reduce the impact of heavy raining causing flood and avoiding eroded canal banks. <b>Affected time:</b> Rainny season on annual basis
Changes caused to community structure due to interventions along traffic corridor	No				The road is mainly for the purpose of canal management and agricultural production. Thus, there is no change caused to community structure.

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
Some areas are inundated or damaged during operation phase.	No				Since the road runs along the canal side, there is hardly inundation.
Changes of irrigation modes using surface water or flood patterns	Yes	Minor	Positive	Permanent	<p><b>Description:</b> Cham Canal is adjusted in some sections, which results in changes of locations of intake culvert, regulator, inlet and overflow spillways etc.</p> <p><b>Location:</b> Subproject area and area in the downstream of Cham canal.</p> <p><b>Affected objects:</b> Buildings and local people in the subproject area.</p> <p><b>Affected level:</b> An appropriate layout of such works will increase water use efficiency in the canal and help reduce the consequences caused by flood. However, the subproject will upgrade some part of Cham canal only, thus the impact is only minor</p>
Changes of living conditions and/or community health thank to improved transport activities	Yes	Significant	Positive	Permanent	<p><b>Description:</b> Convenient road network in villages in Phuoc Thai, Phuoc Son, Phuoc Hau, Phuoc Huu, Phuoc Thuan communes enables faster transportation and goods exchange, which fosters economic development, generate more income and improve living standard. In addition, better access to health care services also contributes to community health improvement.</p> <p><b>Location:</b> 4 subproject communes and the neighbour communes also.</p> <p><b>Affected objects:</b> Local people living in the subproject area especially people living along the upgraded road.</p> <p><b>Affected level:</b> Significant</p>
Changes of accessibility to natural resources	No				The upgraded road will improve the access to production area only, thus there is no changes of accessibility to natural resources
Changes of flow regime	No				Despite adjustment in some sections on Cham canal, basically, there is no change caused to current flow regime.

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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
Impacts on ethnic groups	Yes	Medium	Positive	Permanent	<p><b>Description:</b> The project area is home to Cham and Raglai people. The project completion will improve transport conditions, which results in production development and living condition improvement.</p> <p><b>Location:</b> Subproject area and the surrounding communes</p> <p><b>Affected objects:</b> ethnic people in the subproject area and the surroundings.</p> <p><b>Affected level:</b> Medium. The subproject will also support production increasing thanks to sufficient water supply for crops.</p>
Excessive exploitation of surface water, changes of water supply capacity for other users and/or causing conflict in water use	Yes	Minor	Positive	Permanent	<p><b>Description:</b> Excessive exploitation of surface water from canal could lead to changes of water supply capacity and cause conflict in water use.</p> <p><b>Location:</b> The irrigation area of subproject.</p> <p><b>Affected objects:</b> local people who farming in the irrigation area of the subproject.</p> <p><b>Affected level:</b> The impact is minor due to an appropriately exploit surface water in compliance with approved design capacity will minimize the risk of excessive exploitation of water; On the other hand, increase water supply for agriculture will also release conflict among water user households.</p>
Productivity is increased thank to improved water supply capacity and larger irrigated area	Yes	Significant	Positive	Permanent	<p><b>Description:</b> According to the design, the project will increase the irrigated area from 2441 ha to 3036 ha; cultivation productivity and diversification plants in the subproject area are increased.</p> <p><b>Location:</b> Phuoc Thai, Phuoc Son, Phuoc Thuan, Phuoc Hau and Phuoc Huu communes.</p> <p><b>Affected objects:</b> local people in the beneficiary area</p> <p><b>Affect level:</b> Significant thanks to timely and adequate water supply will increase crop yield.</p>
Losing nutrition or salt in soil due to over-irrigation or		Minor			<p><b>Description:</b> There is not statistics or research in the area regarding the percentage loss of nutrients. Actually, the rate of soil nutrient loss is very small due to the</p>



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	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
inappropriate irrigation.	Yes		Negative	Permanent	<p>cultivation in the plain with small slope that can not cause drift of soil when it rains or excessive irrigation. After the proposed canals are completed, the regulating system will be facilitated and more flexible, hence, the land will not lose nutrients due to excessive irrigation</p> <p><b>Location:</b> 3026 ha production land in the area irrigated by Cham Canal.</p> <p><b>Affected objects:</b> <u>soil quality of cultivated area and local people in the subproject area.</u></p> <p><b>Affected level:</b></p> <ul style="list-style-type: none"> <li>- The irrigated area of Cham canal is flat with insignificant slope, thus the soil erosion caused by the flow is minor.</li> <li>- Over-irrigation could erode soil into drainage system and result in soil nutrition impoverishment. However, agriculture production in reality doesn't show high possibility of erosion. Thus, this impact is minor and can be controlled using appropriate cultivation techniques.</li> </ul>
Local flooding due to congested diverting channels	Yes	Minor	Negative	Temporary	<p><b>Description:</b> In case of improperly operation and regulation of the culvert system, water will cause overflows and broke the canals. In addition, waste on the canals can cause stuck in the canals.</p> <p><b>Location:</b> Irrigated area of Cham Canal</p> <p><b>Affected objects:</b> Cham canal and local people who farming in the irrigation area.</p> <p><b>Affected level:</b> Irrigation canal system is congested due to inproper operation of regulators or wastes that stop the water running to the cultivation area. The congestion in the canal causes the water spill out the canal bank and locally flood the cultivation area;</p> <p><b>Affected time:</b> after aheavy rain or after a crop season;</p>
Increased generation of solid waste in production areas				Permanent	<p><b>Description:</b> Agricultural waste after harvested or garbage from other farming activities such as pesticide covers and straw is popular. Currently, waste has not</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
	Yes	Minor	Negative		<p>polluted severely to the canal water quality, soil, crops and farming areas. However, in the long-term, it will affect increasingly to soil and water quality and plants if the management authorities do not control and minimize;</p> <p><b>Location:</b> Along Cham canal;</p> <p><b>Affected object:</b> Subproject canals and farming areas.</p> <p><b>Affected level:</b> Agriculture waste or wastes generated from cultivation activities include bottles of pesticides, straw etc. This is popular in Vietnam's rural area and could affect the project area if the management over operation and maintenance of the canal is not strictly performed.</p>
Encroachment of canal bank	Yes	Minor	Negative	Permanent	<p><b>Description:</b> There's possibility that land along canal bank is encroached for cultivation.</p> <p><b>Location:</b> Along Cham canal.</p> <p><b>Affected objects:</b> Cham canal and local people who farming in the irrigation area of Cham canal</p> <p><b>Affected level:</b> The encroachment of land within the safety corridor of the canal might cause difficulties for management and operation as well as affect the quality of the canal. However this impac is minor due to the subproject only upgrade the canal and protection road.</p>
Affect the quality of soil, water due to increased volumn of fertilizer or pesticide.	Yes	Minor	Negative	Permanent	<p><b>Description:</b> The quantity of pesticides or chemical fertilizers using will be increase thanks to the increasing of cultivation area after upgrading complete.</p> <p><b>Location:</b> 3036ha-large cultivation area of Phuoc Son and Phuoc Hau communes, water in Cham canal and irrigation channels and drains fed by Cham canal.</p> <p><b>Affected objects:</b> subproject canal and local people in the beneficiary area</p> <p><b>Affected level:</b> Crop intensification for increased yield requires more fertilizer and pesticide. The pesticide used in the field and</p>

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IMPACT/ISSUES	POTENTIAL IMPACT				BRIEF DESCRIPTION OF IMPACT LOCATION AND SCALE
	ARISING IMPACT YES/NO?	IS IT MINOR OR SIGNIFICANT?	IS IT POSITIVE OR NEGATIVE?	IS IT TEMPORARY OR PERMANENT?	
					channels will affect quality of the soil and water for agriculture production. In addition, there are some households still using water in the canal for domestic use or clothes washing or bathing, which can cause negative impact on their health, especially regarding eye and skin diseases etc.
Impact on surrounding environment by the periodic maintainance activities	No				In operation phase, the maintenance activities are remove waste, obstructions, clean the banks and small repair. It will not cause any significant impact to the surrounding environment in the subproject area.

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## V. OUTLINE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

### 5.1. Environmental Mitigation Plan

**Table 4: Environmental mitigation plan**

POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
<b>Pre-construction stage</b>			
Environmentally responsible procurement	<ul style="list-style-type: none"> <li>▪ EMP is included in tender documents to ensure that mitigation measures are budgeted and to prepare the contractors for environmental responsibilities.</li> <li>▪ Specify in bid document that Contractors shall engage capable and trained staff or site agent(s) to take responsibility for the environmental management and safety issues at the working level and to monitor the effectiveness and review mitigation measures as the sub project proceeds. Contractors recruit qualified staff to oversee implementation of environmental and safety measures specified in the EMP.</li> <li>▪ Any recent recommendations and initiatives from DONRE or other local environmental authorities will be incorporated in the EMP and updated as necessary.</li> </ul>	Design Consultant, PPMU, Environmental Consultant	Included in the contract
Plan construction materials management	<p>As planned in design documents, the main construction material will be taken from existing quarries as:</p> <ul style="list-style-type: none"> <li>▪ Filled soil will be taken from Lanh Ra borrow pits located at a distance of 3 km from the subproject site managed by Ninh Phuoc DPC and communal authorities.</li> <li>▪ Stone will be taken from Deo Cau quarry that has been operated under the permission of local authorities of Ninh Son district.</li> <li>▪ PPMU and contractor need to check the environmental responsibilities of suppliers.</li> </ul> <p>In case that, above material sources will be changed, an appropriate material management plan should include the following:</p> <ul style="list-style-type: none"> <li>▪ Required materials, potential sources and estimated quantities available;</li> <li>▪ Material supply manners: preferring to purchase from existing material quarries.</li> <li>▪ Agreement with the local authorities</li> <li>▪ Check with environmental permission/certification of the quarries to ensure that environmental impacts and mitigation measures have been considered by owners.</li> <li>▪ Environmental recovery plan</li> <li>▪ Material transportation manner plans and schedules</li> <li>▪ Program for delivery of quarry and borrow material</li> </ul>	Design Consultant, PPMU	Included in the contract
Plan Spoil and Waste Disposal	<ul style="list-style-type: none"> <li>▪ Re-use of waste materials &amp; spoil disposal locations included in bid and contract documents.</li> <li>▪ Select an properly treatment manners, preferred of for fill up the site of other projects activities/purposes</li> </ul>	Design Consultant, PPMU	Included in the contract

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	<ul style="list-style-type: none"> <li>▪ Determine waste materials &amp; spoil disposal locations. The expectation is that construction waste will be stored temporarily along the proposed road, domestic waste will be stored in rubbish bins and then will be collected and treated by the local authority at the designated dumping site and contractors will be responsible for paying the bill</li> <li>▪ Agreement with the local authorities need to be obtained during detail design or before starting construction activities;</li> <li>▪ Environmental recovery plan since construction activities completed</li> <li>▪ Waste materials transportation manner plans and schedules</li> </ul> <p>Establishment of complaints management system for duration of the works</p>		
Disturbance of UXO	<ul style="list-style-type: none"> <li>▪ Hiring the authorized mine detector team to detect and remove any possible UXO left in the subproject area.</li> <li>▪ Inform widely UXO removal plan to local authorities and local people in advance</li> <li>▪ Select appropriate time to limit the risks which may occur</li> <li>▪ Install signs and alarms system at the UXO removal area to warn people from entering the site.</li> </ul>	PPMU	Included in UXO removal plan
Effects on households from loss of agricultural land	<ul style="list-style-type: none"> <li>▪ Implementing mitigation measures as in the outline of the project resettlement plan</li> </ul>	PPMU	Included in resettlement plan
<b>Construction stage</b>			
Dust, vegetation clearing, noise, water quality or other impacts from development of borrow areas for canal and road construction materials	<ul style="list-style-type: none"> <li>▪ Exploiting construction materials must be taken in Lanh Ra lake only which already has a license from Ninh Phuoc DPC. Hence, dust and noise generated by exploitation activities will be minimized</li> <li>▪ Canvas will be used to cover material transportation truck while transporting to minimize dust</li> <li>▪ Watering the road surface at Ranh La borrow pit area while exploit material.</li> <li>▪ Material transportation truck must be in good condition and be maintained regularly</li> </ul>		
Erosion or sedimentation caused during clearing, material exploitation or	<ul style="list-style-type: none"> <li>▪ The dredged organic soil which could not be used for levelling and backfilling will be transported immediately to the temporary disposal site in Phuoc Thai commune during the construction of the canal and management road.</li> </ul>	Contractor	No marginal cost. Included in contract

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
earthworks.	<ul style="list-style-type: none"> <li>▪ Conduct rolling and compacting in parallel with earth-filling, especially the aggregated section of Cham Canal bank.</li> <li>▪ Gather material, soil far from the canal banks to avoid sedimentation.</li> <li>▪ Minimize area of land clearance and duration of work within the construction area.</li> <li>▪ If any excavated soil, waste or sedimentation damage cultivation area, the contractors have to provide compensation for the affected people.</li> <li>▪ - Replant vegetation cover after construction activities completed.</li> </ul>		
Pollution of waterway and aquatic environment due to waste soil, wastewater or grease of construction machinery	<ul style="list-style-type: none"> <li>▪ Gather fuel and oil in the place with high concrete ground and proof, far from water bodies.</li> <li>▪ Ensure construction equipment and vehicles are maintained in good conditions to avoid leakages.</li> <li>▪ Area for machinery repair and maintenance should be located far away from the water sources (canal banks) and located in the flat and impervious area.</li> <li>▪ Waste oil and oil rag should be collected for reuse or proper treatment.</li> <li>▪ The locations for temporary gathering of soil should be arranged far from the canal slope and waterbodies to avoid erosion to Southern Main Canal.</li> <li>▪ Install sanitary toilets with septic tanks following sanitation regulation and washing facilities at construction camps</li> <li>▪ - Setup sedimentation ditches to avoid waste water discharge directly to the Southern Main Canal.</li> </ul>	Contractor	No marginal cost. Included in contract
Soil is contaminated by spillage of oil or other chemical substances	<ul style="list-style-type: none"> <li>▪ Gather fuel and oil in the place with high concrete ground and proof, far from water bodies</li> <li>▪ Avoid spillage when filling fuel, replacing oil or maintaining machines, area for machinery repair and maintenance should be located far away from the water sources and located in the flat and impervious area.</li> <li>▪ Waste oil and oil rag should be collected for reuse or proper treatment.</li> <li>▪ Gather organic soil in the temporary gathering zone. Regularly tidy up the construction site.</li> </ul>	Contractor	No marginal cost. Included in contract
Impacts from temporary storage site for construction	<ul style="list-style-type: none"> <li>▪ Reasonably arrange the locations for materials gathering and gather materials neatly along the management road and the Cham canal and far</li> </ul>	Contractor	No marginal cost.

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
materials.	<p>from residential area.</p> <ul style="list-style-type: none"> <li>▪ Discuss with local people in case of temporary impact on land acquisition for material gathering. Site restoration will be done properly upon construction complete</li> <li>▪ Material transportation is strictly forbidden from 5 pm to 7 am if the storage sites are located next to residential areas.</li> <li>▪ For materials requiring careful storage such as cement, iron should be placed in high locations and covered by canvas.</li> </ul>		Included in contract
Air pollution due to dust and exhaust fume.	<ul style="list-style-type: none"> <li>▪ Machines and devices should be provided with registration certificates on technical safety and environmental protection in accordance with Decision No. 35/2005/QD-BGTVT</li> <li>▪ Cover all material transportation trucks with canvas to minimize dust and volume of transported materials should not exceed the load capacity of truck</li> <li>▪ Regularly conduct machinery maintenance to guarantee proper operation.</li> <li>▪ Set speed limit (less than 40km/h) for trucks when crossing the residential area (inter village road from Phuoc Son to Phuoc Hau; from Phuoc Son to Phuoc Vinh and management road of southern canal) and entering the construction site to limit the dust stirring.</li> <li>▪ Sprinkle water during hot and dry time in the areas subject to dust generation especially in the residential areas of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni, Chat Thuong and Phuoc Thien villages</li> </ul>	Contractor	No marginal cost. Included in contract
Noise caused by construction equipment, machineries and transportation vehicles	<ul style="list-style-type: none"> <li>▪ Regularly conduct maintenance for machines, devices and transport trucks.</li> <li>▪ Consult CPC of Phuoc Huu, Phuoc Thai, Phuoc Son, Phuoc Hau and local people in these communes to select appropriate transport routes to avoid crossing residential areas if possible.</li> <li>▪ Reasonably coordinate the number of trucks, transport time and speed limit when crossing the residential areas.</li> <li>▪ All noise generation activities shall be undertaken using minimum impact density and only during the hours of 07:00 to 17:00, and shall be located at least 300 meters from any residence;</li> </ul>	Contractor	No marginal cost. Included in contract
Changes caused to traffic	<ul style="list-style-type: none"> <li>▪ Consult CPC of Phuoc Thuan, Phuoc Thai, Phuoc Son, Phuoc Hau and local people in these</li> </ul>	Contractor	No marginal

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
safety/activities, business activities and accessibility of asset	<p>communes to select appropriate transport routes to avoid crossing residential areas if possible.</p> <ul style="list-style-type: none"> <li>▪ Consult Management board of Ninh Phuoc High School and secondary schools; primary schools; kindergartens as well as other public organizations in the project area for proper construction and material transportation schedule.</li> <li>▪ Inform local authorities in advance the construction and material transportation schedule. Place information about the project in CPC of Phuoc Hau, Phuoc Thai, Phuoc Son and Phuoc Thuan</li> <li>▪ Place warning boards and signals in construction sites, along material transportation route, temporary material storage sites and dumping site in Phuoc Thai commune.</li> <li>▪ Neatly place materials and construction machines along the management road and Cham canal.</li> <li>▪ Install lighting system in case of construction at night.</li> </ul>		cost. Included in contract
Issues related to waste generated from construction activities	<ul style="list-style-type: none"> <li>▪ Classify waste generated and make full use of waste soil or stone.</li> <li>▪ Sludge will be dried up for reuse in the area not into the wind; far from residential area; and not in the canal slope.</li> <li>▪ The remaining sludge after dried will be transported to the designated dumping site in Phuoc Thai commune.</li> <li>▪ Waste transportation truck must covered with canvas and ensure there is no waste spill during transportation.</li> <li>▪ - Construction reusable wastes such as cement packs, scrap iron, wood pieces will be regularly collected and gathered for reuse or for sale.</li> </ul>	Contractor	No marginal cost. Included in contract
Effects on public infrastructure works like communication system, transportation roads and drainage system, etc	<ul style="list-style-type: none"> <li>▪ Loading capacity of existing roads, bridges and culverts shouldn't be exceeded during transporting materials.</li> <li>▪ Examine and confirm the status of feeder roads in Phuoc Son, Phuoc Thai, Phuoc Hau and Phuoc Thuan communes before the construction and commit to return to initial conditions in case of damages (if any).</li> <li>▪ Avoid causing impacts on water pipelines under the feeder roads of Southern Main Canal.</li> </ul>	Contractor / Phuoc Son, Phuoc Thai, Phuoc Hau and Phuoc Thuan CPCs.	No marginal cost. Included in contract
Impact due to	<ul style="list-style-type: none"> <li>▪ Rent houses for workers to reduce the number of</li> </ul>	Contractor	No



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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
wastewater and workers' waste.	<p>workers living outside the worker camp. Domestic waste will be collected and treated with those from the boarding households.</p> <ul style="list-style-type: none"> <li>▪ In the workers camp, the contractor should build hygienic toilets and bathrooms (separately for male and female) and arrange kitchen for the use of workers.</li> <li>▪ Provide dust bins in worker camps (02 bins per camp). Remind workers not to throw away domestic waste to surrounding area (Southern Main Canal and Cham Canal)</li> <li>▪ Collect all domestic waste and transport to the dumpsite of the residential area.</li> <li>▪ Reasonably allocate domestic water drains and seepage pits in the construction site and regularly cleanse the ditches to avoid congestion</li> <li>▪ Prioritize hiring local workers to reduce the number of workers living in camps and increase income for local people</li> <li>▪ Dismantle and clear all temporary works after completing the construction.</li> </ul>		marginal cost. Included in contract
Social impacts due to presence of workers in the area	<ul style="list-style-type: none"> <li>▪ Register temporary residence for workers from other places with police department under Phuoc Son, Phuoc Hau, Phuoc Thai and Phuoc Thuan communes to coordinate management.</li> <li>▪ Consult village leaders of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni, Chat Thuong, Hieu Le etc villages regarding arranging houses for workers and local regulations and customs.</li> <li>▪ Remind workers to avoid conflicts with local people and follow a healthy lifestyle.</li> <li>▪ Propagation of HIV / AIDS and other sexually transmitted diseases; raise awareness about social evils like gambling, theft, etc.</li> <li>▪ Impose labor regulations, curfew hours and request for staff and workers' strict observation.</li> <li>▪ Receive community feedback regularly and closely coordinate with subproject communes during the construction process.</li> </ul>	Contractor	No marginal cost. Included in contract
Risks on health or safety toward people and workers	<ul style="list-style-type: none"> <li>▪ Recruit workers within working age and in good health.</li> <li>▪ Equip protection clothing for workers as masks, safety boots, helmets, gloves, protection clothes ... and remind them to use while working. Workers working in high noise area (compaction, excavation...) should be equipped with ear protectors</li> </ul>	Contractor	No marginal cost. Included in contract

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
	<ul style="list-style-type: none"> <li>▪ Equip first-aid kits, suitable fire extinguishers in camp areas, fuel storage sites.</li> <li>▪ Raise workers' awareness on working safety by training before construction commencement.</li> <li>▪ - Set up restriction signs on the construction site; warning signs, barriers in areas prone to insecurity such as deep holes/pits, narrow sections etc</li> </ul>		
Risks of natural calamity	<ul style="list-style-type: none"> <li>▪ Prepare plans to cope with the risks that may occur as heavy rains, storms and floods which can cause landslide and flood works.</li> <li>▪ Consult local authorities of Phuoc Son, Phuoc Hau, Phuoc Thai, Phuoc Thuan communes; village heads and local people for proper action to deal with heavy rains, storms and floods</li> </ul>	Contractor	No marginal cost. Included in contract
Impacts on agriculture production due to temporary water cut for construction of Cham Canal	<ul style="list-style-type: none"> <li>▪ Arrange labors and resources to guarantee the construction progress in line with schedule of water cut proposed by PMU and approved by DARD and PPC in order to avoid lengthening construction activities and influencing production plan for next summer-autumn and following crops.</li> <li>▪ Consult DARD of Ninh Thuan, CPC of Phuoc Son, Phuoc Hau, Phuoc Thai and Phuoc Thuan communes for current proposed water cut for construction (45 days from April 30 to June 15, 2016)</li> <li>▪ Inform local people on the water cut by place information at CPC of Phuoc Son, Phuoc Hau, Phuoc Thai and Phuoc Thuan communes or broadcast in the commune speaker system.</li> </ul>	Contractor	No marginal cost. Included in contract
Site clearance and environmental recovery	<ul style="list-style-type: none"> <li>▪ Clean the construction site, move unused materials, transfer all wastes to the designated dumping site upon the completion of construction</li> <li>▪ Monitoring environmental recovery at working sites, worker camps, material storage sites, temporary disposal site in Phuoc Thai commune</li> </ul>	Contractor, Community Supervision	CSC, No marginal cost. Included in contract
<b>Operation stage</b>			
Exhaust the nutrition or salt in the soil due to over-irrigation or not in proper manner	Coordinate with agriculture extension service agency to guarantee that farmers will be provided with training on participatory irrigation management	DARD	State budget
Local inundation due to blocked divert channel	<ul style="list-style-type: none"> <li>▪ Ensure that subproject designs meet requirements on safety against floods, storms and other potential natural disasters;</li> <li>▪ The operation and management team of Cham</li> </ul>	Ninh Phuoc Irrigation Station under Ninh Thuan Irrigation and Drainage Management	Included in the operation cost

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE	RESPONSIBILITY	COST
	<p>Canal under Ninh Phuoc Irrigation Station conducts regular repairs and maintenance to guarantee normal operation of the canal and associated works;</p> <ul style="list-style-type: none"><li>Operate the regulation system reasonably and flexibly depending on the real situations and avoid excess and spilling over the bank</li><li>Periodically dredge irrigation canals after harvest time and big rains/flooding;</li></ul>	Company	
Increased solid waste in production area.	<ul style="list-style-type: none"><li>Regularly collect the waste in the canal and in the field;</li><li>Raise awareness of people on waste collection and management in the field, canals through training and loudspeaker of the village, commune.</li></ul>	Ninh Phuoc Irrigation Station CPCs in subproject area	Included in the operation cost
Encroaching the canal bank	<ul style="list-style-type: none"><li>Adopt strict management measures and ensure that the corridor on the canal is not occupied for plantation or people do not excavate to form new water delivery path etc such as regular examination, monitoring and development of sanctions for occupation actions.</li><li>Communicate and raise awareness of households living near the canal or having their cultivation field nearby on how to avoid intruding the corridor and affecting the canal quality and operation.</li></ul>	Ninh Phuoc Irrigation Station CPCs in subproject area	Included in the operation cost
Affect the quality of soil and water environment due to increased fertilizer and pesticide.	<ul style="list-style-type: none"><li>Coordinate with agriculture extension division to guarantee that farmers will be provided with training on sustainable cultivation practice; IPM for farmers in benefited area.</li><li>Construct dumpsites in the cultivated fields located far away from water storages and regularly inundated area or warn people about collecting bottles or packs of pesticides, not throwing out to the fields or canals.</li></ul>	Plant Protection Division  Ninh Phuoc Plant Protection Station CPCs in subproject area	State budget

## 5.2. Environmental monitoring plan

### 5.2.1. Environmental impact monitoring

6. Environmental effects monitoring is carried out to examine impacts of project in relation to ambient environmental conditions.

7. CSC will monitor environmental impacts caused by the Contractor during construction. In addition, PMU and LIC will conduct spot monitoring to evaluate the environmental impacts caused by the Subproject.

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**Table 5: Environmental impact monitoring plan<sup>4</sup>**

Monitoring object	Parameters	Location	Method	Frequency	Responsibility	Cost
<b>Construction phase</b>						
Noise	Noise level	<ol style="list-style-type: none"> <li>1. Lau Bridge, Phuoc Thien village, Phuoc Son commune.</li> <li>2. Section crossing residential area in Hoai Trung village, Phuoc Thai commune.</li> <li>3. Section in residential area in Nhu Ngoc village, Phuoc Thai commune.</li> <li>4. Ending section of Cham canal, near the residential area of Hieu Le village, Phuoc Hau commune.</li> <li>5. Section between Cham canal, near the houses and at location of bridge spanning the canal banks</li> </ol>	Visual observation	Upon the grievance/complaint from the community	CSC/PPMU/Community supervision	Included in the contract No margin cost;
Ambient air	Dust level	<ol style="list-style-type: none"> <li>1. Lau Bridge, Phuoc Thien village, Phuoc Son commune.</li> <li>2. Section crossing residential area in Hoai Trung village, Phuoc Thai commune.</li> <li>3. Section in residential area in Nhu Ngoc village, Phuoc Thai commune.</li> <li>4. Ending section of Cham canal, near the residential area of Hieu Le village, Phuoc Hau commune.</li> <li>5. Section between Cham canal, near the houses and at location of bridge spanning the canal banks</li> </ol>	Visual observation/ Sampling for analysis if needed	Weekly or when there's strong wind	CSC/PPMU/Community supervision	Included in the contract No margin cost;
Surface water environment	<p>Sediment loads, rubbish, oil or other visible pollutants.</p> <p>Parameters to be analyzed: pH, COD, BOD<sub>5</sub>, TSS, salinity, Zn, Cd, Pb, Coliform</p>	<ol style="list-style-type: none"> <li>1. Surface water in Southern Main Canal, in the section near Lau bridge, Phuoc Thien village, Phuoc Son commune.</li> <li>2. Surface water in Southern Main Canal, section in junction with Lanh Ra river.</li> <li>3. Surface water in Southern Main Canal, section in Thanh Duc village, Phuoc Huu</li> </ol>	Visual observation/ Sampling for analysis if needed	Weekly or after heavy rain	CSC/PPMU/Community supervision	Included in the contract No margin cost;

<sup>4</sup> Map of monitoring locations is presented in Annex 4 of this report

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Monitoring object	Parameters	Location	Method	Frequency	Responsibility	Cost
		commune.				
Soil environment	Waste, oil and grease	Locations of worker camps, storing equipment and fuel.	Visual observation	Upon the grievance/complaint from the community	CSC	Included in the contract No margin cost;
<b>Operation phase</b>						
Surface water quality	pH, COD, BOD <sub>5</sub> , TSS, salinity, Zn, Cd, Pb, Coliform.	<ol style="list-style-type: none"> <li>1. Water in beginning of Cham canal.</li> <li>2. Water in the central location of the canal-location of the bridge</li> <li>3. Water in Cham canal at the last part of the canal.</li> </ol> In comparison with QCVN 08:2008/BTNMT (B1)	Sampling and analysis in accordance with TCVN	Every 6 months in the first 2 years. (once in wet season and once in dry season)	Ninh Thuan Irrigation and Drainage Company	Included in the operation cost
Air quality	- TSP; NO <sub>x</sub> ; SO <sub>x</sub> ; CO - Compared with QCVN 05:2009/BTNMT	<ol style="list-style-type: none"> <li>1. Lau Bridge, Phuoc Thien village, Phuoc Son commune.</li> <li>2. Section crossing residential area in Hoai Trung village, Phuoc Thai commune.</li> <li>3. Section in residential area in Nhu Ngoc village, Phuoc Thai commune.</li> <li>4. Ending section of Cham canal, near the residential area of Hieu Le village, Phuoc Hau commune.</li> <li>5. Section between Cham canal, near the houses and at location of bridge spanning the canal banks</li> </ol>	Method in accordance with TCVN	Once a year in the first 2 years of operation	Ninh Thuan Irrigation and Drainage Company	Included in the operation cost
Noise	Noise in daytime and night-time dBA - Compared with với QCVN 26:2010/BTNMT	<ol style="list-style-type: none"> <li>1. Lau Bridge, Phuoc Thien village, Phuoc Son commune.</li> <li>2. Section crossing residential area in Hoai Trung village, Phuoc Thai commune.</li> <li>3. Section in residential area in Nhu</li> </ol>	Using noise meter	Once a year in the first 2 years	Ninh Thuan Irrigation and Drainage Company	Included in the operation cost

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Monitoring object	Parameters	Location	Method	Frequency	Responsibility	Cost
		Ngoc village, Phuoc Thai commune. 4. Ending section of Cham canal, near the residential area of Hieu Le village, Phuoc Hau commune. 5. Section between Cham canal, near the houses and at location of bridge spanning the canal banks				
Traffic safety	Number of traffic accidents, causes and seriousness	Along the feeder road of the canal	Discussion with local authority	Once a year in the first 2 years	Ninh Thuan Irrigation and Drainage Company	Included in the operation cost
Water use conflict	Conflicts reported in access to water resources.	Community in the surrounding area of Subproject	Direct interview	Every 06 months for the first two years	Ninh Thuan Irrigation and Drainage Company	Included in the operation cost

### 5.2.2. Environmental compliance monitoring

8. Environmental compliance monitoring is conducted to check the contractor's compliance with regulations on activity procedures, technical standards and/or specifications in Environmental Management Plan (EMP). The supervision consultant and the safeguard staff of PPMU and the environmental consultant of CPMU are in charge of supervision of the contractor's compliance as specified in Table 6.

**Table 6: Environmental compliance monitoring**

Mitigation measures	Parameter	Location	Method	Frequency	Taken by	Cost
<b>Construction phase</b>						
Erosion and sedimentation control	Controlling capacity and condition, waste transportation process	Along the segments of the access road to Southern main road which include: K0÷K3+618, K3+625÷K8+436, K9+222÷K11+645, K12+081÷K13+957 K15+197÷K16+078 K19+478÷K19+842 - Along the Cham canal. - Material pits of Lanh Ra lake - Disposal site in Phuoc Thai commune	Observation	Weekly or after it rain	CSC/PPMU/Community supervision	Included in the contract; No marginal cost

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Mitigation measures	Parameter	Location	Method	Frequency	Taken by	Cost
Material storage	Condition of material storage site	All material storage sites	Observation	Weekly	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
Construction equipment and vehicle	Noise, exhaust gases, lubricant leakage, canvas and trunk conditions of the waste transportation truck	Areas of machine operation, maintenance and oil change, transportation route, temporary disposal site	Observation	Randomly	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
Condition of worker camps	Cleanliness, hygiene and waste disposal facilities, common condition	All worker camps	Observation	Weekly	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
Access to assets	Re-arrangement of temporary and permanent passages	Management road of Southern main canal; material transport roads, especially segments of the road near residential area	Observation	Once during construction and once after construction	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
Waste disposal	Condition and cleanliness of the project site, sludge dried area, condition of dried sludge for transportation to the temporary dumping site, temporary disposal site	Along the constructed segments of access road to Southern Main canal Along Cham canal, Temporary disposal site in Phuoc Thai commune	Observation	Weekly	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
Labor safety and community safety	Number use of labor, safety equipment, signal,	In the construction site and along the material transportation road in Huu Duc, Nhu	Observation and community	Weekly or when community's feedback	CSC/PPMU/Community supervision	Included in the contract; No marginal cost

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Mitigation measures	Parameter	Location	Method	Frequency	Taken by	Cost
	warning sign system, obey for traffic law of transportation on mean of construction material	Ngoc, Hoai Trung, Hoai Ni, Chat Thuong villages	consultation	is raised		
Material exploitation area	Environmental approvals on exploitation of material deposits	Lanh Ra borrow pit	Review of relevant documents	Before exploitation on natural resources	PPMU	PPMU's operation budget
Site clearance and environmental recovery	Condition of construction sites, temporary borrow areas after construction complete	At all construction sites Lanh Ra lake borrow pit	Observation and community consultation	Weekly or when community's feedback is raised	CSC/PPMU/Community supervision	Included in the contract; No marginal cost
<b>Operation phase</b>						
Erosion or sedimentation of water source, areas of excavation and embankment	Landscape condition, stability of areas of excavation and embankment	At some sections along the road and the canal	Observation	Semi-annually in the first two years of operation	Ninh Thuan Irrigation and Drainage Company	Included in budget for operation
Drainage and flooding	Condition of drainage and sewer and evidence of flooding in adjacent area	At some sections along the road and the canal	Observation	Semi-annually in the first two years of operation	Ninh Thuan Irrigation and Drainage Company	Included in budget for operation
Water bodies on the road	Evidence of stagnant water bodies	At some sections along the road and the canal	Observation	During rainy season in the first two years of operation	Ninh Thuan Irrigation and Drainage Company	Included in budget for operation
Waste management	Condition and cleanliness of	All the entire sub-project site	Observation	Semi-annually	Ninh Thuan Irrigation and Drainage	Included in budget for operation



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Mitigation measures	Parameter	Location	Method	Frequency	Taken by	Cost
	the project site			in the first five years of operation	Company	
Prevention of depression and erosion at canal banks	Condition of canal banks	Along the entire Cham canal banks	Observation	Semi-annually in the first five years of operation	Ninh Thuan Irrigation and Drainage Company	Included in budget for operation

## Arrangement of implementation of EMP

**Table 7: Implementation of EMP**

Agency	Role and responsibility		
	Preparation for the sub-project	Implementation of the sub-project	Operation of the sub-project
<b>CPMU</b>	<ul style="list-style-type: none"> <li>- Recruit consultant and take overall responsibility for preparation of IEE and submit it to ADB for no objection;</li> <li>- Provide guidance for safeguard staff of PPMU during preparation of IEE;</li> <li>- Review and provide no objection to IEE submitted by PPMU</li> </ul>	<ul style="list-style-type: none"> <li>- Provide guidance for safeguard staff of PPMU on implementation of EMP during construction phase;</li> <li>- Supervise progress during construction phase;</li> <li>- Gather environmental reports from PPMU.</li> </ul>	<ul style="list-style-type: none"> <li>- Provide guidance for safeguard staff of PPMU on implementation of EMP in the first 2 years of operation;</li> <li>- Supervise progress in the first 2 years of operation;</li> <li>- Gather environmental reports from PPMU.</li> </ul>
<b>PPC</b>	Sign-off environmental assessment documents for confirmation of completion before submitting for approval	Perform as the project owner taking the highest responsibility for environmental protection activities of the sub-project during construction phase	Perform as the project owner taking responsibility for environmental protection activities including implementation of EMP during operation phase
<b>DONRE</b>	Provide necessary comments and guidance on environmental issues during preparation of the sub-project	Supervise implementation of EMP by DONRE's internal monitoring system	Supervise implementation of EMP by DONRE's internal monitoring system
<b>PPMU</b>	<ul style="list-style-type: none"> <li>- PPMU's safeguard staff to take part in preparation of IEE;</li> <li>- Ensure staffs are adequately trained in environmental issues.</li> <li>- Prepare Environmental Impact Assessment (EIA) in accordance with Decree No.18/2015/ND-CP</li> </ul>	<ul style="list-style-type: none"> <li>- Take responsibility for EMP implementation during pre-construction and construction</li> <li>- Ensure that contract specifications and bidding documents include environmental requirements</li> <li>- Undertake inspections and monitoring of</li> </ul>	<ul style="list-style-type: none"> <li>- Take responsibility for EMP implementation during first 2 years of operation</li> <li>- Undertake inspections and monitoring of environmental issues during first 2 years of operation</li> <li>- Assist the project owner in incorporating environmental requirements into O&amp;M procedures of the works</li> </ul>

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Agency	Role and responsibility		
	Preparation for the sub-project	Implementation of the sub-project	Operation of the sub-project
		<p>environmental issues during construction</p> <ul style="list-style-type: none"> <li>- Prepare and submit monthly reports on EMP compliance monitoring to CPMU</li> <li>- Prepare EIA and submit to DPC for approval.</li> </ul>	
<b>DPC</b>	Approve the subproject's EIA in accordance with GOV legal requirements	Monitor implementation of EMP through DPC's internal monitoring system	Monitor implementation of EMP through DPC's internal monitoring system
<b>LIC</b>	Prepare IEEs for each sub-project	Review safeguards issues including recommendations for PPMU to incorporating environmental issues during implementation, supervision and assist in the project's environmental monitoring	n/a
<b>Town and District Subproject Support Teams (SST)</b>	Assist in preparing IEEs/EIAs as required	<p>Daily supervise contractors' in district including compliance with environmental management requirements</p> <p>Undertake environmental monitoring and coordination of local community environmental monitoring activities</p>	Undertake environmental monitoring and coordination of local community environmental monitoring activities for first 2 years of operation
<b>Commune Supervision Boards (CSBs) and local community members<sup>5</sup></b>	<p>Involve in consultations and identification and preparation of IEE for the sub-projects</p> <p>Provide comments on environmental assessment documents after receiving them</p>	Involve in environmental monitoring activities under the direction of SSTs	Involve in environmental monitoring activities under the direction of SSTs
<b>Construction contractor</b>	n/a	<p>Prepare detailed Site EMP to meet the Subproject EMP general requirements</p> <p>Allocate adequate resources to meet the requirements and obligations of Site EMP</p>	n/a

<sup>5</sup> CSBs have been established under Decree 80 Regulation for Participatory Investment Supervision. Article 8 of Decree 80 provides the community with opportunities to inspect compliance, monitor implementation and evaluate the results of investments in the commune, including environmental impacts.

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**Monitoring and reporting system****Table 8: Monitoring and Reporting System**

Project phase	Type of report	Frequency	Taken by	Submitted to whom
<b>Construction</b>	<b>Site Environmental Performance Report</b> indicating compliance with Site EMP and monitoring results	Monthly	Construction Supervision Consultant	PPMU
	<b>EMP Compliance Report</b> indicating compliance with subproject EMP and monitoring results	Quarterly	PPMU	CPMU
	<b>EMP Compliance Report</b> indicating compliance with subproject EMP and monitoring results	Semi-annually or twice during construction	CPMU	ADB
	<b>Subproject Environmental Report</b> indicating overall subproject environmental performance and EMP compliance	At completion of subproject	CPMU	ADB
<b>Operation</b>	<b>EMP Compliance Report: Operation</b> indicating compliance with subproject EMP commitments during operation	06 times per year in the first 2 years of operation; Subsequent frequency to be determined based on review after 2 years	Irrigation Work Exploitation Company Limited, Ninh Thuan province	ADB

**Budget for implementation of EMP****Table 9: Budget for implementation of EMP**

Item	Marginal Costs for Pre-Construction	Marginal Costs for Construction	Marginal Costs for Operation	Total
<b>Mitigation</b>				
Compensation and land clearance	In a separated item on project compensation and resettlement	To be borne by the contractor (in case of additional impacts)	No	Included in other items
<b>Monitoring</b>				
PPMU's Internal monitoring	Included in management cost of PPMU	Included in the Contracts with the Contractor and Supervision Consultant as well as in PPMU's management cost	Local and provincial budget	Included in contracts or other operation capital sources

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<b>Item</b>	<b>Marginal Costs for Pre-Construction</b>	<b>Marginal Costs for Construction</b>	<b>Marginal Costs for Operation</b>	<b>Total</b>
Community monitoring	n/a	Local budget (as specified in Decree No.80/ND-TT)	Local budget (as specified in Decree No.80/ND-TT)	Local budget
Monitoring of LIC		Included in a separate contract with CPMU	n/a	
Training on capacity enhancement on environmental monitoring management	n/a	n/a	n/a	n/a
Information disclosure	Defined in the contract for consulting services with CPMU upon preparation of IEE		n/a	

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**VI. PUBLIC CONSULTANT AND DISCLOSURE ACTIVITIES****Description of Activities to Date****Table 10. Public consultation and public disclosure activities**

CONTENT AND METHOD	DETAILS OF ACTIVITIES	
<p><b>Method:</b></p> <ul style="list-style-type: none"> <li>- Using rapid Assessment Method with public participation, interview, and group discussion.</li> <li>- According to the mission's plan, PPMU will send a letter to inform CPCs of Phuoc Thai, Phuoc Hau and Phuoc Son communes of consultation plan and invite participants.</li> </ul> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- The Design Consultant will present information about work items, scale and location, etc.</li> <li>- The Environmental Consultant will present issues related to anticipated impacts and mitigation measures during preparation, construction and operation of the sub-project.</li> <li>- Discuss and receive opinions of officials and people in the meeting and prepare Minutes of consultation</li> </ul>	<i>Date</i>	August 7-8, 2014
	<i>Place</i>	Meeting halls of Phuoc Hau, Phuoc Thai and Phuoc Son communes
	<i>Participants</i>	<ul style="list-style-type: none"> <li>- Mr. Luu Van Thuy – Chairman of Phuoc Thai CPC</li> <li>- Mr. Pham Van Hoang – Vice-Chairman of Phuoc Hau CPC</li> <li>- Mr. Nguyen Thanh Sang – Vice-Chairman of Phuoc Son CPC</li> <li>- Representatives of organizations in Phuoc Thai, Phuoc Son and Phuoc Hau communes such as Women Union, Farmer Association, Fatherland Front</li> <li>- Representative of Design Consultant – The Institute of WRU for Education, Scientific Research and Technology Transfer at Vietnamese Central Part;</li> <li>- Representative of Ninh Thuan PPMU;</li> <li>- Representative of affected households and beneficiaries in hamlets of Phuoc Son, Phuoc Thai and Phuoc Hau communes.</li> <li>- International Safeguard Consultant Team</li> </ul>
	<i>Agenda attached (Yes/No)</i>	Yes
	<i>Minutes of Meeting attached (Yes/No)</i>	Yes
	<i>Number of participants</i>	140 (Refer to the attached Minutes of consultation)

**Outcomes of Public Consultation to Date****Table 11. Results of public consultation**

Description of Issue Raised	People in charge	Refer to IEE	Required Actions
Impact on water use process between areas at canal head and canal end Concern of water shortage or surplus owing to adjustment of the project site and inappropriate location of regulating works	Mr. Luu Van Thuy – Chairman of Phuoc Thai CPC; People living in Phuoc Hau and Phuoc Son communes	Over-exploitation of surface water source and change in response capability of water source for other users and/or conflict during water using	<ul style="list-style-type: none"> <li>- During preliminary design process, the Design Consultant should conduct public consultation to find suitable locations for the works.</li> <li>- Surface water source should be used and regulated in accordance with the designed function of the works to ensure watering capacity for the entire area of irrigation perimeter.</li> </ul>

## Initial Environmental Examination (IEE)

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Impact on business and living of local people during construction	Officials and people in Phuoc Son, Phuoc Hau and Phuoc Thai communes	Impact on agricultural production due to the suspension of water supply for construction of Cham canal.	<ul style="list-style-type: none"> <li>- The contractor is required to make sure that the construction progress is in line with the water shut-off plan.</li> <li>- Local people should be informed of the detailed construction schedule in advance.</li> <li>- Alternative water sources should be arranged such as the main Southern canal, pumping system along Cai river banks, well-water for manufacturing and living.</li> </ul>
Impact on local security	Ninh Quy II hamlet head, Phuoc Son commune	Social impact due to presence of workers in the area	<ul style="list-style-type: none"> <li>- Registration of temporary residence for workers from other places should be proceeded.</li> <li>- The workers' awareness should be educated.</li> <li>- Close cooperation with local authorities during implementation of the sub-project should be made.</li> </ul>
Impact of transportation of materials on quality of roads in the commune	People living in Phuoc Thai commune	Impact on public infrastructure such as telecommunication, roads, drainage system, etc.	<ul style="list-style-type: none"> <li>- Status of existing roads should be reviewed for transportation with suitable load.</li> <li>- In case roads are damaged, the contractor is required to take remedial action and restore them.</li> </ul>
Impact of gathering of materials on travelling of local people	People living in Phuoc Thai commune	Impact of temporary stockpiles	<ul style="list-style-type: none"> <li>- Materials should be gathered tidily at road-sides and vacant grounds.</li> </ul>

## Future Public Consultation Activities

**Table 12: Proposed community consultation activities**

Activity	Participants	Expected Outcomes	Schedule	Cost Estimate
Kick-off meeting prior to construction commencement	PPMU, the Contractor, Construction Supervision Consultant, community representatives at project area	<ul style="list-style-type: none"> <li>- Inform construction schedule and plan</li> <li>- Receive comments and reach an agreement on detailed plans for mitigation of impacts caused construction process</li> </ul>	1 week prior to construction commencement	Included in contract signed with relevant parties
Periodical meetings	Contractor, Construction Supervision Consultant and representatives of local authority, organizations and community at project area	<ul style="list-style-type: none"> <li>- Periodically check mitigation activities and arising problems</li> <li>- Propose treatment alternatives and reach agreement on implementation</li> </ul>	Once every quarter from construction commencement	Included in contract signed with relevant parties

## **Initial Environmental Examination (IEE)**

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*Integrated Rural Development in Central Provinces Project – Additional Financing*

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### **VII. CONCLUSION AND RECOMMENDATIONS**

9. The sub-project “Rehabilitation and upgrading Cham canal and rural road in combination with the management of Southern main canal under irrigation system in Nha Trinh – Lam Cam” is part of Integrated Rural Development Sector Project in the central provinces (additional financing). The sub-project is managed by Management Board of Integrated Rural Development Sector Project in the central provinces, Ninh Thuan province.

10. Construction of the sub-project will mainly cause impacts on a number of agricultural land areas along Cham canal. The impacts will be presented in details in resettlement reports of the subproject.

11. Some remarkable environmental impacts caused during construction include:

- a) Air pollution from dust, exhaust emissions and impacts on traffic disturb caused by transportation, collection of materials and construction of work items;
- b) Water shut-off for 45 days from April to June will cause delay in cultivation of an area of 1,984 ha, which may cause impact on cropping productivity.
- c) Waste water, waste and social security should be paid attention to due to short period of construction and large number of workers.

12. During operation phase, positive impacts made by the subproject is considerable, specifically improvement in traffic, goods circulation, access to medical and commercial services, increase in area and watering capacity for enhancement of productivity and improvement in local people’ living.

13. However, influence and impacts caused during construction and operation of the works are predicted and appropriate mitigation measures include: making reasonable construction plan, using vehicles suitable with loads of the existing roads to transport materials; gathering materials tidily, collecting and disposing all waste produced, erecting sign posts, barriers, proceeding registration of temporary residence, making plan for of the risks caused by natural disasters and incidents that may occur during implementation, etc.

14. Environmental monitoring activities will be carried out regularly by the Supervision Consultant and Community Supervision Boards of the communes in the subproject site. Safeguard staff of PPMU, LIC will conduct periodical monitoring of EMP implementation to check the Contractor’s compliance. Results of the monitoring activities will be reported to the PPMU , CPMU well as the relevant parties .

15. Thus, most of the environmental issues that may arise during preparation, construction and operation of the works along with appropriate mitigation measures and monitoring systems have been fully mentioned in IEE.

16. ADB, CMPU, PPMU, Natural Resources Office of Ninh Phuoc District are requested to review and approve IEE for the subproject “Rehabilitation and upgrading Cham canal and rural road in combination with the management of Southern main canal” to serve as basis to proceed with next steps, ensuring construction progress and efficiency of the subproject.

**Initial Environmental Examination (IEE)**

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**ANNEX 1: MINUTES OF PUBLIC CONSULTATION**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**  
**Độc lập – Tự do – Hạnh phúc**

Phước Hậu, ngày 8 tháng 8 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP**  
**CÁC TỈNH MIỀN TRUNG - KHOẢN VAY BỔ SUNG**  
**BIÊN BẢN HỌP THAM VẤN CỘNG ĐỒNG**

Về các chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số

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Tên tiểu dự án: Nông cấp, Cải tạo kênh, Chôn và đường giao thông KT 74  
Xã Phước Hậu, huyện Ninh Phước, tỉnh Ninh Thuận

**I. Thành phần tham dự:**

- Ông/Bà Vũ Hoàng Lân	Chức vụ: Tr. Văn thư
- Ông/Bà Dương Đức Chiến	Chức vụ: Tr. Văn thư
- Ông/Bà Phạm Văn Hoàng	Chức vụ: Phó chủ tịch xã
- Ông/Bà Nguyễn Thị Tuyết	Chức vụ: Phó chủ tịch xã
- Ông/Bà Trần Thị Thanh Thảo	Chức vụ: Chủ tịch hội phụ nữ xã
- Ông/Bà Trần Bá Đạt	Chức vụ: Cán bộ kỹ thuật Ban Quản lý dự án
- Ông/Bà Nguyễn Văn Tân	Chức vụ: Cán bộ KT Ban Quản lý Dự án

- Đại diện những hộ bị ảnh hưởng ..... người, trong đó .....nữ, chiếm....(%) , Dân tộc thiểu số.....người, chiếm....%

**II. Nội dung**

**2.1 Các nội dung phổ biến:**

- Cung cấp các thông tin về dự án như địa điểm, quy mô, các thông số kỹ thuật cơ bản ....
- Chính sách an toàn của dự án bao gồm: Chính sách về giới và sự tham gia của cộng đồng; Kế hoạch hành động giới; Chính sách môi trường, Chính sách Tái định cư và kế hoạch phát triển người dân tộc thiểu số.

**2.2 Tham vấn cộng đồng:**

- Tham vấn các vấn đề giám sát và tham gia của cộng đồng trong các giai đoạn chuẩn bị, thực hiện, vận hành tiểu dự án, các vấn đề về giới và lồng ghép giới, nhóm dễ tổn thương, hộ bị ảnh hưởng nặng...

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- Tham vấn các vấn đề về môi trường, tác động môi trường tiềm năng của dự án bao gồm tác động lên môi trường tự nhiên và xã hội của khu vực dự án và những biện pháp giảm thiểu các tác động tiêu cực;
- Tham vấn các vấn đề về tái định cư, các tác động dự kiến, quyền lợi của người bị ảnh hưởng, các biện pháp giảm thiểu tối đa nhằm có ít tác động nhất đến người bị ảnh hưởng.
- Tham vấn nhu cầu đào tạo của các hộ bị ảnh hưởng.

**III. Ý kiến thảo luận**

**III.1. Các vấn đề về giới, tham gia cộng đồng**

Cộng đồng cần phải được tham gia vào việc thiết kế để tìm ra điểm lấy nước và thoát nước hợp lý.  
Cộng đồng cũng cần phải được tham gia góp ý trong quá trình thi công xây dựng sát chặt hàng công trình. Bà con cũng yêu cầu công khai bản thiết kế cho cộng đồng và chính quyền để cộng đồng góp ý cho việc thiết kế.

**III. 2. Các vấn đề về môi trường**

Nhìn chung bà con ủng hộ dự án, bà con chủ yếu lo ngại về việc bị BQLDA và nhà thầu thi công thi công và sẽ gây ra vấn đề ô nhiễm môi trường. Bà con cũng lo ngại nếu thi công các công trình thi công kéo dài cũng sẽ ảnh hưởng đến nước phục vụ chăn nuôi.

## Initial Environmental Examination (IEE)

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### III.3. Các vấn đề về tái định cư và dân tộc thiểu số

- Do ảnh hưởng thu hút của các hệ thống tưới phục hồi không lớn, chủ yếu là công tác khai khẩn ven kênh và một số nhà dân tích trữ nông nghiệp, do đó lãnh đạo địa phương và người dân đang tích cực hỗ trợ an táng địa phương.
- Những tài sản, di sản tích trữ BAH tạm thời trong quá trình thi công sẽ phải hỗ trợ cho các hộ BAH.
- Nên tránh thi công vào mùa vụ sản xuất để hạn chế thiệt hại cho các hộ dân tại địa phương.

### IV. Kết luận

- Lãnh đạo địa phương và người dân ủng hộ DA tại địa phương.
- Đề nghị xem xét thời gian thi công cho phù hợp trong quá trình thi công, nhà thầu phải chú ý đến những vấn đề về môi trường.
- Đề nghị nhà thầu thi công kéo dài, phải tránh ảnh hưởng an toàn kỹ thuật cho các hộ BAH. Những cây cối, tài sản phải được kiểm kê và bồi thường cho các hộ BAH.

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**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**

**Độc lập – Tự do – Hạnh phúc**

Phước Hải, ngày 08 tháng 08 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP CÁC TỈNH MIỀN TRUNG –**

**KHOẢN VAY BỔ SUNG**

**DANH SÁCH ĐẠI BIỂU THAM DỰ CUỘC HỌP**

(Tham vấn cộng đồng về chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số)

Tên tiểu dự án... Cải tạo nâng cấp kênh Chánh và kênh B1, Kênh Nam - Nha Trinh - Lam Cam  
 Xã... Phước Hải....., huyện... Ninh Phước....., tỉnh... Ninh Thuận.....

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
1	Nguyễn Minh Trung	Nam	Trường Sơn	<i>[Signature]</i>	"
2	Nguyễn Văn Diệu	"	"	<i>[Signature]</i>	"
3	Nguyễn Thị Ngọc Trang	Nữ	"	<i>[Signature]</i>	"
4	Phạm Thị Như Trang	"	"	<i>[Signature]</i>	"
5	Nguyễn Văn Chung	Nam	"	<i>[Signature]</i>	"
6	Trương Thị Mỹ Linh	Nữ	"	<i>[Signature]</i>	"
7	Phạm Tiến	Nam	"	<i>[Signature]</i>	"
8	Phạm Văn Lý	"	"	<i>[Signature]</i>	"
9	Lê Đình Thành	"	"	<i>[Signature]</i>	"
10	Lê Sơn Quý	Nam	Hương Sơn	<i>[Signature]</i>	"
11	Võ Minh Hoàng	"	"	<i>[Signature]</i>	"
12	Phạm Văn Thành	"	"	<i>[Signature]</i>	"
13	Võ Tâm	"	Phước Hải	<i>[Signature]</i>	"
14	Đoàn T. Sĩ	"	"	<i>[Signature]</i>	chấm
15	Trần Bảo	"	"	<i>[Signature]</i>	"
16	Hàn Ngọc Thảo	"	Hương Sơn	<i>[Signature]</i>	"
17	Lê Quang Anh	"	Hương Sơn	<i>[Signature]</i>	"

**Initial Environmental Examination (IEE)**

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STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
18	Nguyễn Văn Hiệp (anh)	Nam	Hải Hòa	Hiệp	kinh
19	Nguyễn Văn Sáu	Nam	Hải Hòa	Sáu	"
20	Nguyễn Văn	Nữ	Hải Hòa	Nguyễn Văn	chưa
21	Trần Thị Thanh Trúc	Nữ	C. Thuận	Trúc	kinh
22	Nguyễn Đại Trung	Nam	Hải Hòa	Trung	chưa
23	Trương Văn Hòa	Nam	P. Đông 1	Hòa	"
24	Lưu Văn Thịnh	Nam	Phước Đông 1	Thịnh	"
25	Nguyễn Văn Tuấn	Nam	Phước Đông 1	Tuấn	kinh
26	Phạm Văn An	Nam	Phước Đông	An	kinh
27	Nguyễn Văn	Nam	Phước Đông	Nguyễn Văn	"
28	Nguyễn Văn	Nam	Phước Đông	Nguyễn Văn	chưa
29	Nguyễn Văn	"	Hải Hòa	Nguyễn Văn	"
30	Nguyễn Văn Tuấn	Nam	Châu Thuận	Tuấn	"
31	Văn Chí	Nam	Hải Hòa	Chí	"
32	Võ Xuân Hùng	Nam	Phước Đông 1	Hùng	kinh
33	TRƯƠNG VĂN CHÍ	N	P. Đông 2	Chí	chưa
34	Quảng Ngọc Tài	Nam	P. Đông 2	Tài	"
35	Trần Văn Hùng	N	P. Đông 2	Hùng	"
36	Quảng Tài Sơn	N	C. Hải Hòa	Sơn	"
37	Văn Văn Chí	Nam	Hải Hòa	Chí	"
38	Phạm Ngọc Xuân	Nam	Hải Hòa	Xuân	"
39	Trương Văn Hòa	Nam	T. Thuận	Hòa	kinh
40	Nguyễn Văn Tuấn	Nam	Phước Đông 2	Tuấn	kinh
41	Đặng Văn Phùng	Nam	Phước Đông 2	Phùng	chưa
42	Quảng Duy Ninh	Nam	Phước Đông 2	Ninh	"

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 Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
 Integrated Rural Development in Central Provinces Project – Additional Financing

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
43	Đông Mai Ngọc	Nam	Phước 2		chính
44	Huyền Thị Thanh	Nữ	Hoài Xuân		kinh
45	Vũ Đức Tiến	Nam	Hoài Xuân		"
46	Nguyễn Văn Dũng	Nam	Phước 1		"
47	Đặng Hoàng Diệu	Nam	Hoài Xuân		chính
48	Đặng Văn Thuận	Nam	"		"
49	Nguyễn Thành Tuấn	Nam	Trũng Sạn		kinh

Đại diện cộng đồng

Quang Nhân

Đại diện UBND xã

KT. CHỦ TỊCH  
 HỒ CHỦ TỊCH  
  
 NGUYỄN NHƯ HÙNG TRIẾT

Đại diện Ban QLDA tỉnh

KT. GIÁM ĐỐC  
  
 Trần Ngọc Hùng

Đại diện tư vấn

Vũ Hoàng Lan

**Initial Environmental Examination (IEE)**

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Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province

Integrated Rural Development in Central Provinces Project – Additional Financing

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**

**Độc lập – Tự do – Hạnh phúc**

Phước Hòa, ngày 2 tháng 8 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP CÁC TỈNH MIỀN TRUNG –**

**KHOẢN VAY BỔ SUNG**

**DANH SÁCH ĐẠI BIỂU THAM DỰ CUỘC HỌP**

(Tham vấn cộng đồng về chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số)

Tên tiểu dự án: Nâng cấp và cải tạo kênh Châm kết hợp đường giao thông  
Xã Phước Hòa, huyện Ninh Phước, tỉnh Ninh Thuận.

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
1	Nguyễn Ngọc Trường	Nam	Trống Sỏi - Phước Hòa	<i>[Signature]</i>	Kiểm
2	Nguyễn Minh Đức	Nam	-vt-	<i>[Signature]</i>	-vt-
3	Ngài Văn Sĩ	Nam	Chật Luông	<i>[Signature]</i>	Châm
4	Nguyễn Văn Hồ	Nam	Chật Luông	<i>[Signature]</i>	Châm
5	Nguyễn Văn Sĩ	Nam	Chật Luông	<i>[Signature]</i>	Châm
6	Nai Lưu Kate	Nam	Chật Luông	<i>[Signature]</i>	Châm
7	Nguyễn Văn Chu	Nam	Chật Luông	<i>[Signature]</i>	Châm
8	Nguyễn Văn Sĩ	Nam	Chật Luông	<i>[Signature]</i>	Kiểm
9	Nguyễn Văn Sĩ	Nam	Chật Luông	<i>[Signature]</i>	Châm
10	Hàn - Anh		Chật Luông	<i>[Signature]</i>	Châm
11	Nguyễn Văn Sĩ			<i>[Signature]</i>	Châm
12	Là Văn Sĩ	Nam		<i>[Signature]</i>	Châm
13	Phan Văn Sĩ	Nam	Hố	<i>[Signature]</i>	Châm
14	Bà Văn Sĩ	Nam	Phước Hòa	<i>[Signature]</i>	Châm
15	Nguyễn Văn Sĩ	Nam	Phước Hòa	<i>[Signature]</i>	Châm
16	Nguyễn Văn Sĩ	Nam	Phước Hòa	<i>[Signature]</i>	Châm
17	Võ Văn Sĩ	Nam	Hố	<i>[Signature]</i>	Kiểm

**Initial Environmental Examination (IEE)**

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Integrated Rural Development in Central Provinces Project – Additional Financing

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
18	Ngô Ngọc Sơn	Nam	Huyện Ninh		kinh
19	Võ Văn Minh	Nam	"		kinh
20	Võ Xuân Kỳ	Nam	Phước Bình		kinh
21	Trần Thái	Nam	Huyện Lệ		chăm
22	Buồng Đại Thắng	Nam	"		chăm
23	Trần Anh Tuấn	Nam	Huyện Ninh		kinh
24	Nguyễn Văn Lâm	Nam	Huyện Lệ		chăm
25	Đào Ngọc	Nam	Huyện Lệ		chăm
26	Đặng Văn Hòa	"	"		"
27	Trần Ngọc Sơn	"	"		"
28	Đặng Văn Hùng	"	"		"

**Initial Environmental Examination (IEE)**

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
 Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
 Integrated Rural Development in Central Provinces Project – Additional Financing

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
43	Đông Mai Ngọc	Nam	Phước 2		chính
44	Huyền Thị Thanh	Nữ	Hoài Xuân		kinh
45	Vũ Đức Tiến	Nam	Hoài Xuân		"
46	Nguyễn Văn Dũng	Nam	Phước 1		"
47	Đặng Hoàng Diệu	Nam	Hoài Xuân		chính
48	Đặng Văn Thuận	Nam	"		"
49	Nguyễn Thành Tuấn	Nam	Trũng Sạn		kinh

Đại diện cộng đồng

Quang Nhon

Đại diện UBND xã

KT. CHỦ TỊCH  
 HỒ CHỦ TỊCH  
  
 NGUYỄN NHƯ HÙNG TRIỆT

Đại diện Ban QLDA tỉnh

T. GIÁM ĐỐC  
  
 Trần Ngọc Hùng

Đại diện tư vấn

Vũ Hoàng Lan



**Initial Environmental Examination (IEE)**

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

Độc lập – Tự do – Hạnh phúc

Phước Sơn..., ngày 08 tháng 08 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP  
CÁC TỈNH MIỀN TRUNG - KHOẢN VAY BỔ SUNG  
BIÊN BẢN HỢP THAM VẤN CỘNG ĐỒNG**

Về các chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số

Tên tiểu dự án: Cải tạo, nâng cấp kênh Cham và đường qua lỵ Kênh Nam - Nhữ  
Xã Phước Sơn..., huyện Ninh Phước..., tỉnh Ninh Thuận  
Lâm An

**I. Thành phần tham dự:**

- |                                 |                                          |
|---------------------------------|------------------------------------------|
| - Ông/Bà Nguyễn Thanh Sang..... | Chức vụ... Phó Chủ tịch UBND Xã          |
| - Ông/Bà Ngô Văn Chấn.....      | Chức vụ... Bí thư Đảng ủy                |
| - Ông/Bà Trần Bá Luật.....      | Chức vụ... Cán bộ kỹ thuật Ban QLDA tỉnh |
| - Ông/Bà Ngô Như Tuấn.....      | Chức vụ... Cán bộ kỹ thuật Ban QLPA tỉnh |
| - Ông/Bà Đặng Đức Chiến.....    | Chức vụ... Chuyên gia tái định cư        |
| - Ông/Bà Ngô Thanh Thiên.....   | Chức vụ... Chuyên gia Dân tộc Thiểu số   |
| - Ông/Bà Vũ Hoàng Lâm.....      | Chức vụ... Chuyên gia Nữ giới            |
- Đại diện những hộ bị ảnh hưởng ..... người, trong đó .....nữ, chiếm....(%) , Dân tộc thiểu số.....người, chiếm....%

**II. Nội dung**

**2.1 Các nội dung phổ biến:**

- Cung cấp các thông tin về dự án như địa điểm, quy mô, các thông số kỹ thuật cơ bản ....
- Chính sách an toàn của dự án bao gồm: Chính sách về giới và sự tham gia của cộng đồng; Kế hoạch hành động giới; Chính sách môi trường, Chính sách Tái định cư và kế hoạch phát triển người dân tộc thiểu số.

**2.2 Tham vấn cộng đồng:**

- Tham vấn các vấn đề giám sát và tham gia của cộng đồng trong các giai đoạn chuẩn bị, thực hiện, vận hành tiểu dự án, các vấn đề về giới và lồng ghép giới, nhóm dễ tổn thương, hộ bị ảnh hưởng nặng...

## Initial Environmental Examination (IEE)

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

- Tham vấn các vấn đề về môi trường, tác động môi trường tiềm năng của dự án bao gồm tác động lên môi trường tự nhiên và xã hội của khu vực dự án và những biện pháp giảm thiểu các tác động tiêu cực;
- Tham vấn các vấn đề về tái định cư, các tác động dự kiến, quyền lợi của người bị ảnh hưởng, các biện pháp giảm thiểu tối đa nhằm có ít tác động nhất đến người bị ảnh hưởng.
- Tham vấn nhu cầu đào tạo của các hộ bị ảnh hưởng.

### III. Ý kiến thảo luận

#### III.1. Các vấn đề về giới, tham gia cộng đồng

Lãnh đạo xã với các hộ BAA nhất trí sẽ tham gia vào dự án, cụ thể là sẽ thành lập Ban G.S.C.Đ để có thể tiến hành giám sát trong quá trình thi công.

Hội phụ nữ nhất trí sẽ tham gia vào giám sát G.S.C.Đ và sẽ quy đóng thành viên tham gia tích cực vào dự án.

#### III. 2. Các vấn đề về môi trường

Bà con ủng hộ dự án, tạo điều kiện cho việc triển khai thực hiện dự án. Tuy nhiên người dân lo ngại một số vấn đề về môi trường như xe cộ nhà thầu phá đường tại trung quy định sẽ không làm ảnh hưởng tài đường; thời gian thi công phải hợp lý, bố trí các nước hợp lý, thi công tránh để tránh ảnh hưởng đến việc cấp nước tưới cho lúa, nhà và chài nuôi. Nên thiết kế quan tâm thiết kế công lấy nước và bơm nước cho hợp lý để tránh gây ngập úng sau này.

## Initial Environmental Examination (IEE)

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

### III.3. Các vấn đề về tái định cư và dân tộc thiểu số

Đề nghị Dự án phải Kiểm kê chi-siêu không  
tại sân BAH và đền bùeko-thoa tăng Bên cạnh  
đó, khi bị ảnh hưởng đến diện tích đất sản xuất  
khi thi công, phải bố trí cho các hộ BAH.

Nếu bố trí cho việc sản xuất và mùa vụ tranh  
vào mùa vụ để giảm thiểu thiệt hại của người dân.  
Tiền chi trả thực hiện tại xã không ảnh hưởng nhiều  
đến các hộ nghèo. DITS theo thống kê chỉ là một  
số hộ nghèo. Chăm, Raglai và là những hộ nghèo  
lợi thế số, không ảnh hưởng bị ảnh hưởng các hộ  
DITS.

### IV. Kết luận

Người dân và cán bộ xã phải sẵn sàng hỗ trợ  
tạo điều kiện cho dự án triển khai nhanh. Người  
dân đồng ý các bên liên quan thực hiện việc đền bù và  
quản lý môi trường cũng như vấn đề về giới, sự tham  
gia cộng đồng, vấn đề lâm tặc theo quy định của  
nhà tài trợ cũng như quy định của chính phủ  
Việt Nam.

**Initial Environmental Examination (IEE)**

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
 Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
 Integrated Rural Development in Central Provinces Project – Additional Financing

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**

**Độc lập – Tự do – Hạnh phúc**

Phước Sơn..., ngày 08 tháng 08 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP CÁC TỈNH MIỀN TRUNG –  
 KHOẢN VAY BỔ SUNG**

**DANH SÁCH ĐẠI BIỂU THAM DỰ CUỘC HỌP**

(Tham vấn cộng đồng về chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số)

Tên tiểu dự án: Cải tạo nâng cấp kênh Châm và tiếp quản lý kênh Nam - Nha Trinh - Lâm Cam  
 Xã Phước Sơn..., huyện Ninh Phước..., tỉnh Ninh Thuận

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
01	Trần T. Văn Thủy	Nữ	Phước Thiện	[Signature]	Kinh
02	Nguyễn Hoàng Linh	Nam	p. Thiện	[Signature]	Kinh
03	Trần Văn Đức	Nam	Ninh Đức	[Signature]	Kinh
04	Nguyễn Văn Huệ	Nam	Ninh Đức	[Signature]	Kinh
05	Nguyễn Văn Bình	Nam	Ninh Đức	[Signature]	Kinh
06	Nguyễn Văn Hùng	Nữ	Phước Thiện	[Signature]	Kinh
07	Nguyễn Văn Hùng	Nam	Phước Thiện 3	[Signature]	Kinh
08	Lê Hữu Chấn	Nam	Phước Thiện 2	[Signature]	Kinh
09	Nguyễn Văn Cường	Nam	p. Thiện 1	[Signature]	Kinh
10	Nguyễn Văn Cường	Nam	p. Thiện 1	[Signature]	Kinh
11	Nguyễn Văn Cường	Nam	Phước Thiện 1	[Signature]	Kinh
12	Nguyễn Văn Cường	Nam	Xã P. Sơn	[Signature]	Kinh
13	Đặng Tuấn Ninh	Nam	Xã P. Sơn	[Signature]	Kinh
14	Nguyễn Văn Cường	Nam	Xã P. Sơn	[Signature]	Kinh
15	Nguyễn Văn Cường	Nam	Phước Thiện 2	[Signature]	Kinh
16	Nguyễn Văn Cường	Nam	p. Thiện 1	[Signature]	Kinh

**Initial Environmental Examination (IEE)**

*Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing*

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Sau khi đọc lại biên bản, những người có mặt đồng ý về nội dung biên bản, không có ý kiến gì khác.

Đại diện Ban QLDA tỉnh  
KT. GIẤM ĐẠO  
PHẠO QUỲNH HẢI



*Trần Ngọc Hùng*

Đại diện UBND xã  
PHÓ CHỦ TỊCH



NGUYỄN THỊ ANH SANG

Đại diện tư vấn  
*T. H. Sanglan*  
*Vũ Hoàng Lân*

**Initial Environmental Examination (IEE)**

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**  
**Độc lập – Tự do – Hạnh phúc**

phước Thúc, ngày 7 tháng 8 năm 2014

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP**  
**CÁC TỈNH MIỀN TRUNG - KHOẢN VAY BỔ SUNG**  
**BIÊN BẢN HỢP THAM VẤN CỘNG ĐỒNG**  
Về các chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số

Tên tiểu dự án: Nông cấp kênh Cham và đường giao thông kết hợp  
Xã: Phước Thúc, huyện Ninh Phước tỉnh Ninh Thuận

- Ông/Bà... Vũ Hoàng Lân	Chức vụ... T.Ư. Văn. M.Đ. Tuyên
- Ông/Bà... Dương Đức Chiến	Chức vụ... T.Ư. Văn. T.Đ.C.
- Ông/Bà... Nguyễn Thanh Hoàn	Chức vụ... T.Ư. Văn. Đ.T.S.
- Ông/Bà... Nguyễn Như Tuấn	Chức vụ... T.Ư. C.B. C.S.A.T.
- Ông/Bà... Trần Bá Lộc	Chức vụ... C.B. C.S.A.T.
- Ông/Bà... Lưu Văn Thủy	Chức vụ... Chủ tịch UBND xã
- Ông/Bà... Hà Thị Thu Hằng	Chức vụ... Chủ tịch UBND xã

- Đại diện những hộ bị ảnh hưởng ..... người, trong đó .....nữ, chiếm.....(%) , Dân tộc thiểu số.....người, chiếm.....%

**II. Nội dung**

**2.1 Các nội dung phổ biến:**

- Cung cấp các thông tin về dự án như địa điểm, quy mô, các thông số kỹ thuật cơ bản ....
- Chính sách an toàn của dự án bao gồm: Chính sách về giới và sự tham gia của cộng đồng; Kế hoạch hành động giới; Chính sách môi trường, Chính sách Tái định cư và kế hoạch phát triển người dân tộc thiểu số.

**2.2 Tham vấn cộng đồng:**

- Tham vấn các vấn đề giám sát và tham gia của cộng đồng trong các giai đoạn chuẩn bị, thực hiện, vận hành tiểu dự án, các vấn đề về giới và lồng ghép giới, nhóm dễ tổn thương, hộ bị ảnh hưởng nặng...

1

## Initial Environmental Examination (IEE)

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

- Tham vấn các vấn đề về môi trường, tác động môi trường tiềm năng của dự án bao gồm tác động lên môi trường tự nhiên và xã hội của khu vực dự án và những biện pháp giảm thiểu các tác động tiêu cực;
- Tham vấn các vấn đề về tái định cư, các tác động dự kiến, quyền lợi của người bị ảnh hưởng, các biện pháp giảm thiểu tối đa nhằm có ít tác động nhất đến người bị ảnh hưởng.
- Tham vấn nhu cầu đào tạo của các hộ bị ảnh hưởng.

### III. Ý kiến thảo luận

#### III.1. Các vấn đề về giới, tham gia cộng đồng

- Phụ nữ cho rằng trước khi triển khai thi công, cần biết rõ hơn giữa các công việc thì đâu công việc tốt hơn quyết định đi làm hay tại các công việc đó ở đâu các công việc thì phải
- Về việc thời gian thi công phải hợp với mùa vụ sản xuất để tránh ảnh hưởng đến mùa vụ, việc xây dựng

#### III.2. Các vấn đề về môi trường

- Về việc ảnh hưởng đến môi trường thì tại khu vực xây dựng và xây dựng lại
- Vấn đề an ninh trật tự xã hội địa phương → phải xây dựng trạm gác gác đi và phải lập chốt chốt
- Tránh tạo mất tiếng ồn thì tại các khu vực thi công
- Vấn đề chất lượng nước hoạt động sản xuất do ngày cấp nước
- Vấn đề các loại nước thải của công nhân
- Vấn đề chuyên chở liệu có thể ảnh hưởng đến môi trường, thì việc xây dựng lại

## Initial Environmental Examination (IEE)

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
Integrated Rural Development in Central Provinces Project – Additional Financing

### III.3. Các vấn đề về tái định cư và dân tộc thiểu số

Do việc thu hồi của Dự án là không lớn nên chính quyền địa phương và người dân đều nhất trí ủng hộ Dự án thực hiện tại địa phương, bên cạnh đó cần chú ý theo đúng Chính sách yêu cầu thi công trong mùa mưa để tránh bị ảnh hưởng tới quá trình thi công cho các hộ sản xuất nông nghiệp.

Các đền bù cho người dân tại Sản BAH làm theo khi nhà nước thi công.

Người dân có đền bù là người dân Raglay, Tỉnh Đà Nẵng và nhân viên tốt có thể tham gia và thực hiện tốt trong công tác xây dựng tái định cư.

### IV. Kết luận

Lãnh đạo địa phương và các đại diện y thực hiện Dự án tại địa phương.

Những vấn đề về môi trường sẽ ảnh hưởng đến người dân, Tuy nhiên, do lợi ích của DN mang lại nên các hộ dân đều nhất trí các phương án thi công.

Các tài sản, cây cối hoa màu, phải được kiểm kê và đền bù cho các hộ BAH.



**Initial Environmental Examination (IEE)**

Subproject of Upgrading and rehabilitating Cham canal and access road of the South main canal under  
 Nha Trinh – Lam Cam Irrigation Scheme, Ninh Thuan province  
 Integrated Rural Development in Central Provinces Project – Additional Financing

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**

**Độc lập – Tự do – Hạnh phúc**

*P. Phước Thái, ngày 07 tháng 08 năm 2014*

**DỰ ÁN PHÁT TRIỂN NÔNG THÔN TỔNG HỢP CÁC TỈNH MIỀN TRUNG –**

**KHOẢN VAY BỔ SUNG**

**DANH SÁCH ĐẠI BIỂU THAM DỰ CUỘC HỌP**

(Tham vấn cộng đồng về chính sách an toàn: Môi trường, Tái định cư, Giới và Dân tộc thiểu số)

Tên tiêu dự án: *Cải tạo nâng cấp kênh Chăm và đường giao thông quản lý kết hợp tưới tiêu thủy lợi kênh Chăm Nam thuộc hệ thống thủy lợi Nha Trinh - Lam Cam*  
 Xã: *Phước Thái*, huyện: *Ninh Phước*, tỉnh: *Ninh Thuận*

STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
1	Dương Sĩ Diễm Loan	Nữ	Như Bình	<i>Nyl</i>	Chấm
2	Khách Chí Sơn Ca	Nữ	"	<i>Ca</i>	"
3	Đông Chí Hòa	Nữ	"	<i>[Signature]</i>	"
4	Sĩ Chí Kim Loan	Nữ	"	<i>[Signature]</i>	"
5	Đông Chí Mai Sơn	Nữ	"	<i>[Signature]</i>	"
6	Khâu Chí Diễm Nhung	Nữ	"	<i>[Signature]</i>	"
7	Đông Chí Nguyệt Sáng	Nữ	"	<i>[Signature]</i>	"
8	Đông Chí Hòa	Nữ	Như Ngọc	<i>[Signature]</i>	"
9	Đông Chí Ba	Nữ	Hòa Trung	<i>[Signature]</i>	"
10	Lương Chí Diệu	Nữ	Chánh Hòa	<i>[Signature]</i>	Kiểm
11	Hà Chí Thu Bình	Nữ	Bà Chánh	<i>[Signature]</i>	"
12	Nguyễn Chí Hải Hòa	Nữ	"	<i>[Signature]</i>	"
13	Hương Thị Lợi	Nữ	Chánh Giao	<i>[Signature]</i>	"
14	Trần Thị Lệ	Nữ	Tà Dương	<i>[Signature]</i>	Raglai
15	Lộ Chí Nguyệt Tường	Nữ	Hòa Ni	<i>[Signature]</i>	Chấm
16	Hà Chí Nguyệt Xuân	Nữ	Hòa Trung	<i>[Signature]</i>	"
17	Đào Văn Kim Ngân	Nam	Hòa Ni	<i>[Signature]</i>	"

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STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
18	Hàn Văn Lộ	Nam	Hoài Ni	<i>[Signature]</i>	Chấm
19	Đông Năng Kiên	"	Hoài Trung	<i>[Signature]</i>	"
20	Khai Kiên	"	Hoài Ni	<i>[Signature]</i>	Chấm
21	Nguyễn Khắc Lữ	"	Đà Trĩng	<i>[Signature]</i>	Kiểm
22	Ja Kha Mạnh	"	Tà Dương	<i>[Signature]</i>	Raglau
23	Ngô Dũng	"	Thái Giao	<i>[Signature]</i>	Kiểm
24	/Đường Công Chấn	"	Hoài Nhung	<i>[Signature]</i>	Chấm
25	Hàn/Gián Kiên	"	Như Ngọc	<i>[Signature]</i>	"
26	/Đường Văn Minh	"	Như Ngọc	<i>[Signature]</i>	"
27	Lưu Văn Nhạc	"	Hoài Trung	<i>[Signature]</i>	"
28	Nguyễn Hữu Khôi	"	Thái Giao	<i>[Signature]</i>	Kiểm
29	Lô Anh Tuấn	"	Hoài Trung	<i>[Signature]</i>	Chấm
30	Nguyễn Ngọc Chiêu	"	Thái Hòa	<i>[Signature]</i>	Kiểm
31	/Đường Khoa	"	Hoài Ni	<i>[Signature]</i>	Chấm
32	Hàn Hồng Quý	"	Như Bình	<i>[Signature]</i>	"
33	Lưu Văn Mạnh	"	Hoài Nhung	<i>[Signature]</i>	"
34	Quảng Thành	"	Hoài Ni	<i>[Signature]</i>	"
35	Quảng An Nhiên	"	Như Bình	<i>[Signature]</i>	"
36	Đông Quang Anh	"	Hoài Trung	<i>[Signature]</i>	"
37	Hàn Vinh Kiên	"	Hoài Nhung	<i>[Signature]</i>	"
38	Đi Năng Bình	"	Tà Dương	<i>[Signature]</i>	Raglau
39	Nguyễn Ngọc Sa	"	Đà Trĩng	<i>[Signature]</i>	Kiểm
40	Lưu Năng Kiên	"	Hoài Nhung	<i>[Signature]</i>	Chấm
41	/Đường Hồng Lê Khôi	Nữ	Như Bình		"
42	Đông Thi/Thủy	"	Hoài Ni	<i>[Signature]</i>	

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STT	Họ và tên	Giới tính	Địa chỉ	Ký tên	Ghi chú
43	Lê Thị Hằng	Nam	Thới Bình	<i>Lê Thị Hằng</i>	Kinh
44	Lưu Sơn Kiều	"	Như Ngọc	<i>Lưu Sơn Kiều</i>	Chấn
45	Nguyễn Văn An	"	Hải Ninh		"
46	Quảng Đại Lâm	"	"		"
47	Trương Thị Mỹ Hằng	Nữ	"	<i>Trương Thị Mỹ Hằng</i>	"

Đại diện cộng đồng

*Hà Thị Thu Bông*

Đại diện UBND xã

**UBND XÃ PHƯỚC THÁI  
CHƯ TIỀN**  
*Lưu Văn Chiếu*

Đại diện Ban QLDA tỉnh

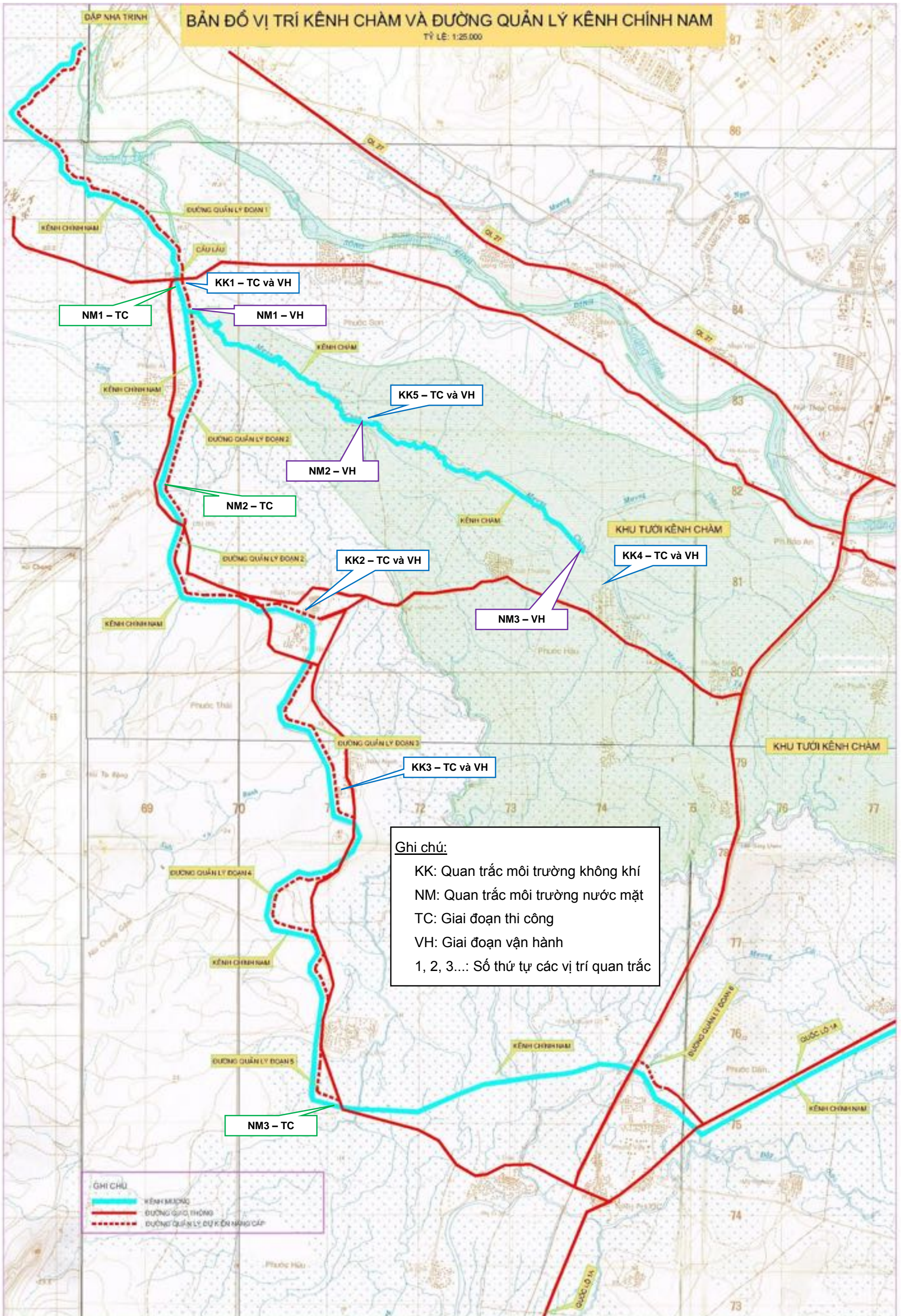
**BAN QUẢN LÝ DỰ ÁN  
PHÁT TRIỂN  
NÔNG THÔN TỔNG HỢP  
CÁC TỈNH  
MIỀN TRUNG**  
*Trần Ngọc Hùng*

Đại diện tư vấn

*Nguyễn Văn Lâm  
Vũ Hoàng Lâm*

*Trần Ngọc Hùng*

**ANNEX 2: LAYOUT OF LOCATIONS OF MONITORING POINTS FOR CONSTRUCTION AND OPERATION PHASES**



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**ANNEX 3: PHOTOS OF FIELD TRIP**



**Photo 1.** Cham canal head close to Management Board Building (Monitoring point NM1-VH).



**Photo 2.** Surface water observation point at Southern main canal, Thanh Duc hamlet, Phuoc Huu commune (NM3-TC).



**Photo 3.** Lau bridge, Phuoc Thien 3 hamlet (KK1 – TC and VH).



**Photo 4.** The middle of Cham canal, adjacent to the bridge on the inter-communal road from Phuoc Son to Phuoc Hau (NM2 - VH).



**Photo 5.** Overflow location on the main Southern canal, intersection point with Lanh Ra



**Photo 6.** Water location on the main Southern canal at Lau bridge (NM1 - TC).

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**Photo 7.** Domestic waste on the management road of main Southern canal



**Photo 8.** Local people raised their opinions in public consultation at meeting hall of Phuoc Hau commune



**Photo 9.** Public consultation at meeting hall of Phuoc Son commune



**Photo 10.** Public consultation at meeting hall of Phuoc Thai commune

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### **ANNEX 4: DATA/MATERIAL SOURCE FOR PREPARATION OF IEE**

- a. Documents for preparation of the sub-project “Rehabilitation and upgrading Cham canal and rural road in combination with the management of Southern main canal under irrigation system in Nha Trinh – Lam Cam”
- b. Draft report on water shut-off plan for construction of the two sub-projects for the 2<sup>nd</sup> stage, Integrated Rural Development Sector Project in the central provinces, Ninh Thuan province.
- c. Phuoc Son Commune People’s Committee, Report on socio-economic status and national defence - security in 2013 and plan for 2014.
- d. Phuoc Thai Commune People’s Committee, Report on socio-economic status and national defence - security in 2013 and plan for 2014.
- e. Phuoc Huu Commune People’s Committee, Report on socio-economic status and national defence - security in 2013 and plan for 2014.
- f. Phuoc Hau Commune People’s Committee, Report on socio-economic status and national defence - security in 2013 and plan for 2014.
- g. Statistical data on population, socio-economic status of Phuoc Thai, Phuoc Son and Phuoc Hau communes provided by the Design Consultant.
- h. Department of Waste Management and Environment Promotion- Vietnam Environment Administration, Symposium report: Summarize and evaluate implementation of Dong Nai river project in 2013 and make plan for 2014 in 11 cities and provinces of Dong Nai river system basin (Ninh Thuan province).

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**Annex 5: Environmental monitoring forms**Environmental Compliance Monitoring Form for Construction PackagePart A: General Project Information

Subproject Name: \_\_\_\_\_

SIR Code: \_\_\_\_\_ Subproject Package #: \_\_\_\_\_ Activity Sector: \_\_\_\_\_

Province: \_\_\_\_\_ Districts: \_\_\_\_\_

Design and Supervision Consultant Firm: \_\_\_\_\_

Construction Company Name: \_\_\_\_\_ Contract Date: \_\_\_\_\_

Contract Amount: \_\_\_\_\_ Contract Duration (days) \_\_\_\_\_

Person Responsible: \_\_\_\_\_ Phone \_\_\_\_\_

PPMU EMO: \_\_\_\_\_ Phone \_\_\_\_\_

Part B: Monitoring checklist**Performance Indicator 1. Design and Preparations**

The PPMU to complete 1-4 in conjunction with the subproject design consultant at the time the project is tendered.

Date of Monitoring: \_\_\_\_\_

	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
1. Have all UXO been cleared prior to commencement of construction?			
2. Does the subproject design meet applicable engineering safety and public health standards?			
3. Have the resettlement provisions been disclosed to the affected communities and compensation made to affected persons or households?			
4. For the applicable subproject type:			
a. Roads, embankments, irrigation works and coastal protection: does the design provide cross drainage to prevent flooding?			
b. Markets: does the design provide washing facilities and toilets in the market area?			

The construction Supervision consultant (CSC) to complete 5-9 with the PPMU and construction contractor at the time of start-up. Date of Monitoring: \_\_\_\_\_

	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
5. Has the contractor posted a public notice regarding the nature, extent and cost of the project?			
6. Are locations for mixing plants sufficiently distant from houses, schools and hospitals?			
7. Are agreements in place with owners for temporary use of land for worker camps and construction yards?			
8. Have spoil disposal sites been selected in consultation with local authorities?			
9. Are official permits on record for quarry sites and borrow pits?			
<b>Score (1-9; 9 total)</b>			(%)

**Performance Indicator 2. Worker Provisions**

The CSC to complete 10-15 in conjunction with the PPMU and construction contractor following commencement of construction. Date of Monitoring: \_\_\_\_\_

	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
10. Were local authorities consulted in the planning for the location of construction worker housing?			
11. Are supervisors or other site personnel trained in basic first aid emergency response measures?			
12. Are first aid kits readily available to workers at the job site along with instructions for use?			
13. Has the contractor or Inspector from the Department of Health undertaken an awareness program for communicable			



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diseases/HIV-AIDS?			
14. Has the contractor provided safety equipment (hard hats, ear plugs, dust masks, safety boots and glasses) to workers and training in use?			
15. Are construction camps equipped with adequate water supply, sanitary toilets, washing facilities and facilities for waste collection and storage?			
<b>Score (10-15; 6 total)</b>			(%)

**Performance Indicator 3. Biodiversity**

The CSC should complete 16-20 in conjunction with the PPMU and construction contractor following commencement of construction. Date of Monitoring: \_\_\_\_\_

	Yes	No	Remarks
16. Does the project avoid encroaching on natural forests or wetlands?			
17. Does the project avoid adverse effects on flow of natural streams and water quality?			
18. Are worker camps located outside of forested areas and has the contractor restricted access of workers to forests, fishing and hunting?			
19. Does the contractor obtain fill materials only from pre-existing quarries, or from borrow pits within the strict limits of the construction zone?			
20. For irrigation sector projects, are effects on agricultural biodiversity limited through use of integrated pest management?			
<b>Score (16-20; 5 total)</b>			(%)

**Performance Indicator 4. Community Based Monitoring**

The CSC to complete 21 and 22 in conjunction with the PPMU and construction contractor following commencement of construction. Date of Monitoring: \_\_\_\_\_

	Yes	No	Remarks
21. Has the contractor posted a public notice regarding complaints from the community?			
22. Has there been a public consultation regarding construction, environmental impact, and the community complaints system?			
<b>Score (21-22; 2 total)</b>			(%)

Outcome of Public Consultation:

Date: \_\_\_\_\_ Location: \_\_\_\_\_

Topics covered in presentation: \_\_\_\_\_  
 \_\_\_\_\_

Comments from Attendees:

**Performance Indicator 5. Community Values and Safety**

Items 23 – 34 should be inspected quarterly. Date of Monitoring: \_\_\_\_\_

	Yes	No	Remarks
23. Is temporary access provided to adjacent properties as needed?			
24. Is permanent access to adjacent properties reinstated on completion of a segment of work?			
25. Are construction hours adjusted around houses, hospitals and schools to minimize disturbance?			
26. Does the contractor limit the scope of construction in progress to minimize community impacts?			
27. Are physical impacts on public infrastructure and service disruption minimized?			
28. Are materials transported on approved haul routes?			
29. Are construction equipments maintained in good condition?			
30. Do vehicles operate within legal speed limits?			
31. Are material loads traveling on public routes covered?			
32. Is dust suppressed by watering exposed surfaces?			

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33. Has the contractor installed signs and lighting in vicinity of works on public roads?			
34. Is access to the construction site restricted to the public?			
<b>Score (23-34; 12 total)</b>			(%)

#### **Performance Indicator 6. Hydrology/Water Pollution**

Items 35 – 42 should be inspected quarterly. Date of Monitoring: \_\_\_\_\_

	Yes	No	Remarks
35. Are construction camps maintained in a clean and hygienic condition?			
36. Are oil, fuel and chemicals stored in enclosed areas (dyked or covered)?			
37. Is discharge of waste water into water bodies used for water supply avoided?			
38. Is clearing activity suspended during rains?			
39. Does the contractor prevent discharge of concrete trucks to water ways?			
40. Have existing drainage patterns been maintained during construction?			
41. Are areas of standing water in the construction area drained and backfilled?			
42. Are sediment controls installed upslope of waterways?			
<b>Score (35-42; 8 total)</b>			(%)

#### **Performance Indicator 7. Project Completion**

Items 43 – 49 should be inspected prior to finalizing the construction works.

Date of Monitoring: \_\_\_\_\_

	Yes	No	Remarks
43. Have drainage fixtures, curbs, road shoulders and ditch slopes been finished out to prevent hazard to the public during use?			
44. Are ground surfaces in the project area graded to prevent water from collecting?			
45. Have all construction debris, tree cuttings, excess dirt, rubble and scrap been removed from the construction zone?			
46. Have all pits been filled in and graded to drain, underground tanks (including septic tanks) removed and holes backfilled?			
47. Are all waste products removed from the construction site, equipment yards and worker camps, including oil waste, scrap materials and equipment, building materials and domestic waste?			
48. Have all points of access (drives, walks) and utilities (water supply, power, communications) to public and private property been restored to original condition?			
49. Have all complaints by the local community and individuals been resolved by the Contractor?			
<b>Score (43-49; 7 total)</b>			(%)

#### Performance Tracking

Performance Tracking consists of three sections:

- a. Performance Follow-up, where performance shortfalls noted in prior monitoring are listed and checked against current monitoring results.
- b. Community Complaints, where issues raised by the affected community are registered, tracked and outcomes recorded.
- c. Performance Indicator Results, where environmental performance against indicators are recorded.

#### **Section 1: Performance Follow-up**

Column 1	Column 2	Column 3	Column 4	Column 5
Performance variable (#) / Date Observed	Reason for negative rating	Was agency responsible notified? / Date	Was problem corrected before next monitoring?	Was performance indicator adjusted?

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**Section 2: Community Complaints**

Column 1	Column 2	Column 3	Column 4	Column 5
Person Registering Complaint / Date	Summary of Complaint	Was agency responsible notified? / Date	Was problem corrected before next monitoring?	Was Person satisfied with Action?

**Section 3: Performance Indicator Results**

Project Name: \_\_\_\_\_ SIR No.: \_\_\_\_\_ Package #:  
 #: \_\_\_\_\_ Province: \_\_\_\_\_  
 Project Start Date: \_\_\_\_\_

Recording Date:	Startup	Rev.	Q1	Q2	Q3	Q4	Average	Completion	Rev.	Final
1. Design and Preparations										
2. Worker Provisions										
3. Biodiversity										
4. Community Based Monitoring										
5. Community Values / Safety										
6. Hydrology/Water Pollution										
7. Project Completion										

Submittal Date: \_\_\_\_\_ For Calendar Quarter: \_\_\_\_\_

Inspector: \_\_\_\_\_

(Signature)

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**Annex 6: Environmental Criteria in Bidding Document for Construction Contractor**

POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE
Erosion or sedimentation caused during clearing, material exploitation or earthworks.	<ul style="list-style-type: none"> <li>- The dredged organic soil which could not be used for levelling and backfilling will be transported immediately to the temporary disposal site during the construction of the canal and management road.</li> <li>- Conduct rolling and compacting in parallel with earth-filling, especially the aggregated section of Cham Canal bank.</li> <li>- Gather material, soil far from overflows of the canal which could cause sedimentation.</li> <li>- Exploit neatly in borrow pit of Lanh Ra lake.</li> </ul>
Pollution in the flow and aquatic environment due to waste soil, wastewater or grease of construction machinery	<ul style="list-style-type: none"> <li>- Gather fuel and oil in the place with high concrete ground and proof.</li> <li>- Avoid spillage when filling fuel, replacing oil or maintaining machines.</li> <li>- Area for machinery repair and maintenance should be located far away from the water sources.</li> <li>- Waste oil and oil rag should be collected for reuse or proper treatment.</li> <li>- The locations for temporary gathering of soil should be arranged to avoid erosion to Southern Main Canal.</li> <li>- Regularly tidy up the construction site. Do not drain waste water directly to the Southern Main Canal.</li> </ul>
Soil is contaminated by spillage of oil or other chemical substances	<ul style="list-style-type: none"> <li>- Gather fuel and oil in the place with high concrete ground and proof.</li> <li>- Avoid spillage when filling fuel, replacing oil or maintaining machines.</li> <li>- Waste oil and oil rag should be collected for reuse or proper treatment.</li> <li>- Gather organic soil in the temporary gathering zone. Regularly tidy up the construction site.</li> </ul>
Impacts from temporary storage site for construction materials.	<ul style="list-style-type: none"> <li>- Reasonably arrange the locations for materials gathering and gather materials neatly along the construction road.</li> <li>- Minimize the spillage of materials outside the construction boundary.</li> <li>- Inform households in case of temporary acquisition for material gathering.</li> <li>- For materials requiring careful storage such as cement, iron should be placed in high locations and covered by canvas.</li> </ul>
Air pollution due to dust and exhaust fume.	<ul style="list-style-type: none"> <li>- Machines and devices should be provided with registration certificates on technical safety and environmental protection in accordance with Decision No. 35/2005/QD-BGTVT</li> <li>- Cover delivery trucks with canvas</li> <li>- Regularly conduct machinery maintenance to guarantee proper operation.</li> <li>- Volume of transported materials should not exceed the load capacity of truck.</li> <li>- Set speed limit for trucks when crossing the residential area and entering the construction site to limit the dust stirring.</li> <li>- Sprinkle water during hot and dry time in the areas subject to dust generation.</li> </ul>
Noise caused by construction equipments, machineries and transportation vehicles	<ul style="list-style-type: none"> <li>- Regularly conduct maintenance for machines, devices and transport trucks.</li> <li>- Consult the authority and people to select appropriate transport routes to avoid crossing residential areas if possible.</li> <li>- Reasonably coordinate the number of trucks, transport time and speed limit</li> </ul>

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE
	<p>when crossing the residential areas.</p> <ul style="list-style-type: none"> <li>- Only implement activities causing noise during day-time.</li> </ul>
<p>Changes caused to traffic safety/activities, business activities and accessibility of asset</p>	<ul style="list-style-type: none"> <li>- Consult the authority and people to select appropriate transport routes.</li> <li>- Drivers should observe Transportation Law.</li> <li>- Place warning boards and signals in construction sites and where the safety is at risk.</li> <li>- Neatly place materials and construction machines along the road and canal.</li> <li>- Reasonably implement construction activities. Inform local authority and people in project communes about construction schedule and time.</li> <li>- Install lighting system in case of construction at night.</li> </ul>
<p>Issues related to waste generated from construction activities</p>	<ul style="list-style-type: none"> <li>- Classify waste generated and make full use of waste soil or stone.</li> <li>- Sludge will be dried up for reuse in the area not into the wind; far from residential area; and not in the canal slope.</li> <li>- The remaining sludge after dried will be transported to the designated dumping site.</li> <li>- Waste transportation truck must covered with canvas and ensure there is no waste spill during transportation.</li> <li>- Construction reusable wastes such as cement packs, scrap iron, wood pieces will be regularly collected and gathered for reuse or for sale.</li> </ul>
<p>Effects on public infrastructure works like communication system, transportation roads and drainage system, etc</p>	<ul style="list-style-type: none"> <li>- Loading capacity of existing roads, bridges and culverts shouldn't be exceeded during transporting materials.</li> <li>- Examine and confirm the status of feeder roads in Phuoc Son, Phuoc Thai, Phuoc Hau and Phuoc Thuan communes before the construction and commit to return to initial conditions in case of damages (if any).</li> <li>- Avoid causing impacts on water pipelines under the feeder roads of Southern Main Canal.</li> </ul>
<p>Impact due to wastewater and workers' waste.</p>	<ul style="list-style-type: none"> <li>- Rent houses for workers to reduce the number of workers living outside the worker camp. Domestic waste will be collected and treated with those from the boarding households.</li> <li>- In the workers camp, the contractor should build hygienic toilets and bathrooms (separately for male and female) and arrange kitchen for the use of workers.</li> <li>- Provide dust bins in worker camps (02 bins per camp). Remind workers not to throw away domestic waste to surrounding area (Southern Main Canal and Cham Canal)</li> <li>- Collect all domestic waste and transport to the dumpsite of the residential area.</li> <li>- Reasonably allocate domestic water drains and seepage pits in the construction site and regularly cleanse the ditches to avoid congestion</li> <li>- Prioritize hiring local workers to reduce the number of workers living in camps.</li> <li>- Dismantle and clear all temporary works after completing the construction.</li> </ul>
<p>Social impacts due to presence of workers in the area</p>	<ul style="list-style-type: none"> <li>- Register temporary residence for workers from other places with police department under Phuoc Son, Phuoc Hau, Phuoc Thai and Phuoc Huu communes to coordinate management.</li> <li>- Consult village leaders of Huu Duc, Nhu Ngoc, Hoai Trung, Hoai Ni, Chat Thuong, Hieu Le etc villages regarding arranging houses for workers and local</li> </ul>

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POTENTIAL IMPACT/ISSUE	MITIGATION MEASURE
	<p>regulations and customs.</p> <ul style="list-style-type: none"> <li>- Remind workers to avoid conflicts with local people and follow a healthy lifestyle.</li> <li>- Propagation of HIV / AIDS and other sexually transmitted diseases; raise awareness about social evils like gambling, theft, etc.</li> <li>- Impose labor regulations, curfew hours and request for staff and workers' strict observation.</li> <li>- Receive community feedback regularly and closely coordinate with subproject communes during the construction process.</li> </ul>
Risks on health or safety toward people and workers	<ul style="list-style-type: none"> <li>- Recruit workers within working age and in good health.</li> <li>- Equip protection clothing for workers as masks, shoes, hats, gloves, clothing ... and remind them to use while working.</li> <li>- Equip first-aid kits, fire extinguishers in camp areas, fuel storage.</li> <li>- Raise workers' awareness on working safety.</li> <li>- Set up restriction signs on the construction site; warning signs, barriers in areas prone to insecurity such as deep holes/pits, narrow sections etc</li> </ul>
Risks of natural calamity	<ul style="list-style-type: none"> <li>- Prepare plans to cope with the risks that may occur as heavy rains, storms and floods which can cause landslide and flood works.</li> </ul>
Impacts on agriculture production due to temporary water cut for construction of Cham Canal	<ul style="list-style-type: none"> <li>- Arrange labors and resources to guarantee the construction progress in line with schedule of water cut proposed by PMU and approved by DARD and PPC in order to avoid lengthening construction activities and influencing production plan for next summer-autumn and following crops.</li> <li>- Notify local community about time of water cut so that they can arrange their production.</li> </ul>