

**PREPARATION OF ENVIRONMENTAL AND  
SOCIAL MANAGEMENT FRAMEWORK FOR  
THE SOUTH EAST DISASTER RISK  
MANAGEMENT (SEA DRM) PROJECT FOR  
CAMBODIA**

**PRELIMINARY ENVIRONMENTAL AND SOCIAL  
ASSESSMENT**

***DRAFT***

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## LIST OF ACRONYMS

<b>ADB</b>	Asian Development Bank
<b>CBO</b>	Community Based Organizations
<b>CSO</b>	Civil Society Organizations
<b>CWCC</b>	Commune Women and Children Committee
<b>DIA</b>	Designated Implementing Agency
<b>DRD</b>	Department of Rural Development
<b>DWCC</b>	District Women and Children Committee
<b>ECoP</b>	Environmental Code of Practice
<b>ESMF</b>	Environmental and Social Management Framework
<b>ESMP</b>	Environmental and Social Management Plan
<b>FPIC</b>	Free, Prior and Informed Consultation
<b>GDR</b>	General Department of Resettlement
<b>IDA</b>	International Development Association
<b>IP</b>	Indigenous Peoples
<b>IPDP</b>	Indigenous Peoples Development Plan
<b>IPPF</b>	Indigenous Peoples Planning Framework
<b>IRC</b>	Inter-Ministerial Resettlement Committee
<b>JICA</b>	Japan International Cooperation Agency
<b>MARD</b>	Ministry of Agriculture and Rural Development
<b>MEF</b>	Ministry of Economy and Finance
<b>MND</b>	Ministry of National Defence
<b>MOE</b>	Ministry of Environment
<b>MOWRAM</b>	Ministry of Water Resources and Meteorology
<b>RD</b>	Ministry of Rural Development
<b>NCDD</b>	National Committee for Sub-National Democratic Development
<b>NGO</b>	Non-Government Organizations
<b>PAP</b>	Project Affected Persons
<b>PDRD</b>	Provincial Department of Rural Development
<b>PESA</b>	Preliminary Environmental and Social Assessment
<b>PMO</b>	Project Management Office
<b>RAP</b>	Resettlement Action Plan
<b>RGC</b>	Royal Government of Cambodia
<b>ROW</b>	Right of Way
<b>RPF</b>	Resettlement Policy Framework
<b>SEA DRM</b>	South East Asia Disaster Risk Management
<b>SEO</b>	Social and Environmental Safeguard Office
<b>SMART</b>	Specific, Measurable, Achievable, Relevant and Time-bound
<b>TA</b>	Technical Assistance
<b>USAID</b>	United States Agency for International Development
<b>WASH</b>	Water Supply, Sanitation and Hygiene

## 1.0 INTRODUCTION

The World Bank Group (the Bank) is considering funding the South East Asia Disaster Risk Management (SEA DRM) Project (hereafter referred to as the “Project”) to be implemented in Cambodia, Lao PDR and Myanmar. The Bank is proposing to fund the USD 60 million project through an International Development Association (IDA) loan. Each of the SEA DRM Project borrower countries are proposing a series of discrete sub-projects which will be assessed using several criteria including a review of environmental and social safeguards policies and instruments that may be triggered and technical, institutional, economic, and financial issues facing the proposed sub-projects.

The Project includes three components:

**Component 1: Flood Risk Management Investments** are intended to assist Cambodia, Lao PDR and Myanmar governments to better prepare for and manage flood risks through investments in rehabilitation of critical infrastructure and support for nonstructural investments for disaster and climate resilience in each of the three SEA countries.

**Component 2: Disaster Risk Assessment and Financing** through support for comprehensive data collection and knowledge management to support disaster risk management information systems in aid of financial protection strategies and modelling.

**Component 3: Contingent Emergency Response Component** to support rapid response following a Government-declared crisis or emergency.

For purposes of the present environmental and social management framework (ESMF), the main emphasis is on the discussion of safeguards for high impact investments in rural access road rehabilitation. Specifically, the focus will be on Component 1 – resilient rural infrastructure, including civil engineering and roadworks, and capacity development for the Royal Government of Cambodia (RGC) Ministry of Rural Development (MRD), which is the designated implementing agency (DIA). There is a possibility that hydromet and meteorological forecasting services will be provided through the Ministry of Water Resources and Meteorology (MOWRAM), with the use of grant funding.

The Resilient Rural Infrastructure component will focus on strengthening the resilience of rural road corridors mainly through the strengthening of rural access roads and surrounding communities. By enhancing the resilience of key rural access roads that link local communities to regional markets, the project intends to deepen regional economic corridors and strengthen the competitiveness of rural communities. Road strengthening will take place in six provinces along the Mekong and Tonlé Sap basins, including Steung Treng, Kratié, Kampong Cham, Tboung Khmum, Siem Reap and Kandal. High-impact investments will be selected using a set of criteria, including (i) the vulnerability of the road to flooding; (ii) cost of roadworks; (iii) poverty reduction impact and number of beneficiaries; (iv) importance of road for trade and market access; (v) importance of the road for access to safe areas on higher ground, emergency evacuation and flood relief efforts. This will also help MRD to develop its rural road asset inventory, which will be used to inform future investment decisions for upgrading and operation and maintenance (O&M) in the future.

The Preliminary Environmental and Social Assessment (PESA) provides background information in terms of the environmental and social context of the proposed sub-projects. The PESA provides insight into environmental vulnerabilities and risks associated with natural disasters, potential environmental and social impacts (i.e. positive and adverse effects), risks and issues. The PESA provides information to guide decision-makers about alternative sub-projects, including design

features and/or mitigation measures. The PESA provides guidance on culturally-appropriate and participative consultation methods for engaging with different populations (i.e., ethnic minorities and vulnerable groups – women and female/male youth and children, men, the elderly and disabled, etc.). The PESA also documents findings of the consultation, engagement and information disclosure process with national and local government officials, stakeholder community (i.e., civil society organizations including non-government organizations, community-based organizations), various publics and different populations.

The PESA provides the contextual and, where possible, the factual basis for guiding and informing development of the subsequent Environmental and Social Management Framework (ESMF) with its accompanying safeguards instruments (i.e. Indigenous Peoples Planning Framework [IPPF] and Resettlement Policy Framework [RPF]) and measures, including an Environmental Management Plan (EMP), Abbreviated Resettlement Action Plan (ARAP) or Resettlement Action Plan (RAP), and Indigenous Peoples Development Plan (IPDP), among others.

## **2.0 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS**

The Cambodian road network covers about 35,500 km, including approximately 4,000 km of national roads, 3,500 km of provincial roads, and 28,000 km of rural and strategic roads (ADB, 2002). The roads have a significant number of bridges, about 4,000 on the primary roads alone. Years of war have left the Cambodian road network in a very poor state, and large floods in 1996, 2000 and 2013 caused extensive damage. A road condition survey in 2002 revealed that 28% of the network was in good or fair condition, 35% in poor condition, 28% in bad condition, and 6% under reconstruction or rehabilitation (ADB, 2002).

Most of the road construction activities in Cambodia are geared towards rehabilitation of the existing road network, including repair or replacement of existing bridges. Spatial planning and improved alignment has not been a priority and little attention was paid to improved management of hydrology and hydraulics of the floodplain. In 2006 a masterplan for road development was prepared (JICA, 2006). The masterplan does not focus on the interaction between roads and floods or possible impacts of roads on the floodplain system.

Rehabilitating and strengthening the resilience of rural infrastructure is considered a priority investment. The Ministry of Economy and Finance (MEF) have advised that infrastructure investments under the SEA DRM and, in particular, the Cambodia SEA DRM Project should focus on the rehabilitation of rural roads. Consequently, the RGC has requested assistance from the World Bank to fund the repair and rehabilitation of vital road segments in provinces along the Mekong and Tonlé Sap to withstand regular flood events. Such rehabilitation of roadworks could help reduce recurring repair and reconstruction costs.

While the type of proposed sub-project investments is known (i.e. rehabilitation of secondary provincial rural roads), the specific locations and engineering designs are not known, therefore a framework approach will be used. The South East Asia Disaster Risk Management (SEA DRM) Program was given a safeguards Category “A” (OP 4.01), largely because the specific scope and scale of the investments were unknown, and because Myanmar is one of the three countries. Although site-specific locations for the proposed Cambodia SEA DRM sub-projects are unknown, the

nature of the investments is now known and they are unlikely to have any significant environmental and social impacts, and would be better suited to a Category “B” classification.<sup>1</sup>

The following province-by-province sections provide a glimpse of the environmental and socio-cultural conditions in each of the six provinces where the MRD have proposed to rehabilitate rural roads. Each province has its own rich and diverse ethno-cultural characteristics which have guided its development. In terms of the presence of indigenous people (IP), the diversity of its ethnic groups is no different. It is difficult to provide reliable demographic and ethnographic information on province-by-province IP due to its recent history of genocide, war, massive migration, and forced resettlement. However, the 1998 Cambodian Population Census identified 17 different indigenous groups and Table 1 provides a summary list of ethnic groups in the six proposed sub-project provinces. Based on spoken language, the census estimated the indigenous population at about 101,000 people or 0.9% of the then total population of 11.4 million. Empirical research, however, suggests that the figure is most likely underestimated and could be as high as 190,000 people or 1.4% of Cambodia’s population.

**Table 1 Ethnic groups in the sub-project area by province.**

Ethnic Groups	Provinces					
	Steung Treng	Kratié	Kampong Cham	Siem Reap	Kandal	Tboung Khmum
Khmer	✓	✓	✓	✓	✓	✓
Laotian	✓	-	-	✓	-	-
Kavet	✓	-	-	-	-	-
Kuoy	✓	✓	-	-	-	-
Vietnamese	✓	✓	✓	✓	✓	-
Chinese	✓	-	✓	✓	-	-
Phnong	✓	✓	-	-	-	✓
Lun	✓	-	-	-	-	-
Bunong	-	✓	-	-	-	-
Mil	-	✓	-	-	-	-
Khonh	-	✓	-	-	-	-
Kraol	-	✓	-	-	-	-
Steang	-	✓	-	-	-	-
Stieng	-	-	✓	-	-	-
Thamoun	-	✓	-	-	-	-
Brao	✓	-	-	-	-	-
Kreung	✓	-	-	-	-	-
Cham	✓	-	✓	✓	✓	-
Samre	-	-	-	✓	-	-

<sup>1</sup> Category “B” classification is applied to sub-projects which have the potential for adverse environmental impacts on human populations or environmentally important areas (i.e. wetlands, forests, grasslands, and other natural habitats) but are less adverse than those of Category “A” projects. These impacts are site-specific, few if any of them are irreversible and, in most cases, mitigation measures can be designed. Category “B” sub-projects are guided by applicable World Bank safeguard instruments similar to Category “A” but with narrower scope.

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Ethnic Groups	Provinces					
	Steung Treng	Kratié	Kampong Cham	Siem Reap	Kandal	Tboung Khmum
Tum Puon	✓	-	-	-	-	-
Kachock	✓	-	-	-	-	-
Jarai	✓	-	-	-	-	-
Thai	✓	-	-	-	-	-

The section below provides province-by-province background information related to the environmental and social context for the proposed sub-projects located in six provinces of Cambodia. At time of writing, the MRD provided a long list of over seventy proposed sub-projects in six provinces. However, the Cambodia SEA DRM Project will only be able to rehabilitate a few of the proposed sub-projects in each province and without specific locations identified for roadworks rehabilitation, it is only possible to provide generalized contextual information on a province-by-province basis.

## 2.1 STEUNG TRENG PROVINCE

**Environment** - Steung Treng is a north-eastern province of Cambodia. It shares borders with Ratanakiri to the east, Preah Vihear to the west, and Kratié and Kampong Thom to the south and Lao PDR to the north. It encompasses an area of 12,061 square kilometers (km<sup>2</sup>) with coordinates 13°31' N and 105°57' E. The province is subdivided into five districts, including one municipality, comprising 4 quarters, 30 communes and 128 villages. The five districts are Sesan, Siem Bouk, Siem Pang, Thala Barivat, and Stung Treng. The provincial capital is Steung Treng, which is located to the west and close to the joining of the Mekong and Se Kong rivers. Steung Treng province is characterized by its extensive forests, scattered islands, plateaus and mountainous areas. Most significantly, the province is positioned at the intersection of four rivers: the Mekong, Se Kong, Se San, and Srea Pok. The rivers, characterized by deep pools, rocky beds and sandy islands create a rich aquatic habitat that serves as spawning and breeding grounds for a diversity of fish species and other animals. Steung Treng's land can be divided into five categories, some of which may overlap: forest lands (928,000 hectares [ha]), agricultural lands (126,8336 ha), residential lands (103,217 ha), roads (2,400 ha), river, streams, and canals (41,094 ha), and fallow lands (13,200 ha)<sup>2</sup>. There are several protected areas found in Steung Treng, including a 37 kilometer stretch of the Mekong River (5 km north of Steung Treng city and 3 km south of Lao PDR) and an area of 14,600 ha as part of a Ramsar Site 3. Approximately 13,000 people are living at the Ramsar site. Another important protected area in the province is Virachey Natural Park (332,500 ha) which crosses into Ratanakiri province.

**Climate and Extreme Weather** - Steung Treng's climate is governed by monsoons. The annual temperatures range from 17° to 39° Celsius (C). The province's climate can be divided into three seasons: cool season (November - March), hot season (March - May), and rainy season (May - October). Rainfall can range from 1,800 millimeters (mm) to 2,042 mm per year. Both flooding, especially flash flooding, and drought are chronic events in Steung Treng. Although flooding is

<sup>2</sup> <http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/10.Cambodia-Baseline-Assessment-Perspective28Jan.pdf>

<sup>3</sup> <http://www.ramsar.org/sites-countries/the-ramsar-sites>

relatively minor compared to other provinces, these events adversely impact the livelihoods of the people, especially in relation to their crop production, loss of livestock, health and infrastructure. Damage and reparation costs due to floods in 2000 to 2002 ranged from 817,400 USD to 337,240 USD<sup>4</sup>.

**Social** - The total population of Steung Treng province is 111,734 people, constituting 0.7% of Cambodia's population. The population has a low population density of 10 people per square kilometer (ppl/km<sup>2</sup>) and is divided between 50.5% female and 49.5% male. As the population density is low and the province is endowed with natural resources, the immigration rate is very high. Almost twenty percent (19.4%) of the province's current population has migrated from outside the province. Fourteen (14) ethnic groups are currently living in the province. These ethnic groups include: Khmer (64,271 people), Laotian (4,928 people), Kavet (2,064 people), Kuoy (1,588 people), Vietnamese (674 people), Chinese (458 people), Phnong (284 people), Lun (359 people), Brao (345 people), Kreung (210 people), Chams (85 people), Tum Puon (18 people), Kachock (14 people), and Jarai (5 people). Despite the appreciable ethnic diversity, livelihood strategies are comparatively similar. Livelihood strategies include rice farming, fishing, animal husbandry, and gathering non-timber forest products (NTFPs). A majority (85%) of the population, live in rural areas of the province, and depend on agricultural farming for their livelihoods. Steung Treng is one of the poorer provinces in Cambodia with flooding, drought and over-extraction of natural resources. The province's economy is largely based on the agricultural sector. Plantations such as rubber, timber and cashew nuts are located across the province. Other key industries in the province include livestock rearing, fishing and sericulture. Developing the tourism sector, efficient infrastructure, road accessibility, and trade will give rise to opportunities for economic growth and poverty reduction.

As discussed in Annex 2, a number of issues and concerns were relayed during community consultation in relation to the environment, natural resources conservation and degradation of land which may occur as a result of sub-project implementation

## 2.2 KRATIÉ PROVINCE

**Environment** - Kratié is a province located in the northeast of Cambodia. The province encompasses an area of 11,094 km<sup>2</sup> with coordinates of 12°29' N and 106°1' E. Kratié borders the provinces of Stung Treng to the north, Mondulhiri to the east, Kampong Thom and Kampong Cham to the west, and Tboung Khmum and Viet Nam to the south. The province is subdivided into five districts and one city, Chhloung, Preaek Prasab, Sambour, Snuol, Chitr Borie, and Krong Kratié. The provincial capital is Kratié, located in Kratié District. The Mekong River bisects the province from north to south resulting in narrow floodplains. Most of the province is covered in dense forests, though some are more open and generally consist of deciduous trees that lose their leaves during the dry season. The province also consists of undulating uplands and lowlands. Land use patterns in the upland area of Kratié province consists of forest, grazing, shrub and farming land. Due to economic development pressures, the use and control of the forests have significantly altered. Forest lands have been converted into plantations and rice paddies by farmers. Agriculture in Kratié, while not as abundant as in other provinces, continues to grow and produces maize, cassava, sesame, sweet potato, sugarcane, soya beans, and more<sup>5</sup>. There are two protected areas in Kratié province: Keo Seima

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<sup>4</sup> <https://portals.iucn.org/library/efiles/documents/2006-016.pdf>

<sup>5</sup> [http://pdf.usaid.gov/pdf\\_docs/Pnadr800.pdf](http://pdf.usaid.gov/pdf_docs/Pnadr800.pdf)

Wildlife Sanctuary and Snoul Wildlife Sanctuary. The Keo Seima Wildlife Sanctuary encompasses over 298,160 ha, although more than half is within Mondulkiri province. Adjacent to the Keo Seima Wildlife Sanctuary is the Snoul Wildlife Sanctuary. The Snoul Wildlife Sanctuary in Kratié encompasses 61,943 ha. In 2008, a 55 kilometer stretch of the Mekong River in Kratié and Stung Treng provinces, was proposed as a “special management site” due to its high biodiversity value. Most recently, in April 2016, the Cambodian government proposed to register five new protected forests, amounting to a total of about 950,000 ha. One of the protected areas would include the Prey Long forest residing in Kratié, Kompong Thom, and Stung Treng provinces.

**Climate and Extreme Weather** - Kratié province follows a monsoonal climate, with a cool season from November to March, a hot season from March to May, and a rainy season from May to October. Temperatures may range from 22° Celsius (C) to 36° C annually. The province’s climate has three seasons: a cool season from November to March (22° - 28°C), a hot season from March to May (28° - 36°C), and a rainy season from May to October (24° - 32°C, with humidity up to 90%). The annual flow of the Mekong River in Kratié province from 1985 to 2009 has been determined to be 401 cubic kilometers (km<sup>3</sup>)<sup>6</sup>. The Mekong River may overflow its riverbanks by as much as 4 meters (m) during the rainy season, resulting in frequent and prolonged flooding. The peak of the flood is during September where the monthly discharge averages in excess of 36,000 cumecs (cubic metres per second)<sup>7</sup>. High flood years in Kratié include 1961, 1978, and 2000. However, the Mekong floods at Kratié have been declining for the past two decades, and in 2012, flood volumes were almost 40% below the normal rate. Kratié is increasingly experiencing severe drought, which has affected rice production and other agricultural crops. Notable drought years have included 1977, 2004, and 2008.

**Social** - The population of Kratié province is 318,523 people; accounting for 2.4% of the total population of Cambodia. The province’s population is split between 50.3% female and 49.7% male<sup>8</sup>. Approximately 70% of residents live along the Mekong River and the remaining 30% live in mountainous areas. The majority of the population are Khmer, the largest ethnic group in Cambodia. There is a significant Vietnamese minority living in Kratié. An estimated 8% of the province’s population is comprised of indigenous people (IP). The indigenous ethnic minorities constitute seven groups: Bunong, Kouy, Mil, Khonh, Kraol, Steang, and Thamoun. The largest indigenous ethnic group is the Steang accounting for a population of 6,541 people, while the Khonh minority ethnic group has a population of 743 people. The Kraol ethnic group represents 4,202 people, the Mil ethnic group 1,697 people, and Thamoun ethnic group 865 people, respectively<sup>9</sup>. The majority of Kratié’s residents are subsistent farmers or fishers. Around three-quarters (78%) of the population are engaged in agriculture, both for livestock (i.e., poultry, swine and cattle) and crop production. Crops include cassava, maize, sesame, sweet potato, sugarcane, soya beans, and more<sup>10</sup>. Tobacco is one of the major products of Kratié, representing almost twenty percent (18%) of Cambodia’s crop. Around 20,000 ha are dedicated to rubber plantations where the latex is exported to countries such as Viet Nam, Japan, and Korea. Kratié’s proximity to both Phnom Penh and Viet Nam provides efficient access and opportunities for trade between both growth poles. Other key industries include a growing

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<sup>6</sup> <http://www.mrcmekong.org/assets/Publications/basin-reports/Annual-Mekong-Flood-Report-2012.pdf>

<sup>7</sup> <http://www.mrcmekong.org/assets/Publications/report-management-develop/MRC-IM-No2-the-flow-of-the-mekong.pdf>

<sup>8</sup> <https://www.statsmonkey.com/sunburst/37217-total-population-statistics-of-Kratié-by-gender-cambodia-stats.php>

<sup>9</sup> [http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Phnom\\_Penh/pdf/ethnolinguistic\\_groups\\_of\\_cambodia\\_poster.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Phnom_Penh/pdf/ethnolinguistic_groups_of_cambodia_poster.pdf)

<sup>10</sup> [http://pdf.usaid.gov/pdf\\_docs/Pnadm800.pdf](http://pdf.usaid.gov/pdf_docs/Pnadm800.pdf)

tourism sector and natural attractions, contributing over USD 3 million per year. There is potential for hydro-electric power and mineral resources.

As discussed in Annex 2, Kratié province has indigenous people (IP) located within proximity of the proposed sub-projects. Special attention must be given to IP in relation to their traditional land and forest which may be affected due to project development. IP expressed concerns about forest land encroachment after the project implementation as well as impact on their belief systems and traditional practice, and decision making.

## 2.3 KAMPONG CHAM PROVINCE

**Environment** - Kampong Cham is located in the central lowlands of Cambodia and is bordered by Kratié to the north-east, Prey Veng to the south, Kampong Chhnang to the west and Kampong Thom to the northwest as well as Viet Nam to the east. The province covers an area of 4,549 km<sup>2</sup> with coordinates 11°59' N and 105°27' E. Kampong Cham is subdivided into 10 districts: Batheay, Chamkar Leu, Cheung Prey, Kampong Siem, Kang Meas, Kaoh Soutin, Prey Chhor, Srei Santhor, Stung Trang, and Krong Kampong Cham, with Kampong Cham serving as the provincial capital. The majority of the province consists of lowlands with the Mekong River flowing through the province. Agriculture and industrial crops consist of 413,035 ha of land, while forest area represents 300,000 ha, flooded land 312,860 ha, plain land 270,000 ha, and red soil 97,000 ha<sup>11</sup>. There are currently no protected areas in Kampong Cham province.

**Climate and Extreme Weather** - Kampong Cham's climate is governed by monsoons. The average temperature is around 27° C with a minimum temperature of about 16° C. December and January are the coolest months during the year. The province's three seasons are: the cool season from November to March (17°-27°C), hot season from March to May (28° - 36°C), rainy season from May to October (25° - 35°C, with humidity up to 90%). Kampong Cham is regularly hit by flash flooding and has endured severe flooding and drought incidents in the recent past. Overall, the province suffers more from droughts than floods. However, in 2014, Kampong Cham suffered the second highest death rate in Cambodia because of flooding that began in July and lasted until the end of August. In June 2016, the province experienced increasing water shortages that had not been seen since 1983<sup>12</sup>. Landslides are also a common occurrence in Kampong Cham and have contributed to infrastructure damage, especially roads.

**Social** - Kampong Cham's total population is currently 928,694 people although, before it was split into two provinces (Kampong Cham and Tboung Khmum) it's population was 1,679,922 people, comprised of 818,662 males and 861,330 females. Much like the majority of Cambodia, Kampong Cham's major ethnic group are Khmer as well as ethnic minorities such as Vietnamese, Chinese, and Cham groups. Kampong Cham's strategic location, open policies and trading activities has transformed the province into the transportation hub for Cambodia, Thailand and Viet Nam. Transportation access to the province includes a comprehensive road network, railway, and river boats. Kampong Cham's poverty headcount index is 37.2%<sup>13</sup>, placing it above Cambodia's poverty rate. Generally, people make their living from rubber and cashew nut plantations, fishing, and farming. Potential investment opportunities include more value adding agro-industry, such as rice plantation,

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<sup>11</sup> <http://www.cambodiainvestment.gov.kh/kampong-cham-province.html>

<sup>12</sup> <http://www.phnompenhpost.com/national/drought-highlights-intl-water-day>

<sup>13</sup> Poverty Profile 2004 EN.pdf

cassava (tapioca), sugar cane, durian, and palm fruit. There is also potential for tourism because of the province's accessibility and historical, cultural attractions, as well as natural scenery.

## 2.4 TBOUNG KHMUM PROVINCE

**Situation** - Tboung Khmum is located on the central lowlands of the Mekong River. The province covers an area of 4,928 km<sup>2</sup> with coordinates of 11°59' N and 105°27' E. Tboung Khmum borders Kampong Cham province to the west, Kratié province to the north, Prey Veng province to the south, and Viet Nam to the east. The province is divided into six districts and one city, Dambae, Krouch Chhmar, Memot, Ou Reang Ov, Ponhea Kraek, Tboung Khmum, Krong Suong and its capital and largest city, Suong. Tboung Khmum used to be part of Kampong Cham province, until December 31<sup>st</sup>, 2013 when a Royal Decree was signed by King Norodom Sihamoni to split the province in two. Due to the province's recent establishment, very little provincially aggregated data is available.

As discussed in Annex 2 during the community consultations, the main social issues concerned were that of acquisition of land occupation and its impact on different populations. Land acquisition could be on a temporary or permanent basis as a result of the road rehabilitation. However, it can be resolved through a clear mechanism of land donation or other land acquisition guidelines.

Environmental impacts refer to the engineering environmental design such as borrow pit of soil excavation for the project (see Annex 2).

## 2.5 SIEM REAP PROVINCE

**Environment** - Siem Reap is located in the northwest of Lao PDR and borders the provinces of Oddar Meanchey to the north, Preah Vihear and Kampong Thom to the east, Battambang to the south, and Banteay Meanchey to the west. Siem Reap is 10,299 km<sup>2</sup> in area, making it the 10th largest province in Cambodia, with coordinates of 13°21' N and 103°51' E. The province is divided into 12 districts, 100 communes, and 907 villages. The districts are Angkor Chum, Angkor Thum, Banteay Srei, Chi Kraeng, Krahanh, Puok, Prasat Bakong, Sotr Nikom, Srei Snam, Svay Leu, Varin and Siem Reap, with Siem Reap being the provincial capital. The province, in general, consists of typical plain wetland areas, rice fields and other agricultural plantations, especially in the south. The north is comprised of undulating area covered with forests. Rising from Phnom Kulen, the Siem Reap river meanders through the northern part of Siem Reap Province and eventually flows into the Tonlé Sap Lake. The total agricultural land is 216,178 ha, and forestry area consists of 476,824 ha, accounting for 45.2% of the total area of Siem Reap. Wildlife sanctuaries and protected areas include the following: Angkor Scenery Protected area (10,800 ha), Beung Pe Wildlife Sanctuary (245,500 ha), Kulen Prom Tep Wildlife Sanctuary (402,500 ha), and Kulen National Park (37,500 ha).

**Climate and Extreme Weather** - Siem Reap's climate is controlled by the monsoons. In general, the hottest month is April, the coolest month is December, the wettest month is September, and the driest month is January. The rainy season ranges from May to October, whereas dry periods include the months of January, February and December. The annual average temperature is 27.1°C, with the coldest temperature being 26°C and the warmest temperature being 31°C. Approximately 1,310 mm of precipitation falls annually. Siem Reap is also exposed to flooding and increasingly frequent and prolonged droughts. Specifically, from 2009 to 2012, during October and November, heavy rain (up to

140 mm per day) caused flash flooding, resulting in significant damage to agriculture and infrastructure in Siem Reap<sup>14</sup>.

**Social** - Siem Reap has a total population of 896,309 people, accounting for 6.7% of the total Cambodian population. The province is roughly split between 51.1% female and 48.9% male<sup>15</sup>. The majority of the province's population (95%), are Khmer interspersed with Vietnamese, Chinese, Cham minorities and several other ethno-linguistic minority groups found in the hill tribes in the northeast. Tourism is the principle income of Siem Reap. An estimated 50% of jobs in Siem Reap are related to the growing tourism industry, significantly affecting the livelihoods of the population. Despite tourism providing jobs and opportunities, incomes are consistently low and Siem Reap is one of the three poorest provinces in Cambodia, with 47% of the population living below the provincial poverty line<sup>16</sup>. There are high costs to enter the tourism industry due to insufficient financial resources or education levels. Contributing factors to the poverty are poor soil fertility, small agricultural landholdings, and lack of technological or methodological knowledge for animal raising and vegetable cultivation. However, opportunities are open in the province's other key industries, which include handicrafts, food processing, and more recently, construction.

## 2.6 KANDAL PROVINCE

**Environment** - Kandal is one of the smaller provinces of Cambodia. This province completely surrounds the Cambodian capital Phnom Penh, but does not include it. Kandal's capital is Ta Khmau and is around 20 km south of Phnom Penh. The province encompasses an area 3,568 km<sup>2</sup> with coordinates of 11°22' N and 105°12' E. Kandal is located in the middle-south of the country and is bordered by Kampong Chhnang and Kampong Cham to the north, Prey Veng to the east, Kampong Speu and Takeo to the west as well as Viet Nam to the south. The province is divided into 11 districts, 146 communes, and 1,087 villages. The districts are Kandal Stueng, Kien Svay, Khsach Kandal, Kaoh Thum, Leuk Daek, Lvea Aem, Mukh Kamphul, Angk Snuol, Phpnhea Lueu, S'ang, and Ta Khmau. The province consists of the typical plain wet area of Cambodia, covered in rice fields and other agricultural plantations. The average altitude of the province is less than 10 m above sea level. The province also features two of the biggest rivers in the country: The Tonlé Bassac and the Mekong, allowing for rich and accessible water resources. Freshwater fish yields 79,473 tons per year. Agricultural land, mostly consisting of rice, covers 175,737 ha. There are currently no protected areas in Kandal province.

**Climate and Extreme Weather** - Kandal has a monsoon climate which is divided into three seasons: the cool season from November to March (22° - 28°C), the hot season from March to May (28° - 36°C), and the rainy season from May to October (24° - 32°C, with humidity up to 90%). Rainfall averages 1,686 mm per year. The highest recorded depth of flood inundation in this province was 3.1 m in agricultural fields. Kandal is subject to annual flash flooding, which has caused significant damage to infrastructure and agriculture in 2011 and 2012. In September 2002, Kandal experienced simultaneous floods and drought and was one of the worst hit provinces. Floods and drought levels

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<sup>14</sup> <http://www.mrcmekong.org/assets/Publications/basin-reports/Annual-Mekong-Flood-Report-2012.pdf>

<sup>15</sup> <https://knoema.com/CBDGS2008/demographics-statistics-of-cambodia-2008?region=1000170-siemreap>

<sup>16</sup> [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/08/12/000356161\\_20100812014703/Rendered/PDF/E25190v10P09701ronmental0Assessment.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/08/12/000356161_20100812014703/Rendered/PDF/E25190v10P09701ronmental0Assessment.pdf)

vary within Kandal. For example, Lvea Em, a district of Kandal, is flooded for six months every year so the population has resorted to building their houses on stilts<sup>17</sup>.

**Social** - The current population in this province is 1,280,781 people, comprising of 9% of the country's total population. The province is divided between 621,948 males and 658,833 females. The population density of Kandal is 359 people per km<sup>2</sup>. The ethnic majority group found in the province are Khmer interspersed with ethnic minorities. Kandal's location, bordering Viet Nam as well as easy access to Phnom Penh, permits for many business and commerce opportunities, resulting in a higher per capita consumption than the national average. Almost two-thirds (60%) of workers live in the province capital, Ta Khmau, and commute to Phnom Penh for work. The garment and footwear industries, which employ more than 500,000 workers, are major industries in Kandal. However, due to fertile soils and abundant water resources, farming and fishing also contribute to the province's income.

### 3.0 ENVIRONMENTAL VULNERABILITIES AND RISKS

Approximately 80 percent of Cambodia's territory lies within the Mekong River and Tonlé Sap basins, known to have large fluctuations of water levels between the dry and wet seasons. Around 30 tropical storms affected Cambodia between 1999 and 2013 with severity increasing in recent years. Floods cause widespread disruption and dislocation on a temporary basis (i.e. until waters recede) on a medium- to long-term basis. The 2013 floods affected more than 1.8 million people in 20 provinces.

Flooding causes major disruption to affected people who have to adjust to the associated shocks and stresses which impact their livelihoods, assets and well-being. Loss of connectivity for short- or longer periods can have a devastating effect on public infrastructure and commerce. Extreme weather events caused by climate change are expected to increase in intensity, severity, and frequency with a consequent effect on livelihoods and well-being.

Floods can severely damage infrastructure including roads. However, roads and associated infrastructure (i.e., bridges, culverts, etc.) also impact flood events. They fragment the floodplains and interrupt natural flow of water, sediments, nutrients and aquatic life. Road development in floodplains usually alters floodplain hydraulics and impacts related aquatic ecosystems. Roads in floodplains are often built on dikes, which can have both intended and unintended impacts. Beneficial impacts including acting as a 'reservoir dam' or tank to store water for irrigation in the dry season. Roads can act as a dam to protect spring crops from the early stages of the flood. Floods can also damage roads with negative effects on transportation. This can hamper economic development, and also slow emergency relief actions.

Mekong floods perform an important ecological function, (an example or two would help here) which is essential for much of the population. However, flooding also results in economic and financial costs, including; damage to infrastructure and houses; lost lives and damage to property and assets (i.e. crops and trees).

During the community consultations, community members expressed concerns to the Consultant regarding insufficient water for livestock, homestead gardens and potable water for household consumption. These kinds of water shortages are perennial in nature during the dry season. However,

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<sup>17</sup> file:///Users/sabinebailey/Downloads/a\_survey\_of\_rural\_cambodian\_households%20vulnerability%20and%20adaptation%20march%2005.pdf

drought concerns could be mitigated somewhat as an indirect result of the proposed sub-project road rehabilitation work. For instance, conversion of soil borrow pits into environmentally-friendly community water retention ponds or, possibly, a channel for water flow to drain water during the wet season could be considered.

There are both direct and indirect effects of roads on the environment. Direct effects are easily seen and are easier to comprehend. In contrast, many indirect environmental effects of roads are cumulative and involve changes in community structures and ecological processes that may not be well understood. Roads act as dams, altering water flow from one side to the other. This can result in flooding on one side of the road and drying out on the other, altering vegetation and associated ecosystems. Roads also can cause changes to hydrologic flows (i.e., drainage patterns).

The challenge is to take the above considerations into account during road planning and design. The MRD is one of the ministries responsible for secondary road networks and which considers an integrated approach to planning road networks.

### **3.1 DAMAGE DUE TO FLOODS**

Cambodian government policy is to protect its population from floods as much as possible by; implementing flood warning systems, protecting cities like Phnom Penh with dikes, building small levees to protect agricultural fields, and constructing canals to direct flood waters. Local populations have learnt over time to adapt to the constraints that floods impose and to take advantage of their benefits, including living in houses built on stilts, transporting people and goods in boats, adjusting their agricultural pattern to the annual flood pulse, and developing seasonal fishing practices (e.g. MARD, 2003).

As a result of this cultural adaptation, floods do not cause much damage to traditional settlements, and actually bring many benefits. However, extra-ordinary floods cause loss of human lives and substantial damage to crops, assets and infrastructure. The flood in 2000 was an exceptional flood causing more than 300 casualties and a total damage of over USD 150 million, including damage to infrastructure of around USD 100 million.

### **3.2 STANDARDS FOR CIVIL ENGINEERING ROADWORKS**

Road planning and design in Cambodia are based on international guidelines for roads located outside the floodplain, with the exception of guidelines for rural access roads which are largely the purview of the MRD. The country has limited national standards and guidelines. Cambodia has insufficient funds to internally finance necessary road rehabilitation and construction programs. Many of the rehabilitation and construction works are financed by donor organizations including; Asian Development Bank (ADB), World Bank, or countries like Japan and China. Donors generally do not finance all rehabilitation and construction activities and the work is often done “piecemeal” depending on available funding. Donors often have preferred companies and their own rules for contractors involved in civil engineering and roadworks. Contractors tend to use different guidelines and standards due to the lack of national guidelines. Consequently rehabilitation activities often result in a patchwork of different road sections constructed under different guidelines to different design standards. This project could help harmonize different standards and guidelines related to road construction and rehabilitation.

In Cambodia, current road planning and design practices consider hydraulics from the perspective of road-bed stability and minimizing damage during floods. The impact roads have on floodplain dynamics or the ecology of floodplains (i.e. beyond the immediate vicinity of the road) is usually not considered. The MRD guidelines for rural roads are an exception as they include to some extent floodplain dynamics.

## 4.0 KEY STAKEHOLDERS

The RGC supports the Cambodia SEA DRM Project and supports actions to improve participation, public consultation and information disclosure. Implementation relies on strategies, legislation and procedures that are in place in Cambodia and will be supplemented - as necessary - with World Bank safeguards policies for participation, consultation and disclosure concerning the safeguards aspects of the Cambodia SEA DRM Project as described in the ESMF, including procedures narrated in the IPPF and RPF.

The Cambodia SEA DRM Project will pursue a process of meaningful consultation and engagement that includes national and local government, and relevant stakeholders. The Cambodia SEA DRM Project supports consultative decision making by ensuring public access to information on environmental and social aspects of the Cambodia SEA DRM Project. In addition to free, prior and informed consultation (FPIC) related to potential environmental and social impacts (i.e. positive or adverse effects), the consultation process should inform and explain the proposed sub-project(s) to affected communities, gather information from impacted populations, and conduct gender sensitive awareness raising.

Table 2 lists national and local government bodies, key stakeholders, various public entities and different populations who may be involved directly or indirectly in the Cambodia SEA DRM Project.

**Table 2 Stakeholders and various publics.**

Sl. No.	Entity	Key Stakeholder
1	Government and regulatory agencies	MRD, MEF/GDR, MOE, MOWRAM, PDRD, and Districts
2	Private sector companies	Private sector companies with the technical expertise and capacity, engineering capability to implement the sub-projects. These may include both national and international companies.
3	Civil society organizations	International, national and regional non-governmental organizations (e.g. WWF, Flora, Caritas, NGO Forum, Oxfam Cambodia, Plan International, SNV), including environmental and indigenous people's organizations (Khemara).
4	Local stakeholders	Local civil society organizations including community-based organizations (CBOs), municipal and district-level committees, village communes and unions, and other local groups.
5	Academic and research institutions	Environmental research groups, universities and technical institutes.

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Sl. No.	Entity	Key Stakeholder
6	Beneficiaries and affected communities and households	Project beneficiaries will be consulted at community level during the preparation of sub-projects. In addition, potential sub-project affected households will be consulted on the potential impacts and mitigation measures. Particular attention will be given to different populations (i.e. ethnic minorities and vulnerable groups - women and female/male youth and children, men, the elderly and disabled, etc.) to enhance their benefits and avoid or mitigated adverse impacts.
7	Indigenous peoples	If proposed sub-projects are planned in areas where ethnic minority communities are located then, a process of free, prior and informed consultation will be undertaken with communities in the region of influence (see IPPF).

## 5.0 INSTITUTIONAL ARRANGEMENTS AND CAPACITY

### 5.1 INSTITUTIONAL ARRANGEMENTS FOR PROJECT IMPLEMENTATION

In Cambodia, several ministries have responsibility for the development and management of roads. The MRD has responsibility for many rural secondary access roads. The World Bank assistance would enable key road segments located in provinces along the Mekong and Tonlé Sap rivers to withstand regular flood events, and reduce recurring reconstruction costs. The Cambodia SEA DRM Project is an essential component in implementing the MRD's plan for flood recovery, its Climate Change Strategic Plan for Rural Infrastructure, and the Climate Change Action Plan for Rural Development Sector 2014-2018. Should hydrometeorological stations be included in the project, institutional linkages with MOWRAM will need to be considered in order to integrate hydromet forecasting and early warning systems into MRD climate vulnerability mapping.

Organizationally (Figure 1), MRD has three general departments: Administration and Finance, Technical Affairs and the General Inspectorate. The General Department of Administration and Finance has control of the Department of Administration and Personal Affairs, the Department of Procurement and Finance, and the Department of Planning and Public Relations. The General Department of Technical Affairs plays an important technical role for the Ministry. It controls the Department of Rural Roads, the Department of Rural Water Supply, the Department of Rural Health Care, the Department of Community Development and the Department of Rural Economic Development. The department of internal audit is directly controlled by the Ministerial office.

The MRD supports seventeen different technical areas, including border development, rural infrastructure, rural water supply, rural sanitation, ethnic group development, community development, rural economic development, training and research, administration and personnel, internal audit, planning and public relations, supply and finance, general inspection, international cooperation, NGO management, gender issues, and the Provincial Department of Rural Development (PDRD). Several technical areas including rural road improvement and rural water supply, sanitation and hygiene (WASH) have been integrating social and environmental safeguards into their practices for several years. However, the capacity of staff in applying these social and environmental safeguards is low

and does not meet acceptable safeguards standards, and the ministry lacks mechanisms to ensure safeguards guidelines are enforced and implemented.

In addition to the policy addressing environmental and social safeguards application for social and physical infrastructure development, a series of policies have emerged as current mandates of the MRD. These mandates include a policy on indigenous people, a policy for rural road improvement, a policy for rural development, and a policy for rural water supply. These policies are being developed through several projects and programs, including:

- Provincial and rural infrastructure project,
- Food for Work project,
- Rural water supply and sanitation project,
- Tertiary road improvement project,
- Tonlé Sap rural water supply and sanitation sector,
- Second rural water supply and sanitation sector project,
- Financial management for rural development program,
- Border development program,
- School and community water sanitation and hygiene,
- Ketsana emergency reconstruction and rehabilitation project, and
- Rural road improvement project.

Beyond mandated policy development of the MRD as described above, the MRD has responsibility for the Cambodia SEA DRM Project which will be implemented in line with WBG and Royal Government of Cambodia procedures and processes. The Cambodia SEA DRM Project will provide an entry point for further development of its environmental and social safeguards instruments, specifically to the rehabilitation of existing rural access roads.

The MRD designated implementing agency (DIA) Project Management Office (PMO) will be located in the MRD offices and will be responsible for designing and planning of technical activities carried out by the respective PDRD under the Cambodia SEA DRM Project. Provincial officials will be responsible for sub-project planning and implementation at the provincial level with coordination at district and commune levels, while local level project planning and implementation will be led by the respective PDRD, districts and communes. Districts and communes are under the management of PDRD. The Provincial Hall provides notice to the district and commune(s) to appoint a focal person to work with the MRD environmental and social safeguards team for each sub-project. Table 3 illustrates the responsible agencies and key functions for ESMF implementation.

The MRD social and environmental safeguards office (SEO) will be responsible for implementing and monitoring safeguards for rural road improvement. Although the safeguard guidelines for rural road improvements exist, the level of understanding of environmental and social safeguard issues is limited and requires more capacity through provision of more detailed safeguard guidelines and procedure documents. The Ministry of Environment (MOE) is also responsible for providing safeguard training, ensuring effective mainstreaming of safeguard requirements into the road development project cycle, and undertaking research activities. In addition, the Ministry of Economy and Finance (MEF) General

Department of Resettlement (formerly, Inter-Ministerial Resettlement Committee [IRC]) will be involved as land acquisition will likely be required on a temporary or permanent basis.

**Table 3 Key responsibilities for ESMF implementation.**

<b>Sub-project Cycle</b>	<b>MRD</b>	<b>PDRD (as sub-project owner)</b>
Screening	<p>Advise applicants and other stakeholders about environmental and social safeguard procedures.</p> <p>Review the concept note/idea and screen for potential safeguard issues, and advise applicants regarding the nature and content of the safeguard documents and measures to be prepared.</p>	<p>Assess any potential safeguard issues early in the preparation process, including screening for the presence of indigenous peoples.</p> <p>Describe potential safeguard issues in the safeguard screening form to be attached to the sub-project proposal.</p>
Preparation	<p>Advise applicants on safeguard issues, as needed.</p>	<p>Undertake safeguard preparation actions as required, such as consultations with local communities and/or collection of data.</p> <p>Design safeguard measures and prepare documents, such as an ESMP, RAP, IPDP, ECoP, etc. as agreed with MRD. If applicable, disclose draft safeguard documents with the sub-project proposal to affected communities prior to final review of proposal by the MRD.</p>
Review and approval	<p>Review sub-project proposals for safeguard impacts and social risks.</p> <p>Assess the adequacy and feasibility of the safeguard assessment and consultation process. If needed, request further steps.</p> <p>Assess the adequacy and feasibility of safeguard measures and documents. If needed, request appropriate changes to these and reassess prior to final approval.</p> <p>If the EG (equivalent to WB OP/BP4.10) are affected, ascertain that they have provided their free, prior and informed consent to sub-project activities affecting them.</p> <p>If applicable, publicly disclose safeguard related information on the website after sub-project approval.</p>	<p>Submit sub-project proposal with safeguard measures and documents as agreed. If requested by the MRD takes additional steps to meet ESMF and safeguard policy provisions. Re-submit proposal with revised safeguard measures and documents, as needed. All national and local legislation and regulations will be complied with.</p> <p>Prepare an action plan as needed if the sub-project is likely to have some impacts on CSOs (NGOs and CBOs).</p>
Implementation	<p>Supervise and review safeguard documents and issues during sub-project implementation. If needed, request changes to safeguard measures.</p> <p>Review and approve Plan of Actions that are required to be prepared during implementation of sub-projects.</p>	<p>Disclose final safeguard documents, if any, to affected communities.</p> <p>Monitor and document the implementation of safeguard measures.</p> <p>When the ethnic groups (equivalent to WB OP/BP4.10) are affected, include them in participatory monitoring and evaluation exercises.</p>

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Sub-project Cycle	MRD	PDRD (as sub-project owner)
Evaluation	Ensure inclusion and review of environmental and social safeguard issues and outcomes in mid-term and final sub-project evaluation and reporting, including concerning any lessons learned on the sustainability of each sub-project.	Evaluate the implementation and outcomes of safeguard measures. When the ethnic groups (equivalent to WB OP/BP4.11) are affected, include them in participatory evaluation exercises.

MRD is the designated implementing agency (DIA) for the Cambodia SEA DRM Project in Cambodia. The MRD PMO will be responsible for the environmental and social performance of the sub-projects implemented with the support of MOE and the General Department of Resettlement (GDR). The central PMO should be staffed for this purpose with environmental and social safeguards officers. Depending upon training and professional experience in environmental and social safeguards implementation and monitoring, it is likely that these staff will require additional training and support. They should be supported by a technical assistance (TA) consultant team that will assist in the implementation of the ESMF requirements while building staff capacity to address safeguard issues.

As sub-projects are identified, the DIA PMO (under MRD) will clarify tasks and responsibilities regarding implementation of specific sub-projects. Central PMOs will review screening reports prepared by local PMOs and prepare draft terms of reference for an environmental and social management plan (ESMP) as well as requirements to prepare an Abbreviated Resettlement Action Plan (ARAP) or Resettlement Action Plan (RAP) depending on the number of affected persons, and an Indigenous Peoples Development Plan (IPDP), as necessary. The ESMP and planning documents (i.e. ARAP/RAP and IPDP) will be shared with stakeholders during consultations. Issues and observations noted in the consultations will be incorporated. Documentation will also be released for public disclosure and submitted to the World Bank for review.

## 5.2 INSTITUTIONAL STRENGTHENING ASSESSMENT

The RGC MRD has its own social and environmental safeguards office called the SEO comprised of ten staffs. The main responsibility of the SEO is to implement and monitor safeguards instruments for rural road improvement, particularly for roadworks funded from the recurring RGC budget. MRD has a number of existing safeguards guidelines for rural road improvement, however staff are constrained by their understanding of specific issues related to social and environmental safeguards which invariably affects monitoring of these same safeguards instruments and measures during subsequent implementation.

More than fifty percent of MRD staff hold higher university education. A third have no university degree but, have many years of practical experience in rural infrastructure construction and improvement. The MRD SEO staff are all degree-qualified with at least a bachelor degree or higher academic qualification. It was felt that lack of application of environmental and social safeguards instruments was not due to education level rather, MRD staff felt constrained in application of environmental and social instruments for rural development infrastructure projects due to a lack of a sector coordination strategy between state agencies to share and update environmental and social impact assessment laws.

The current rural development strategic plan on climate change highlighted inherent weaknesses of indigenous peoples' safeguards instruments being applied and monitored during project implementation; from the central level right through the devolution of responsibility to the local community level. It is imperative that institutional and capacity development are provided in terms of explicit environmental and social safeguards guidelines, safeguards frameworks, capacity building trainings, coordination between different government departments and organizations, awareness-raising campaign(s), and other measures for ensuring the knowledge gaps are addressed as expeditiously as possible for development of the Cambodia SEA DRM Project and, subsequently, at feasibility and design stages and beyond.

As indicated, strengthening coordination between line ministries (i.e. Ministry of Environment [MOE], Ministry of Economy and Finance [MEF], and Ministry of Rural Development) would help close the knowledge gap and lead to more effective implementation and monitoring of environmental and social safeguards instruments. Within the MRD, two departments including the Department of Rural Road and the Department of Rural Water Supply, will play an important role in the implementation and monitoring of environmental and social safeguards instruments for the Cambodia SEA DRM Project implementation as well as during the planning process.

Sector capacity building is important to ensure that legal frameworks are in place to guide environmental and social safeguards development in MRD. Technical training to improve sector capacity on climate resilience planning for rural roads and rural water supply development and maintenance is required. An initiative to develop the legal and institutional framework to address loss and damage to rural infrastructure as a result of climate shock and extreme weather events is required. Such a process requires a review of existing legislation and policies in order to explore the scope, gaps and constraints for developing a mechanism to address loss and damage. Suggestions for integrating loss and damage mechanisms need to be tailored for both national and subnational rural development levels.

Partnerships and participation in externally-funded projects and programs such as the Cambodia SEA DRM Project can provide a critical entry point for institutional strengthening and capacity development within the MRD. The Project will build on MRD strengths to enhance knowledge, technical skills in the application of environmental and social safeguards, strengthen the operations it supports, leverage additional funding and contribute to the global policy agenda on social and natural resources protection for rural development planning. The Project can facilitate cooperation between MOE and the MRD SEO to ensure environmental and social safeguards instruments and measures are properly monitored during Project implementation.

## **6.0 SITE-SPECIFIC POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS, RISKS AND ISSUES**

The Cambodia SEA DRM Project proposed road rehabilitation and repair works is not expected to have significant impacts. The World Bank Aide Memoire (2 June 2016) indicates that *“cost effective road design will be used, accepting that all weather access will only be considered for the most critical stretches of roads. Less critical links will be sealed with concrete, accepting that they may be inundated for a few weeks each year, but will not be washed away. Opportunities will also be explored, to use the rural road network to strengthen flood control measures, by enhancing drainage canals, culverts and possibly raising the road levels to use as embankments. Careful hydrological analysis is being undertaken to ensure that the target roads are designed in a way that do not impede flooding and drainage in areas that depend on flooding for irrigation and fertilization of [croplands].”*

Environmental and social effects and impacts will differ markedly depending upon the type and scope of the particular sub-project roadworks and its location. For rehabilitation and repair of largely rural district access roads, it is likely that the potential negative (adverse) impacts will be minor, localized and temporary because proposed roadworks will be within the existing road right-of-way (ROW) and at times within the existing road footprint. Table 3 provides a typology of potential site-specific environmental and social impacts.

Known safeguards risks are listed below:

- *Safeguards Screening and Risks:* environmental risks will be mitigated by identifying and ensuring Cambodia environmental and social legal frameworks, as well as the World Bank safeguards policies, are applied at the earliest stages of project preparation and planning and adhered to throughout all phases of project implementation.
- *Impacts of Civil Works Activities:* it is expected for a road rehabilitation and improvement project that the environmental and social impacts will be minor and can be avoided or mitigated through the ESMF safeguards plans and procedures. Some examples of effects from civil works include:
  - Noise and air quality (e.g. dust) impacts will occur as a result of construction activities. These impacts can be mitigated using well established mitigation measures when construction is undertaken in close proximity to residential areas and other socially sensitive areas. Some examples of mitigation measures include: (i) watering of active construction work areas to minimize dust emissions during construction. Regular and effective maintenance of equipment will mitigate emissions. Re-vegetation of disturbed areas immediately following construction also assists in reducing dust emissions; and (ii) during construction, the use of noise barriers in sensitive areas and controlling hours of work are effective noise mitigation measures.

It is important to note that noise and air quality emissions are temporary and short-term concerns.

- Runoff from construction areas during rain events can contain high concentrations of sediment and possibly other pollutants (e.g. hydrocarbons, heavy metals, etc.). Standard operating practices defined in the Environmental Code of Practice (ECoP) should be implemented to contain and treat runoff from the construction site. The use of silt control measures (e.g. silt fences, catch basins, temporary or permanent settling ponds, vegetated swales, etc.), when properly operated, can be very effective in protecting water quality in nearby streams during construction and during the operational phase of the improved roadworks.
- Construction wastes, garbage and refuse generated during construction including waste oil and chemicals should be contained on site and ultimately disposed of off-site in an environmentally acceptable manner. Procedures for on-site management and off-site disposal need to be addressed in the ECoP. A source of fill (borrow) materials will need to be established in the area of the road rehabilitation. If available, an established borrow pit should be employed. If a new borrow pit is needed, safeguards procedures will need to be established in the ECoP.

- *Land Acquisition and Resettlement*: no major land acquisition or major adverse social impacts are expected in support of roadway improvement activities or for hydrometeorological stations<sup>18</sup>. However, minor relocation of temporary buildings including roof structures and concrete floors extending from small shops and houses and removal of crops and trees found along the road alignment and ROW are possible especially in areas where local people have utilized the ROW for personal gain. Potential minor land acquisition may be required to facilitate the construction of roadway ditches and drainage improvements. These minor land acquisition requirements will be identified during the detailed design phase of project implementation.
- *Ethnic Minority*: indigenous peoples may be directly or indirectly affected by the proposed sub-project roadworks and, therefore, an IPPF has been included as part of the current ESMF.
- *Physical Cultural Properties and Sensitive Areas*: for the most part, local hospitals, schools, temples and markets are to be found outside the road alignment and ROW so, the civil works would not cause impacts to these sensitive land uses. It is unlikely that archaeological and heritage resources will be impacted by the road improvement projects. However, the detailed and site-specific ESMP should include chance find provisions for archaeological resources and good civil engineering practices (Environmental Code of Practice) to mitigate potential adverse impacts of the Cambodia SEA DRM proposed sub-projects.

**Table 4 Potential environmental and social impacts of proposed sub-project.**

No.	Sub-projects Associated Activities	Potential Environmental and Social Impact Issues	Expected Significance
1	Irrigation canals I suggest that irrigation canals be deleted here since it is not discussed elsewhere in report. See your Page 1, Introduction.	Water pollution	Moderate
		Flooding	Moderate
		Alteration of hydrological regime	Moderate
		Destruction of flora and fauna habitat	Moderate
		Involuntary resettlement	Moderate
		Water related diseases	Major
		Land take	Moderate
2	Access roads	Construction phase dust and noise pollution	Moderate
		Water pollution (contaminated site runoff)	Moderate
		Construction waste disposal	Moderate
		Waste oil/fuel and chemical disposal	Moderate
		Public health and safety	Moderate
		Land take	Moderate

<sup>18</sup> It should be noted that the footprint for hydrometeorological stations (e.g. rain gauges, river/streamflow gauges, satellite, etc.) is expected to be minimal. If existing hydrometeorological stations are upgraded and modernized then it is likely that a WB safeguards policy instrument Category "C" can be applied. However, if new hydrometeorological stations are being considered then, depending upon location (i.e. public or private land), a Category "B" safeguards policy may apply.

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No.	Sub-projects Associated Activities	Potential Environmental and Social Impact Issues	Expected Significance
3	Specific social issues	Livelihood loss	Moderate
		Community disruption	Moderate
		Cultural heritage site destruction	Moderate
		Increased marginalization of landless people	Moderate
		Loss of access to biodiversity resources (for food, economic activities or medicine)	Moderate
		Increased spreading of waterborne diseases	Major
		Increased HIV/AIDS infection rate due to increased itinerant working population	Major
4	Specific gender issues	Increased work burdens of women and children	Moderate

## 7.0 PARTICIPATORY SOCIAL ASSESSMENT GUIDELINES

Community consultations will be based on free, prior and informed consultations (FPIC) to gauge support for the proposed Cambodia SEA DRM sub-project(s). Objectives of community consultations are to: (i) provide background information to various stakeholders and different populations; (ii) receive feedback from CSOs including NGOs, CBOs, local leadership and other publics on issues and perceived concerns; and, (iii) discuss methods and resources to maximize the Cambodia SEA DRM proposed sub-project initiatives and activities' environmental and social performance. These participatory and consultative meetings will provide MRD with an opportunity to discuss grievance redress mechanisms and monitoring for those different populations and communities which may be impacted adversely from implementation of the proposed sub-projects.

Ensuring that the project impact assessment includes a participatory and gender-responsive social analysis is an important element of each stage or level of the project lifecycle. The starting point for effective gender mainstreaming in infrastructure sub-projects is to undertake the required gender analysis once specific proposed sub-project initiatives and/or activities' locations have been identified. A gender analysis typically involves examining potential impacts of the project intervention on women and men, and may include the collection of sex-disaggregated or gender-sensitive data. A gender analysis examines the different roles, rights, and opportunities of men and women and relations between them (i.e. the economic and social relationships between females and males which are constructed and reinforced by social institutions). It also identifies disparities, examines why such disparities exist, determines whether they are a potential impediment to achieving results, and looks at how they can be addressed (USAID 2011). Measures must be proposed to address these issues, along with SMART (specific, measurable, achievable, relevant and time-bound) indicators to monitor the intended social benefits and development outcomes and risks of the project.

Conducting a gender analysis when designing a new project or activity will help to:

- Analyze gender roles in project design;

- Identify root causes of existing gender inequalities in that context so that they can be addressed in the project design;
- Identify different needs and priorities of men and women in both the near and long term;
- Collect sex-disaggregated baseline data;
- Avoid perpetuating traditional power imbalances; and
- Enhance the likelihood of strong and sustainable project results.

As indicated, MRD have proposed over seventy road sections for rehabilitation in six provinces. The Consultant visited two provinces, including Tboung Khmum and Kratié between 13-17 June 2016. One IP (i.e. Phnong ethnic group) village was identified in Kratié province and visited on 15<sup>th</sup> June 2016. In order to comply with the free, prior and informed consultation (FPIC) requirement and reduce the influence of local authorities, the Consultant arranged to meet with the IP village shortly after meeting with local authorities. The IP village is located in Koh Khnhaer Commune, Sambo District, Kratié Province and is situated at the end of one of the proposed sub-project road lines. The Kampong Phnong village chief accompanied the Consultant team but, was requested not to be present during the interviews. The selection of households was made randomly and walk-in guided interviews were conducted with respondents. The Consultant team split into two groups with the female team leading interviews with female respondents and, the male team member interviewing male respondents.

Results of the IP village consultation are covered more thoroughly in the IPPF document which is appended to this ESMF. However, a few of the main findings are presented herewith to give the reader more contextual understanding as to how a rehabilitated and improved rural access road could affect different populations (i.e. ethnic minorities and vulnerable groups – women and female/male youth and children, men, the elderly and disabled, etc.) both positively and negatively (adversely).

All of the female respondents welcomed any road and bridge construction initiative because it would provide access to social infrastructure such as school, market and health facilities. Most of the female respondents had heard of or, possibly, joined community planning meetings to discuss the commune development plan, road construction and/or rehabilitation, health and sanitation awareness raising. When asked about issues pertaining to voluntary land or asset contribution, the respondents indicated that they had no reservation about contributing if the proposed road rehabilitation improved their prospects, livelihoods and well-being. An elderly female respondent indicated that their traditional culture supports cooperation and promotion of community well-being. The Consultant team noticed a high rate of alcoholism in the IP village and one elderly female respondent suggested that an improved road system enabled alcoholics access to commercial alcohol (i.e. higher volumes) as opposed to consuming their traditional home-brewed alcohol. She indicated that alcohol poisoning and deaths had increased in the community in recent years.

## **8.0 STAKEHOLDER CONSULTATIONS**

### **8.1 IMPORTANCE OF STAKEHOLDER CONSULTATIONS**

Public consultations occur at all stages of sub-project preparation and planning of feasibility studies and detailed design. Public participation and consultations take place through individual, group or community meetings. Additionally, different media may be used (e.g., public notice boards, official

invitation letter, electronic communication including internet websites, email or cell phone) to disseminate information. To ensure that World Bank consultation and disclosure policies are followed, project affected people (PAP) and communities in the region of influence are engaged through free, prior and informed consultation to gauge support for the proposed sub-project(s). In this manner, stakeholders, various publics and different populations are consulted during several stages of sub-project preparation, including:

- **Project Identification**: preliminary consultations were conducted during sub-project identification whereby national and local government authorities were consulted to ensure that the Cambodia SEA DRM Project aligned with national policies and legal frameworks, sectoral and local plans and strategies. Relevant stakeholders were consulted during development of the ESMF. Documented records of engagement and consultations for Tboung Khmum and Kratié provinces are located in Appendix A1 : Stakeholder Consultations;
- **Project Preparation**: consultations will be conducted during preparation of the feasibility and design studies to: (i) obtain detailed background information; (ii) conduct environmental and social surveys; and, (iii) informing as well as collecting opinions of key stakeholders, various publics and different populations on potential environmental and social impacts;
- **Project Implementation**: for projects under World Bank Category “A” that might be nationally controversial, a Communication Plan including a grievance redress mechanism will be developed for the proposed sub-project(s) and implemented prior to implementation. Participation of local leaders in disseminating information and resolving any disputes will be important; and
- **Monitoring and Reporting**: national and local level government, stakeholders, various publics and different populations should participate throughout the proposed sub-project development, implementation and operational period. Participation mechanisms should be assessed during the feasibility and design phase.

## 8.2 SITE-SPECIFIC CONTEXTUAL GENDER INFORMATION

Field visits were conducted from 13-17 June 2016 to Tboung Khmum and Kratié provinces and community consultations took place with a variety of local government and commune officials, civil society and different populations (see Appendix 1 and Appendix 2 for list of stakeholders consulted and stakeholder comments, respectively).

Depending on the location of the rural access road, people’s livelihood activities vary from farming (i.e., rice cultivation, livestock rearing, seasonal mixed vegetative crops, and fishing) to non-farming related activities such as market sellers, migrant workers (mostly on cassava farms, factories, construction work). It is not surprising to find out that people living closer to district roads or markets are better off than those communities at the end of the road line. In Tboung Khmum province, the interviewed households living nearby the inspected road line (which is near the district area) own at least one motorbike for each household compared to the IP villagers in Kratié who share their means of transportation with relatives. The other interesting observation is the billeting arrangement for their children’s education. One respondent in Tboung Khmum said he rented a room and bought a motorbike for his child to study at the provincial school, while a respondent from the Kampong Phnou IP village could only afford to send their child to stay in pagoda (usually at a small cost or rent free) and provide a bicycle to travel to school.

The Cambodian Gender Strategic Plan-Neary Rattanak IV (2014-2018), a national strategic document, informs the current decision-making process and notes challenges that women are facing. The plan stated opportunities for women to participate in decision-making processes in sectors such as economics, industry and energy; mines, urban management and transport. At sub-national level, women face a number of challenges to participate effectively in public and political spheres, especially workplace discrimination. Social perceptions of women as weak and less educated, general lack of family support in carrying out political work, and low salaries, exacerbate discriminatory attitudes of men towards women.

The public consultation meetings both at the national and community level were designed and conducted by the Consultant with a strong focus on gender and women considerations. This is reflected in the design of guided questionnaires, separate consultation meetings with gender working group in the MRD, sub-national agencies such as the District Women and Children Committee (DWCC) and Commune Women and Children Committee (CWCC), and separate female and male focus group discussions, in depth interviews with female participants and female-headed households by the Consultant's female team member.

Gender mainstreaming and awareness is gaining ground and gender considerations are being integrated into activities and plans ranging from national (Neary Rattanak IV to sector or ministerial gender working group) to subnational planning level. For instance, in the annual commune investment program, a gender section is included despite limitations on gender-disaggregated data related to domestic and gender-based violence (GBV), human trafficking data, or road fatalities/accidents.

Gender mainstreaming activities from national to commune levels are likely to require awareness-raising events and trainings. The commune investment plan reports on the number of women being trained and the number of trainings organized. Besides gender awareness-raising, there is an understanding that women need to attend meetings particularly commune planning meetings. This is largely due to the requirement of commune and district planning guidelines from National Committee for Sub-National Democratic Development (NCDD).

In the 14<sup>th</sup> June 2016 meeting with the Tboung Khmum Deputy District Governor and DWCC (i.e. the committee assigned to work on maternal and child health, community pre-school, hygiene/sanitation, gender equality and child protection), the Consultant team was informed that men and women are segregated into two focus groups so they can discuss and voice their concerns and priorities separately before they bring their development concerns from both parties to the main meeting. The current commune planning practice does reflect the initial stage of ensuring gender equality and women participation.

Nevertheless, it may be noted that women's participation in meetings does not necessarily represent an increase in women's decision-making power. The DWCC member respondent mentioned her participation in a dispute and settlement negotiation with a family potentially affected PAP by a road construction project. The PAP wife agreed to voluntarily donate bamboo trees in front of her house for the road rehabilitation project while her husband refused citing the economic value of the bamboo and concern about the foregone earnings if they were donated voluntarily. The project team had to bypass the area and consider an alternative design.

During the public and community consultations (13-17 June 2016), the Consultant held meetings with CBOs and female community members. The key concerns voiced included issues related to: (i) morbidity and mortality issues (i.e. maternal health and death); (ii) domestic and gender-based

violence (GBV); (iii) sexual violence; (iv) temporary or seasonal migration (including rape cases on girls when their mother was working away from home or early travel to school were mentioned); and (v) and alcoholism. The concerns were brought mostly based on personal experience as a result of their day to day experience, encounters during their work and occurrences in their community.

The abovementioned gender-related findings can be further interpreted and put into actionable recommendations for the Cambodia SEA DRM Project, including:

- Inclusion of gender considerations in early stages of the project is highly recommended. This can be done by engaging gender expertise at project design and as an integral part of the implementation team. The involvement with MRD's Gender Working Group should be looked at for both technical expertise and the possibility for building synergies across projects within MRD. The link and information exchange between PDRD and gender focal points from both national and subnational government entities and CBOs should be strengthened. Once Cambodia SEA DRM proposed sub-project locations have been identified then, sufficient time and budget should be set aside to conduct a thorough gender-related analysis;
- Regarding the criteria of selection for road lines, in addition to the five criteria proposed by the World Bank, the analysis should consider ethno- and socio-cultural, demographic and socio-economic information pertaining to livelihoods and gender considerations to inform the roadworks section or package selection criteria. Representatives from the District Council and DWCC brought gender issues to light in proposed road lines. One of out 11 proposed road lines is believed to be beneficial to women and vulnerable groups in terms of enabling them to access social infrastructure (such as health center and schools), which currently get cut off by bad road conditions;
- Ensuring equal participation amongst men and women in the planning process remains the key to informed sub-project development. The current participation mechanism guarantees women's involvement and this practice should be sustained. It should be noted that many consulted household members (mostly female respondents) complained about the lengthy process or gap between prior consultation and the actual implementation of the project. One villager said she was asked to join many meetings but the road construction has not been started. Therefore, any consultation with communities should be handled properly to avoid raising expectation. The community should be well informed about how the project will be implemented, what the outputs will be and what the expected benefits are (i.e. the reason for doing the project);
- The shift in decision making and balance of power between men and women is a gradual process which demands effort to be invested in further capacity building, knowledge and awareness-raising amongst women and, which should done by involving men so as to gain their support for more inclusive decision-making. The Cambodia SEA DRM Project could contribute to this gender mainstreaming process and women's empowerment in an incremental manner; and
- During consultation meetings, ideas and best practices from other projects involving and empowering women were explored. For instance, the practice of assigning a quota of female laborers during construction is very much agreed upon. In one of the Commune Council meetings, a Council Representative recognized the role of community involvement and, particularly, women's role in monitoring the quality of work by the road construction company. Therefore, it is suggested the role of community monitoring and reporting (particularly,

women's potential involvement) should be well reflected in the construction contractor(s) terms of reference and tender documents.

Some best practices were identified during the public and community consultations and should be considered and/or written into subsequent sub-project roadworks rehabilitation contracts. These include:

- Contractors will not employ child labor on civil works contracts;
- Road shoulders will be sealed surface enabling carts with wheels;
- Capacity building of local contractors on gender and labor-based appropriate technology;
- Sex disaggregated database to track the use of local labor;
- Community contracts to women for sustainable road maintenance works;
- At least 50% women road side maintenance workers;
- All project roads with speed bumps in villages and road safety signage;
- A community-based road safety campaign with 50% women facilitators;
- Inclusion of HIV/AIDS and human trafficking prevention programs during and after construction;  
and
- Climate change adaptation will include community-based work programs involving women in planting and caring for road-side trees and other plants.

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## **APPENDICES**

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**Appendix A1**

**List of Consulted Stakeholders**

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**Table A1.1 List of consulted stakeholders.**

<b>Date</b>	<b>Stakeholders</b>	<b>Methodology</b>	<b>Location</b>
13 June 2016	MRD Provincial Department officers, Commune Councils, clerk, village chief	Arranged meeting with Q and A.	Mean Commune, Tbuong Khmum Province
	People living along the proposed road line	Random household interviews; selection based on the location of households: the beginning, the middle, and the end of road line; 5 households were interviewed, comprising of a small business owner couple, an elderly housewife, a cake seller, a pregnant woman, a young farmer and fisherman, and a middle-aged farmer.	
	Handicap International Supported Local Health Clinic	Walk in meeting (non-arranged meeting).	
	Commune councils, clerk, village chief	Arranged meeting with Q and A.	Roka Por Pram Commune, Tbuong Khmum Province
14 June 2016	Deputy district governor District Women and Children Committee	Arranged meeting with Q and A.	District governor office, Tbuong Khmum Province
15 June 2016	MRD Provincial Department and commune representatives	Arranged meeting with Q and A.	Kratie Provincial Department of MRD
	Commune councils, clerk, village chiefs, Commune Women and Children Committee, Representative from Agriculture Community, communities members from Sambo Commune and Koh Khnhaer Commune	Gender segregated focus group meeting: the men group led by PDRD official and Dr. Dok Doma and the women group coordinated by Ms. Seng Bopha.  Resource mapping and focus group discussion.	
	Indigenous communities at Kampong Phnou Village	Random household interviews, comprising of one woman-headed household, a housewife and seasonal migrant worker, an elderly housewife, a female farmer, a school teacher.	Kampong Phnou Village, Koh Khnhaer Commune, Sambo district, Kratie Province

**Table A1.1 (Cont'd.)**

<b>Date</b>	<b>Stakeholders</b>	<b>Methodology</b>	<b>Location</b>
16 June 2016	CBO representatives from Chada (funded by Plan International), Flo working on IPs, Childfund, Samarita, and WWF	Arranged meeting with Q and A (the meeting was organized by the PDRD; however, the representatives from the department were not involved in the discussion to ensure lesser degree of influence and bias).	Kratié Provincial Department of MRD
	District governor District Women and Children Committee	Arranged meeting with Q and A	
17 June 2016	CBO representatives from Clean Water 1001 (Technical support from a French organization) and Khemara	Arranged meeting with Q and A (the meeting was organized by commune councils; however, the representatives from the councils were not involved in the discussion to ensure lesser degree of influence and bias).	Roka Por Pram Commune, Tbuong Khmum Province

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**Appendix A2**  
**Stakeholder Consultations**

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## Provincial Public Consultation in Kratié Province

<b>Kratié Province</b> Sambo and Koh Knher Commune, PDRD Office.	<ul style="list-style-type: none"> <li>▪ 75 participants from different groups participated in the public consultation meeting in three different places (15 PDRD, 40 Sambo and Koh Knher Commune, and Kampong Pnov 20 Village of Indigenous People)</li> <li>▪ At provincial level, the meeting was attended by director of PDRD and other 9 staffs. In separate place, the meeting was attended by 5 NGOs/CBOs representatives.</li> <li>▪ At community, the meeting was attended by 30 head and ordinary villagers, including all commune councils and head of commune.</li> <li>▪ At indigenous people village, household interview was randomly conducted with about 20 families where the location of their houses located in different places.</li> <li>▪ Both consultation meeting and household interview were interactive with precise questions and issues raised as below. The interview took about 4 hours across the whole village of indigenous people (IP).</li> <li>▪ There were several issues raised during each consultation, the below are only key issues that described in relation to environmental and social, as well as safeguards protection.</li> </ul>
Rising Issues/Questions	Responses
What is the geographical condition of the Kratié Province?	<ul style="list-style-type: none"> <li>▪ Head of PDRD: The province is large territory and has a boundary with various environmental protected areas, which fell inside and vicinity of the province center. With quite high population growth and with the growth of IP the province has challenged with environmental and social protection and made the balance of development and conservation level.</li> <li>▪ Head of rural development planning office: the province exposes to floods and droughts yearly, particularly this year the droughts has damaged farming system seriously. Remote areas are so poor who fell below poverty rate, which requires infrastructure development interventions from various corners of agencies.</li> <li>▪ Flora Organization: Because of the province attached with various natural resources, human and climate change have damaged them drastically, and need to have real intervention to project environment of the province.</li> </ul>
How the road networks proposed for this project were selected	<ul style="list-style-type: none"> <li>▪ Head of PDRD and key staff: We have proposed various road networks in the remote area to the ministry of rural development. Of cause, this proposal does not select by random method, but we selected in according to the following adverse factors:             <ul style="list-style-type: none"> <li>○ The level of poverty is high in comparison to various areas in the province.</li> <li>○ Farm lands are productive, but those locations are facing more dry and inundation than the others which damage their agricultural farm.</li> <li>○ The road networks are importantly to connect suppliers and demands at the regional markets.</li> <li>○ Conditions of the roads are already existed strong base, but they need to strengthen surface covers.</li> </ul> </li> <li>▪ WWF: we do not know where the proposed roads are, but we would recommend that if the roads are inside or adjacent to the protected areas, the government should pay attentions to environmental wildlife animal, fauna and flora safeguards protection during either project implementation and after post-project.</li> <li>▪ Flora Organization: selected road for construction must be in the priority of low income areas, real insufficient of rural infrastructure in the communes, provide agricultural value chain to increase local livelihoods, but must be not to hurt poor people, environment, or IP.</li> </ul>
How the rural road construction affected to rural society?	SOCIAL: <ul style="list-style-type: none"> <li>▪ Child Fund: Road construction provides more positive than negative</li> </ul>

Rising Issues/Questions	Responses
	<p>because rural children easily attend school and health care center, but the must indicate during road construction that dust and noise must be control to avoid any impacts on children either during their travelling or during their learning at school. Much accidente has been happening during the road construction because they have not made the children path safety going and returning from school. School traffic road safety education must be integrated into their program either officially or unofficially. Subjects related to roads impacts such as road safety, road asset (sign board, and line making, or others) must be disseminated to beneficiary's households which include women and children as well.</p> <ul style="list-style-type: none"> <li>▪ Deputy director of PDRD:</li> <li>▪ Commune councils of Sambo: Although people need rural road construction in their villages, but it is experienced that during the road construction there are a lot of problems happed such as land and tree affected, therefore, it is needed to clearly conduct short time assessment to ask people if they have willingness to contribute land either voluntary contribution or they need affected land acquisition.</li> <li>▪ Villager of Knhe Commune: They need to have Disclosure meeting on the rights of land users, land owners.</li> <li>▪ Added by Chief of Knher Commune: We need land survey to identify the affected land, fence, and tree of the villagers.</li> <li>▪ Chada Organization: they need to prepare survey map and schedule of land acquisition prior to decide road construction.</li> <li>▪ Most of people at commune public consultation: Agreed that the authorities must conduct a meeting with villagers for discussion and agreement prior to make decision.</li> <li>▪ Chief of PDRD and all staffs: Detail of land loss are very important before conducting a meeting with villagers and communities and ask them whether they agree for land contribution or not.</li> <li>▪ All NGOs and CBOs: agreed that approval on land study report is very important that government should have explicit mechanism to judge whether land study is right or wrong.</li> <li>▪ 90% of participants at commune public consultation: Urged that to avoid women migration and children's class drops, job opportunities either during road construction or after road construction must be created, during road construction should be involved a significant number of women working as a labors and should educate children over road safety and road assets management.</li> <li>▪ Both PDRD and all NGOs: Raised that the procedure of land studies, checking, verifying, and approval must be clear and involve local people to participate in the process.</li> </ul>
<p>Any issue on environmental impacts is emerged due to road construction?</p>	<p>ENVIRONMENT:</p> <ul style="list-style-type: none"> <li>▪ Chief of communes, chief of villagers confirmed minor environmental impacts such as dust, noise, more people encroachment after road construction, and soil excavation (borrow pits) can be a risk for animals and human if their place is depth and no fence surrounding.</li> <li>▪ All agreed, that the borrow pits must be converted into adequate water retention ponds used for human and animal in dry season.</li> <li>▪ NGOs and CBOs: Raised their concerns over the degradation of natural resources in the protected places due to people encroachment after the road construction. They have experiences over the land encroachment, constructing houses close to protected areas or along the roads, cutting trees and transport through constructed roads, and</li> </ul> <ul style="list-style-type: none"> <li>▪ Sambo District Governor: Check list of environmental impacts must be done although minor impacts. The environmental impacts analysis list is to confirm how the impacts look like, such as a long term</li> </ul>

Rising Issues/Questions	Responses
Any people should join with environmental protection for road construction?	<p>environmental impacts and short term environmental impacts. It must be distinguished clearly.</p> <ul style="list-style-type: none"> <li>▪ PDRD and CBOs: The Environmental Analysis should be carried out by a provincial official who should be trained to do this work and with the participation of the people (villagers and councils) who can be affected by the project. Ordinary people should be encouraged to take part, not just the C/S chief or other people who are involved in promoting the project. It is best if many different types of people participate – young people and old people, women and men, farmers, monks, etc.</li> <li>▪ District Official: The Environmental Analysis (EA) must be done although this is minor impacts to the rural people. It should be done near the project site, at a public location where it is convenient for people to participate. For some projects it will be necessary for the official responsible for the analysis to walk over the project site together with local people.</li> </ul>
Who should participate and know about the project for environmental protection?	<ul style="list-style-type: none"> <li>▪ Chief of commune, Sambo and one of Commune councils: The PDRD technical engineer should begin by making sure that the people, commune level, who participate in the analysis, know about the project. Rural people should know clearly how the project will be implemented, what the outputs will be and what the expected benefits, (the reason for doing the project), are.</li> <li>▪ Commune of Knhel: Then the engineer should explain the reason why it is necessary to carry out an environmental analysis for this project. The official should make sure that the people understand that the result of the analysis will be recommendations only – sometimes it may happen that recommendations are made during the analysis, but it is not possible to follow the recommendations fully.</li> </ul>
How will the long term impacts be done? Provide more examples please?	<ul style="list-style-type: none"> <li>▪ WWF, Flora suggest that: the below impacts must be identified during project screening: <ul style="list-style-type: none"> <li>○ Increased threats to endangered wild animals known to live in the area.</li> <li>○ Damage to the forests (especially in bio-diversity area)</li> <li>○ Impact on sustainability of wetlands or water sources (especially in protected or bio-diversity areas)</li> <li>○ Long term damage to agricultural land</li> <li>○ Erosion caused by changes to alignment or size of streams</li> <li>○ Erosion caused by removing vegetation</li> <li>○ Flooding</li> <li>○ Damage to water quality due to chemical pollution</li> <li>○ Long term impact causing by dust, noise and safety problems</li> </ul> </li> <li>▪ IP of Knouv suggested that: <ul style="list-style-type: none"> <li>○ Damage to the livelihood, living environment or customs of indigenous people</li> </ul> </li> <li>▪ Community suggested that: <ul style="list-style-type: none"> <li>○ Damage to the fisheries resources and fisheries stocks</li> </ul> </li> </ul>

Rising Issues/Questions	Responses
Any other impacts during road construction?	<ul style="list-style-type: none"> <li>▪ Most of public consultation participants confirmed that: <ul style="list-style-type: none"> <li>○ Short-term environmental impacts mostly occur during the project implementation. Short-term environmental impacts can be ameliorated by implementing the environmental management activities described in contractor's or service provider's work plan and environment management plan.</li> </ul> </li> <li>▪ Save the Children: short term consists of contamination of water resources during construction, damage to home gardens and fruit trees, Damage to domestic water supplies, noise and dust problem during construction, and Damage will be caused by vehicles transporting materials to the site.</li> </ul>
What should we do to address longer term and short term impacts?	<ul style="list-style-type: none"> <li>▪ All at provincial and community meeting, but not household level, confirmed that project must have environmental management plan.</li> <li>▪ WWF and Save the Children: <ul style="list-style-type: none"> <li>○ The environmental management plan must show what changes to the project are recommended to reduce the bad impacts on the environment.</li> </ul> </li> <li>▪ Commune councils claimed to have monitoring plan. Environmental monitoring plan must indicate what the impacts are, where the impact is may occur, when it is actually happened, how to challenge it, who supposed to have privilege to do this.</li> <li>▪ Commune chief of Khnel said: It must have mitigation measures clearly and participated by local community.</li> </ul>
On EMP and Monitoring Plan	
Suggestion from All	<ul style="list-style-type: none"> <li>▪ Cost of damage of environment must be set or calculated to make sure that project should provide compensation if the event that there is a serious environmental impact or short term impacts.</li> </ul>

### Provincial Public Consultation in Tboung Khmum Province

<b>Tboung Khmum Province</b>	<ul style="list-style-type: none"> <li>▪ 37 participants from different groups participated in the public consultation meeting in three different places (3 PDRD, 20 Mean and Roka Por Pram Commune, 3 from District Governor and District Women and Children Committee [DWCC] and 8 community members from proposed road line and 3 representatives CBOs.)</li> <li>▪ At provincial level, deputy director of PDRD and 3 staff members attended the meeting from Deputy District Governor and District Women and Children Committee.</li> <li>▪ At commune level, 20 representatives including all commune councils, clerk, and village chiefs from both Mean and Roka Por Pram Commune attended 2 separated meetings.</li> <li>▪ At community level, random household interviews were conducted with 8 families. The selection was based on the location of households from the beginning, middle and end of the proposed road line. The household interviews were guided by a set questionnaire. The interviews took about 3 hours in total.</li> <li>▪ Two separate meetings were conducted with CBOs with 3 representatives from Handicap International, Safe Water 1001, and Khmera.</li> </ul>
Mean and Roka Por Pram Commune, PDRD Office,	

Rising Issues/Questions	Responses
What is the geographical condition of the Tboung Khmum Province?	<ul style="list-style-type: none"> <li>▪ The proposed road line connects three communes namely Mean, Apel Tapork, and Mohaleap. Some section of the road affected by flood yearly, while drought happened almost year. Maximum flood is 1.2 m occurred at the end of road.</li> <li>▪ There are local brick factories operating around the road line. Heavy truck carrying brick and factory materials such as laterites and gravels are believed to be the main cause in deteriorating the condition of the road.</li> </ul>

Rising Issues/Questions	Responses
How the road networks proposed for this project were selected	<ul style="list-style-type: none"> <li>▪ There was a discussion on criteria in selecting road lines with PDRD during a meeting among the Deputy District Governor and District Women and Children Committee, and PDRD representatives. The mission team randomly picked one among 11 proposed roads from PDRD.</li> <li>▪ The selected and inspected road is Charn Nimith-Prapath road line with 7.5 km length and 5 m width.</li> <li>▪ This road network is claimed to be of great significance in term of market, school, and health center access.</li> <li>▪ Conditions of the roads are already existed strong base; however, due to the heavy loads of transportation, some areas of the road line got damaged, particularly at the end of the road line.</li> <li>▪ There was also discussion on other proposed lines raised by a representative from DWCC in term of access for rural women to health center. Due to the condition of the road and time constraint, the mission team was unable to inspect the whole road line.</li> <li>▪ The mission team also inspected one of the top ranked road lines. Nevertheless, the road does not reflect well on the five main criteria proposed by the World Bank for road selections.</li> </ul>
How the rural road construction affected rural society?	<ul style="list-style-type: none"> <li>▪ Community response: from all the household interviews, there is no one who disputes the benefits of having better road access. All of the participants are willing to contribute their tree, fence, or temporary shop house of their own volition (i.e. land donation) if their properties encroach on the road line while being rehabilitated. One of the consulted correspondents said that he has no hesitation to donate his properties if there is a requirement by the authority and if his neighbors were required to do so also. This reflects the importance of peer influence in the community.</li> <li>▪ When asked to identify any adverse social impacts resulting from the proposed road construction or improvement, most of the respondents could not provide any answer. They mostly agreed to the noise and dust during the construction; nevertheless, the villagers already complained about the heavy dust during the dry season and mud during raining season with the current road condition. One villager said that she is always having a dust bath every day. One villager said he rented a place for his daughter to stay closer to school to avoid bad traffic.</li> <li>▪ When being asked if improved road condition can result in higher migration rate, many villagers said that that is a normal migration practice for farmers who use dry season to seek job opportunities outside their villages. A young seasonal migrant labor said most of his peer group are working in garment factories, construction sites, and farms in other communes and provinces.</li> <li>▪ Khemara: No one denies the great importance of access to roads in development and improved livelihood. Khemara representative said that it is safer for children to travel to school if there is better road. If the condition of the road is bad, the children need to commute at dawn time to make it to early class, which can result in violence or rape. Access to rural communities through better road condition is undeniably beneficial to their awareness raising and training work, particularly when all the trainings and workshops are done in direct face-to-face meetings.</li> <li>▪ Safe Water 1001: This local organization representative welcomed the idea of improved road condition, which can facilitate their water supply to remote communities.</li> <li>▪ Deputy director of PDRD: Ensure gender equity and balance in participation: there is gender consideration in community participation in term of ensuring the participation among men and women. In one commune case, there is 60% of women (20% of which is youth below 35 years old) participated in the commune planning meeting.</li> </ul>

Rising Issues/Questions	Responses
	<ul style="list-style-type: none"> <li>▪ The current practice during commune planning, men and women are segregated into two focus groups so they can discuss and voice their concerns and priorities separately before they bring the development concerns from both parties for the main meeting. This is where the power struggle comes in to play.</li> <li>▪ When it comes to decision-making power, it is interesting to note that women still need to listen to their husbands for final decision. A real-life case from DWCC member who participated in dispute and settlement negotiation with a family affected by a road construction project. The wife agreed to donate bamboo trees in front of her house for the road rehabilitation project while her husband refused. The project team had to bypass the area and found other alternatives.</li> <li>▪ For women headed household, women are occupied with earning income so the participation is lacking. She will rely on getting information from village chief and her neighbor.</li> <li>▪ From DWCC, women played strong role in dissemination of information.</li> </ul>
Any issue on environmental impacts is emerged due to road construction?	<ul style="list-style-type: none"> <li>▪ Consulted people living by the road line strongly recognize the disruption during construction phase; however, the current dusty and fragmented road condition they are facing is more unbearable and disturbing than the short-term construction phase.</li> <li>▪ Commune council members recognized environmental impacts such as dust, noise, and people encroachment after road construction, and soil excavation (borrow pits) can be a risk for animals and human if there is place is depth and no fence surrounding.</li> </ul>
Any people should join with environmental protection for road construction?	<ul style="list-style-type: none"> <li>▪ In one of the Commune Council meeting, a Council representative recognized the role of community particularly women in monitoring quality of work of construction company. Therefore, it is suggested the role of community monitoring and reporting should be well reflected in contractual arrangement with construction firm(s).</li> </ul>
Who should participate and know about the project for environmental protection?	<ul style="list-style-type: none"> <li>▪ Public and community participation is strongly reflected in many commune development-planning guidelines by NCDD. The Deputy District Governor mentioned the current dissemination mechanism is believed to be successful. There are three dissemination meetings conducted prior the road construction begins. The first meeting is the introduction about the objectives and importance of the projects to the community. For the second meeting, the affected households are informed if there is any loss of properties happening during road construction. Two weeks prior notice is given to all affected families for decision making within their family if they agree to contribute land voluntarily.</li> </ul>
How is about the long term impact should be done? Provide more examples please?	<ul style="list-style-type: none"> <li>▪ Possible illegal logging transportation, mentioned one of consulted community members during nighttime.</li> <li>▪ Possible damage if there is no maintenance and control plan on heavy loaded transportation.</li> <li>▪ Long term damage to agricultural land.</li> <li>▪ Erosion caused by changes to alignment or size of streams.</li> <li>▪ Erosion caused by removing vegetation.</li> <li>▪ Climate change-extreme weather of longer drought and flood.</li> </ul>
Any other impacts during road construction?	<ul style="list-style-type: none"> <li>▪ Discussion on road safety particularly around school areas was made. A great emphasis on safety for children should be included. Khemera representative said that there is an initiative to teach pre-school children with visual aids on road safety in their community kindergarten project.</li> <li>▪ Through various commune meetings and village chief's door-to door announcement, almost all interviewed villagers were informed about possible loss of home gardens, trees, fences and shop houses.</li> </ul>
What should we do to address longer term and	<ul style="list-style-type: none"> <li>▪ Safety guidance for travelers specifically school children should be included and implemented.</li> </ul>

Rising Issues/Questions	Responses
short term impacts? On EMP and Monitoring Plan	<ul style="list-style-type: none"> <li>▪ Monitoring plan during construction and maintaining plan after the construction should involve more community. Awareness on road as common and public goods should be encouraged. Throughout the consultation process, no one disputes the importance of road as his/her access to better livelihood. Everyone wants good quality roads, yet there is no strong mechanism for maintaining the road quality. Some of the road lines have been repaired many times.</li> </ul>
Suggestion from All	<ul style="list-style-type: none"> <li>▪ While the dissemination process of understanding and accepting the environmental and social protection from developing road construction were normally conducted by DWCC and CWCC, there is a need for continued strengthening of capacities at local and provincial, district commune and populace levels on specific social and environmental impacts and measures. This should be complemented by strengthening awareness and understanding within the MRD that is responsible for road safeguard implementation. Key capacity issues are: Natural Resources Protection, People Rights of land Possession, long and short term impacts during project and post project construction.</li> <li>▪ It is reported that awareness of environmental impacts is mostly confined to impacts upon forest and wetland areas along project sides with little consideration of the broader environmental impacts there may be. For example, the implications that construction of a road that increases access to a forested area may have for forest clearance or tree collection is not generally considered widely among the stakeholders such as local people, authority, CBOs, and even local public servants.</li> <li>▪ It should be noted that many consulted household members complained about the lengthy process or gap between prior consultation and the actual implementation of the project. One villager said she was asked to join many meetings but the road construction has not been started so far. Therefore, any consultation with communities should be handled properly to avoid raising expectation. The community should be well informed how the project will be implemented, what the outputs will be and what the expected benefits, (the reason for doing the project), are.</li> <li>▪ Involving women and elderly in the process of monitoring and road construction with contracted firm can generate more incomes.</li> </ul>

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**Appendix A3**

**1<sup>st</sup> Public Consultation Meeting  
Sign Up Sheets**

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Figure A3.1 Sambo Commune sign up sheet.

ព្រះរាជាណាចក្រកម្ពុជា  
ជាតិ សាសនា ព្រះមហាក្សត្រ

ប្រឹក្សាភិបាលស្រុកសំបូ

ឈ្មោះ: .....

ថ្ងៃ: ..... ខែ: ..... ឆ្នាំ: ២០១១

ល.រ	ឈ្មោះសមាជិក	ភេទ	មុខរបរ	អាសយដ្ឋាន	ហត្ថលេខា	លេខទូរស័ព្ទ
1	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	01264608
2	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	01237367
3	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	0882356407
4	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	092233137
5	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	01251402
6	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	012343427
7	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	011790777
8	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	012670905
9	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	012550393
10	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	085999020
11	លី ឈី	ប	សេដ្ឋកិច្ច	សំបូ	[Signature]	010712304
12	DOK DCHA	M	Consultant/WB	NAI/NP	[Signature]	012725669
13	Jim Hamilton	M	-	-	[Signature]	
14	Prophet Seng	P	-	-	[Signature]	



Figure A3.3 Tboung Khmum District sign up sheet.

បញ្ជីគ្រួសារ

ថ្ងៃទី ..... ខែ ..... ឆ្នាំ២០.....

ល.រ	គោត្តនាម និងនាម	ភេទ	តួនាទី	អង្គការ	លេខទូរស័ព្ទ	ហត្ថលេខា
១						
២						
៣	គង កុន	ក្រី	ប្រធានគ្រួសារ	គ្រួសារ	០១៥៥១៣៦៧	S.K.
៤	យ៉ា ចារា	ក្រី	គ្រួសារ	H	០១៥៧២៨០៥	D.K.
៥	យន កុន	ស្រី	ប្រធានគ្រួសារ	H	០១៥៤៤១៥៤១	D.K.
៦	សុខ វិធី	ស	គ្រួសារ	មន្ទីរព.ស.ប	០១០ ៧១២៣៤	Natth
៧	DOK DONA M	M	Consultant	Hatfield	០១២៧២៥៦៩	Dokona
៨	Sim Hamich M	M	Consultant	Hatfield		f.lee
៩						
១០						
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Figure A3.4 PDRD office sign up sheet.

  
 ព្រះរាជាណាចក្រកម្ពុជា  
 ជាតិ សាសនា ព្រះមហាក្សត្រ  
 ក្រសួងធនធានទឹក និង រុក្ខជាតិ  
 មន្ទីរពិសោធន៍ និង បច្ចេកទេស រុក្ខាប្រមាញ់  
 មន្ទីរមគ្គុទ្ទេសក៍

ស្ថិតិ:

ល.រ	ឈ្មោះ និង ភេទ	ភេទ	តួនាទី	អង្គការ	ហត្ថលេខា	លេខទូរស័ព្ទ	ផ្សេងៗ
1	DOK DONA	M	Consultant	Hatfield/UB		97775269	
2	Jim Hamilton	M	CONSULTANT	HATFIELD		n.a.	
3	Bopha Seng	F	Consultant	Hatfield			
4	Van Bunron	M	Program Manager	Samaritan's pure	Ran	012214864	
5	HE Hoky	M	Project Team Leader	CDPDA		081 400 496	
6	Sim Sokleang	M	PRM	ChildFund		012757388	
7	Pha Chanra	M	Senior Research officer	MWF-Cambodia			
8	Nhvan Sopha	M	Project Manager	FLO		012752805	
9							
10							

Figure A3.5 NGOs consultation sign up sheet.

  
**ព្រះរាជាណាចក្រកម្ពុជា**  
**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**ក្រសួងធនធានទឹក និង រុក្ខជាតិ**  
**មន្ទីរអភិវឌ្ឍន៍ធនធាន ខេត្តក្រចេះ**

**មត្តិកម្មបញ្ជី**  
**ស្តីពី: .....**

ល.រ	នាម និងភេទ	ភេទ	តួនាទី	អង្គការ	ហត្ថលេខា	លេខទូរស័ព្ទ	ផ្សេងៗ
1	DOK DOMA	M	Consultant	Hatfield/WB	<i>[Signature]</i>	97775669	
2	Jim Hamilton	M	CONSULTANT	HATFIELD	<i>[Signature]</i>	n.a.	
3	Sopha Seng	f	Consultant	Hatfield	<i>[Signature]</i>		
4	Van Bunron	M	Program Manager	Samaritan's pure	Ran	012204864	
5	HE Hoky	M	Project Team Leader	CHRON	<i>[Signature]</i>	081 400 496	
6	Sim Sokleang	M	PRM	ChildFund	<i>[Signature]</i>	012757388	
7	Phan Channa	M	Senior Research officer	WWF Cambodia	<i>[Signature]</i>		
8	Nihan Sopha	M	Project Manager	FLO	<i>[Signature]</i>	012752895	
9							
10							

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**Appendix A4**

**2<sup>nd</sup> Public Consultation Meeting  
Sign Up Sheets**

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Placeholder page - sheets to be provided following the 2<sup>nd</sup> public consultation meeting.