

Kingdom of Cambodia  
Nation Religion King



## Climate Resilience for Provincial Road Improvement Project

Loan 2839-CAM (SF)/ 8254-CAM and Grant 0278-CAM

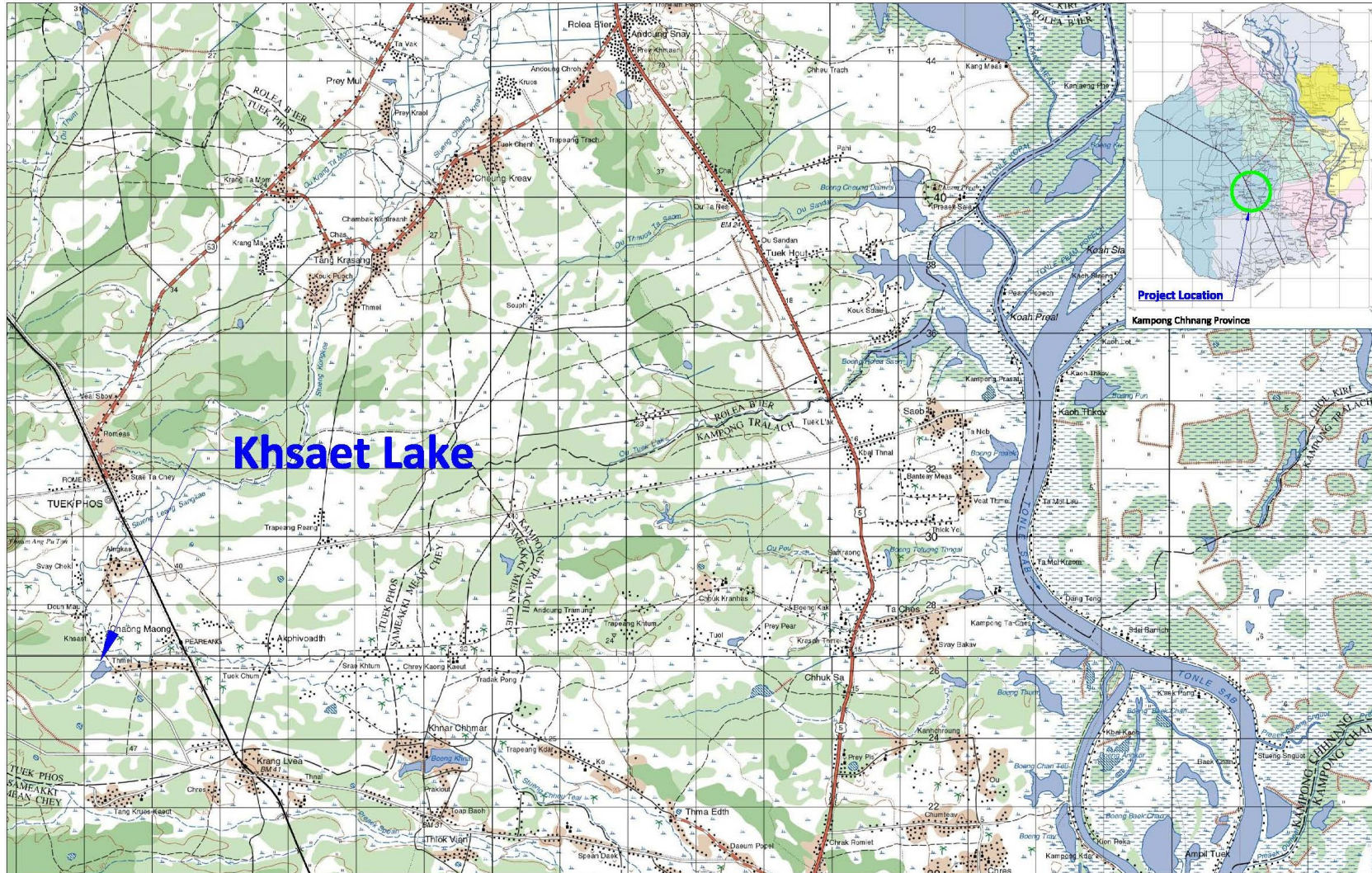
### Infrastructure Rehabilitation for Climate Resilience

Toek Phos District, Kampong Chhnang Province

# ***KHSAET LAKE DREDGING***

# 1 LOCATION OF WORKS

Khsaet Lake is located south of Tuek Phos district in Kampong Chhnang province.





## 2 WATER CAPTURE KHAET LAKE, TUEK PHOS

### 2.1 Background

This lake was created artificially by the villagers who constructed a dam across a natural drainage basin into which a stream runs. A local road runs on top of the dam. Two sluice gates allow the captured water to overflow and be directed to the nearby rice fields.

The villagers wish to deepen the lake by excavating it further. This will increase the capacity of the lake and give water supplies during the dry season. Since the new water volume will be below the sluice gate base slab level, the new volume will need to be pumped out by the community.

The dredged material will be disposed in a nearby land and can be used for minor work purposes of the community.



Khsaet Lake existing embankment and sluice gates

### 2.2 Objectives

The objectives of this project are to restore original irrigation water sources by rehabilitating the sluice gates and providing additional non-irrigation water source to local villagers and farming communities by dredging the lake bed.

### 2.3 Overview

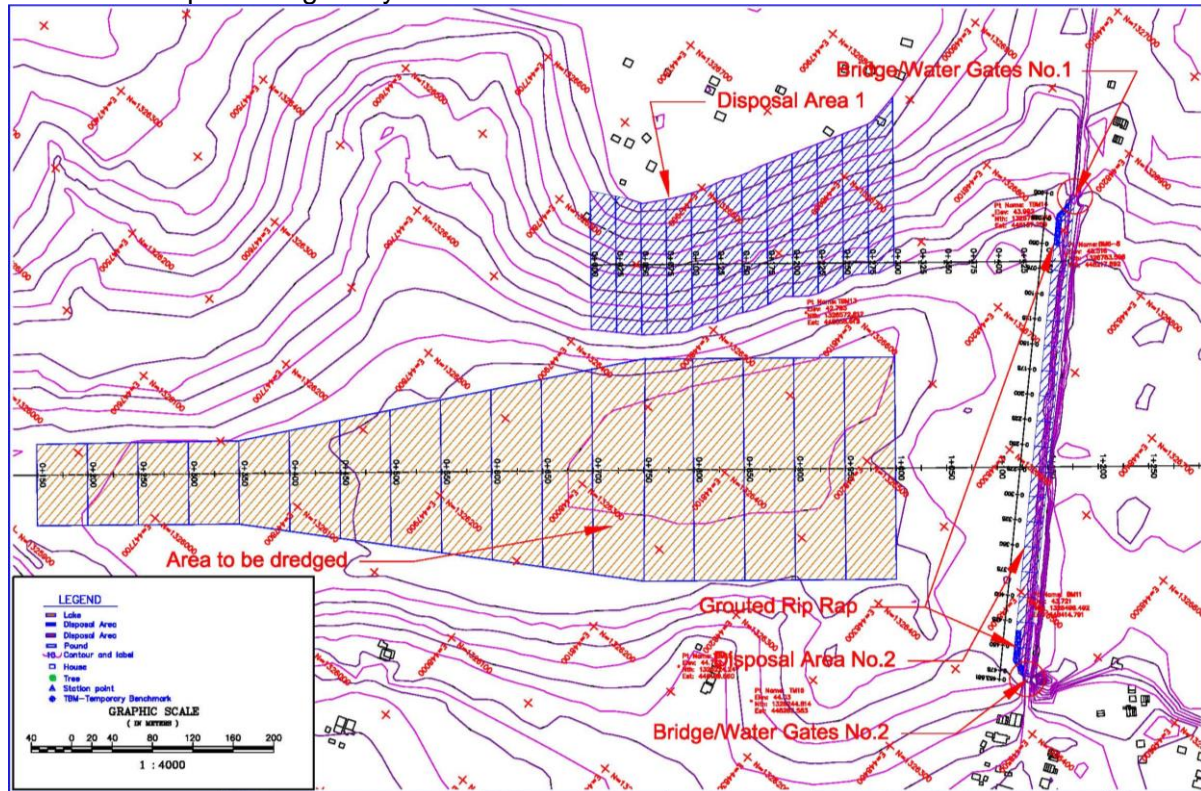
The rainwater catchment area of the lake is shown in red in the figure below. The road structure that acts as a dike is about 80 m long and raises currently at about 3.5 m above the bottom level of the lake.



## 2.4 Construction works for dredging of Lake Khsaet

The major items for the works are:

- Dredging
- Disposal and placing of dredged overburden
- Repair of 2 gate systems



The dredging should be undertaken during the dry season with the lowest possible lake level. That means from March to July, maybe before March if the season was particularly dry.

The dredging should be done by excavators on tracks with a long neck with the minimum capacity of the Caterpillar 220 or the Komatsu 220. The dredging should start from the middle of the lake as close as possible to the existing dam. Trucks could be loaded as far as they can drive in the water. It is up to the contractor to estimate where excavator(s) and trucks can go.

The dredged materials will be disposed in the nearby disposal area located at the north of the lake. It could later be used following the local community requests for minor works.

Some dredged material may be left at the base of the road / dike as shown on the drawings to facilitate the drying of dredged material if necessary. No material should obstruct the gates areas.

The excavator should be equipped with a long neck and a bucket of minimum 1 to 1.44 m<sup>3</sup>. It should remove between 70 and 100 m<sup>3</sup> of material per hour. That is equal to between 600 and 800 m<sup>3</sup> per day.

At least 3 excavators should be used to achieve the work in 4 months. Some 10 to 15 all-wheel drive trucks should be used. The use of 4 excavators is advised. The operators should pay attention to not dig too deeply on the same area and try to maintain the bottom of the lake as flat as possible. An average depth of 1 meter should be maintained.

Although a full UXO survey will be conducted prior to commencement of works, the contractor should be aware that UXOs may still be lying deeper in the lake bed. In case of any

observations of any significant metal objects, works should be immediately interrupted and authorities notified.

After dredging the contractor should do a topographic survey which will be compared to the before-works topo survey. This will provide the amount of dredged quantities which are to be paid.

### **Restoration of surrounding landscape**

The contractor is responsible for restoring the surrounding landscape altered by the moving of material back to its original condition.

## **2.5 MOU for works, material disposal and maintenance**

The proposed memorandum of understanding (in attachment) establishes the responsibilities of the parties regarding the dredging of the lake, the disposal of dredged material and the operation and maintenance of the new gates.

This MOU will prevent any resettlement or compensation procedures related to the works.

## **2.6 Budget and time frame**

### **Time frame for dredging works**

About 7 months

### **Costs**

The cost of dredging the lake is estimated to be about \$500,000.



# MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is entered into by and between:

Ministry of Public Works and Transport (MPWT)

and

Kampong Chhnang provincial administration

## Context

The Ministry of Public Works and Transport will hire a contractor to rehabilitate Khsaet lake in order to provide more water to the residents of Tuek Phos. The project consists in dredging about 100,000 cubic meters of lake bed material and to dispose it on a land on the north side of the lake and along the existing road / dike as shown in the following figure. The contractor will also rehabilitate the two flood gates at each end of the road / dike.



**Dredging and material disposal plan**

(Dredging in dark yellow, Disposal areas in blue and Road / dike in purple)

## Specific roles and responsibilities

The MPWT will:

- Ensure that all environmental impacts will be minimized and site safety ensured during the one-year construction period in accordance to GOC regulations.
- Organize an inauguration ceremony where fish will be re-seeded in the lake.

The Kampong Chhnang provincial administration will:

- Provide necessary written authorizations to use the land for disposal areas free of charge and the permits for dredging works.
- Provide sufficient resources to maintain the flood gates in good condition of order.
- Supply fish for re-seeding.

- Manage the use of the stockpile of material in the disposal areas for the benefits of the community.
- Inform the population about the project before starting the works and collect complaints if necessary for review with DPWT / MPWT

**MPWT**

**Kampong Chhnang provincial  
administration**

Signature:

.....

.....

Name and  
Title:

.....

.....

Date:

.....

.....