

## **Executive Summary**

### **Background**

Every year, Mainland North Division (MND) spends approx. \$3.5 Million on grass cutting along the river banks maintained by MND in the NT area. These rivers include Sheung Yue River, Ng Tung River and Ping Yuen River. The grass would then be hauled to the landfill sites for disposal. This routine grass cutting is not environmentally friendly and is labour intensive. With the promotion of more greening by government, the general public expects more green channels in the territories. The resources required on horticultural maintenance of river channels are expected to increase. To show our care to the environment, a R&D Study on recycling use of the vegetation removed during channel maintenance was commissioned.

### **Aims**

The Aims of this R & D Study are:-

- a. to conduct a desktop study, site trials and field measurements to assess the recycling use of vegetation removed during river maintenance in Hong Kong; and
- b. to provide recommendations on the recycling use of vegetation removed during river maintenance.

### **Stage I R&D Study**

This R&D Study comprises two stages. Stage I includes a desktop study for 6 months which was followed by a 18 month site trial on the recommended recycling method in Stage II.

The Stage I R&D Study has explored different kinds of recycling methods to handle the removed vegetation materials. The review was conducted based on the information from available reports/ publications. The recycling options reviewed in the desk top study include :-

- feeding cattle, sheep and fish with the removed grass
- composting removed vegetation materials on site
- recycling removed tree as mulching material
- recycling removed tree as biochar

Based on the research, the above recycling methods suitable for use in green channel under various conditions have been ranked from the ecological values. Composting removed vegetation materials by Open Bin composting method is recommended for site trial in Stage II of this study.

## **Stage II Site Trial**

A suitable site was selected for the site trials following Stage I Desktop Study. The Stage II site trial for the Open Bin Composting Method reviewed and verified the findings and recommendations under Stage I Desktop Study by comprehensive site tests. Assessment of the composting method reveals that the rate of composting is affected by the ambient temperature and that the most effective days of turning the compost is 7 days. Therefore the days of turning of compost, i.e. 7 day interval, is recommended for full scale production in a composting plant. Further laboratory test of the compost revealed that there is no heavy metal found in the compost and the finished compost can be used as soil conditioner.

## **Summary**

Site trial and field assessment revealed that the open bin method is a practical and environmental friendly solution to reduce the vegetation waste from DSD river channels hauls to landfill thereby reducing the final carbon footprint. The total cost of the site trial is about \$ 70 000.

## **Way Forward**

We have established a viable and practical Open Bin Composting Method based on the findings of this R&D study. Recommendations and guidelines are provided to DSD O&M divisions, based on the findings of Stage II site trial, for full implementation of the recycling use of vegetation waste removed during river maintenances by Open Bin Composting Method.