

# **The Project on Riverbank Protection Works Phase II**

Project Period: November 2010 to October 2014 (48 months)

Country: Lao PDR Client: JICA

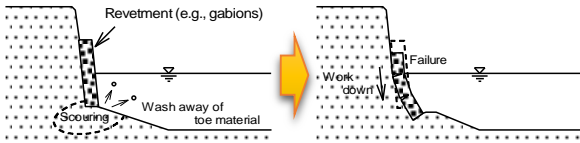
## **Outline:**

NEWJEC provided technical assistance for the capacity development of Lao engineers through pilot construction on riverbank protection works using traditional method with local material at 3 provinces.

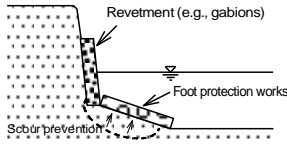
- Paoy Site, Bokeo Province: L=200m at the Mekong River
- Pakthoay Site, Bolikhamxay Province: L=200m at the Mekong River
- Souanlouang (Nasa) Site, Luangprabang Province: L=240m at the Khan River

# Riverbank Protection Works Using Traditional Method with Local Material

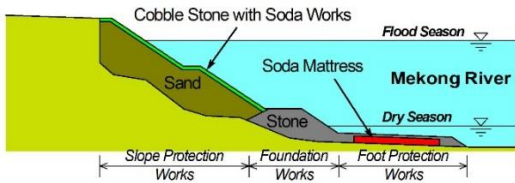
## - Application of "Soda (Fascine)" Method for the Mekong River -



**Mechanism of Revetment Failure**



**Function of Foot Protection Works**



**Typical Cross Section (Ban Dongphosi Site)**

**How to Make a Soda Mattress**

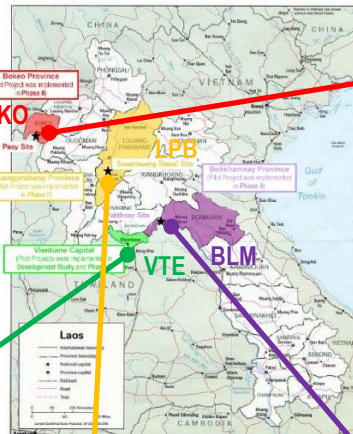
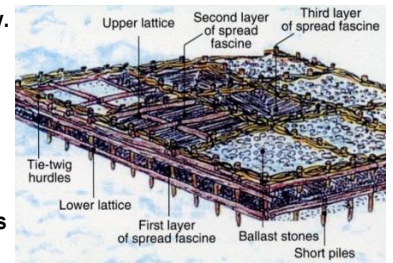
### Introduction

In Laos, public property and assets have rapidly become concentrated in the city of Vientiane, and hence there is an urgent need for protection against the erosion of the Mekong riverbank. Riverbank protection works with gabion boxes were actively carried out with foreign assistance in the 1990's, and yet some reaches suffered damage within a few years after completion, possibly due to inadequacy of the foundation and foot protection works.

The Soda (fascine) Mattress system was introduced and developed in Japan in the early years of the Meiji era (1868-1912), and was extensively used for groins and dyke-foot protection. Brushwood, twigs and stones are the principal materials of Soda Mattresses. These materials and relevant equipment are readily available locally within Laos, and accordingly the Soda Mattress system could be a suitable and sustainable method of riverbank protection in Laos.

### Distinctive Features of Soda Mattress

- Soda Mattresses are so flexible that they can change shape and follow the riverbed changes, and are thus effectiveness for the riverbank foot protection.
- Materials are readily available locally.
- Soda Mattresses can be fabricated in various sizes according to the site terrain.
- Since native plants and stones are used, Soda Mattresses do not contaminate the natural environment, and their highly porous structure creates habitats for small fish.



**Location Map of Pilot Project Sites**

**Pilot Construction in Bokeo Province (BKO), Mekong River 2011-2012**

**Pilot Construction in Vientiane Capital (VTE) Mekong River, 2003-2004**

**Pilot Construction in Langprabang Province (LPB), Khan River, 2013-2014**

**Pilot Construction in Bolikhamsay Province (BLM), Mekong River, 2012-2013**

Source: Pilot Project on Soda Mattress as a Means of Riverbank Erosion Protection at the Mekong River, 1st APHW Conference, March 2003  
 JICA "The Study on Mekong Riverbank Protection around Vientiane Municipality" Final Report, December 2004  
 JICA "The Project on Riverbank Protection Works Phase II" Project Work Completion Report, August 2014