

**For discussion
on 24 March 2005**

Legislative Council Panel on Environmental Affairs

Progress Report on the Restoration of the Tung Chung Stream

PURPOSE

This paper –

- (i) reports progress on the restoration of the damaged section of the Tung Chung Stream after completion of reinstatement works in April 2004; and
- (ii) outlines the new measures we have taken to strengthen the protection of natural streams and rivers in Hong Kong.

BACKGROUND

2. The Tung Chung Stream is about 3 kilometres long. A section of about 330 metres at the lower course of the stream was found damaged by unauthorised works in late 2003. An access road ranging from 5 to 15 metres in width was formed alongside the damaged section of the stream. The streambed was excavated and boulders and pebbles on the streambed were removed and stockpiled along the stream bank. There were also signs of other filling activities and several temporary dams were formed along the stream. As a result, the riparian habitats were disturbed and damaged. Upon report of the incident, the Lands Department (Lands D) immediately stopped the unauthorised works and carried out investigation on the case. The Tung Chung Rural Committee (TCRC) admitted responsibility for the unauthorised works and undertook to reinstate the damaged section of the stream.

REINSTATEMENT WORKS

3. An Inter-departmental Task Force, chaired by the Environment, Transport and Works Bureau (ETWB) with representatives from Agriculture, Fisheries and Conservation Department (AFCD), Environmental Protection Department (EPD), Drainage Services Department (DSD), Home Affairs Department and Lands D, was set up to examine the reinstatement plans and to oversee the subsequent implementation of the reinstatement works.

4. A Specialist Group, comprising members from the Advisory Council on the Environment and green/interest groups including the World Wide Fund for Nature Hong Kong, Conservancy Association, Friends of the Earth, Green Power, Green Lantau Association and Kadoorie Farm and Botanic Garden, was formed to advise the Task Force on how the reinstatement works should be conducted from the ecological perspective.

5. The objective of the reinstatement works was to restore the natural setting of the damaged section of the stream including the topography, substrates and riparian habitats. The reinstatement works, if successfully implemented, would facilitate recovery of the aquatic communities. The works involved removal of the access road, reinstatement of the longitudinal and cross-sectional profiles of the stream course, re-laying of boulders and pebbles on the stream course, creation of meanders, riffles and pools along the stream course to provide a variety of habitats for aquatic fauna, and replanting of vegetation along the stream bank to restore the riparian habitats. The reinstatement works are illustrated in a diagram at *Annex A*.

6. TCRC started the reinstatement works in stages on 16 February 2004, with the first 10 metres as a trial section and subsequently at 50-metre intervals. TCRC could only proceed with the reinstatement works upon receipt of the Task Force's confirmation on acceptance of the works at the preceding stage. In addition to the frequent site visits by the Task Force, members of the Specialist Group were also invited to monitor the reinstatement works. Through these site visits, the Specialist Group gave valuable advice on the various components of the reinstatement works (including arrangement of boulders and pebbles, formation of meanders, creation of pools and riffles, etc.) to facilitate ecological recovery of the stream. The reinstatement works were completed in April 2004. Both the Specialist Group and the Task Force were

B satisfied with the works. Photographs comparing the damaged section of the stream before and after the reinstatement works are at *Annex B*.

MONITORING OF ECOLOGICAL RESTORATION

7. Following completion of the reinstatement works, AFCD has started a two-year ecological monitoring programme to monitor the progress of ecological recovery of the stream. The monitoring programme covers physical characteristics, water quality, vegetation, aquatic macro-invertebrates and fish community of the stream. To measure the success of the programme, an undisturbed natural section of the stream immediately upstream of the reinstated section has been selected as a reference site. Samplings are carried out at both the reinstated section and the reference site.

8. Preliminary results show that the damaged section of the Tung Chung Stream is gradually recovering from the disturbance. Pools, riffles and boulders have been rearranged in a more natural setting by the natural force of water flow after the wet season in 2004. We have also recorded increasing number of fish species and macro-invertebrates (e.g. larva of dragonflies). They are now comparable to those recorded at the reference site. For instance, a total of nine species of fish have been recorded in the reinstated section while 11 recorded in the reference site. In particular, a rare fish species of conservation interest, *Acrossocheilus beijiangensis*, has returned to the reinstated section. Continual sightings of the fish imply that this species has recolonised the reinstated stream section. We also observed that vegetation has also recolonised the damaged stream bank, which is now covered by grasses, shrubs and young trees.

NEW MEASURES TO PROTECT NATURAL STREAMS AND RIVERS

9. In addition to the on-going administrative and legislative measures, the Administration has put in place a number of new measures to enhance the protection of natural streams and rivers.

10. DSD issued an updated internal guideline circular (DSD Technical Circular No. 2/2004) in October 2004, setting out factors to be considered when

planning drainage works on natural streams and rivers and providing guidelines on good site management in implementing construction works. In addition, DSD, in consultation with other relevant departments, is compiling a set of guidelines on the essential environmental considerations that should be taken into account in river channel designs for reference by proponents of public works projects.

11. In planning and implementing flood prevention projects, DSD has been giving more consideration to the protection of the environment and preservation of natural habitats. Advice from EPD and AFCD will be sought on environmental and ecological matters respectively. DSD will also consult green groups and other interest parties when planning drainage works.

12. Based on comments of relevant bureaux/departments, the Administration issued a technical circular entitled “Protection of natural streams/rivers from adverse impacts arising from construction works” in March 2005. The circular provides a more comprehensive administrative framework to better protect natural streams/rivers from the impacts of government works projects and private developments. It formalizes the existing measures for the protection of natural streams/rivers, and provides guidance for the departments concerned to minimise and, if possible, avoid impacts of works projects on natural streams and rivers during the planning, design and construction stages. Works departments are required to monitor the construction processes of the works projects and the implementation of the required mitigation measures. In addition, we are planning some workshops for officers of the works departments to enhance their awareness on the protection of natural streams and rivers.

13. AFCD has been carrying out a territory-wide ecological baseline study since 2002, which covers woodlands, freshwater wetlands, natural rivers and other important habitats. So far, over 200 streams and rivers have been surveyed. Ecological data recorded in the survey include the ecological conditions of the streams and rivers, as well as the freshwater fishes and dragonflies found in their vicinity. In order to enhance the protection of ecologically important streams that are located outside country parks, AFCD has, based on the data collected so far, selected 33 streams and rivers (including the Tung Chung Stream) that are ecologically important. The technical circular mentioned in paragraph 12 above will give priority to protection of these 33 ecologically important streams and rivers.

14. As far as private developments are concerned, the Buildings Department has implemented a new measure which requires that all applications for building and site formation works affecting natural streams and rivers be referred to AFCD and other relevant departments for comments. Similarly, the Planning Department has also been referring planning applications that may affect natural streams and rivers to AFCD for comments.

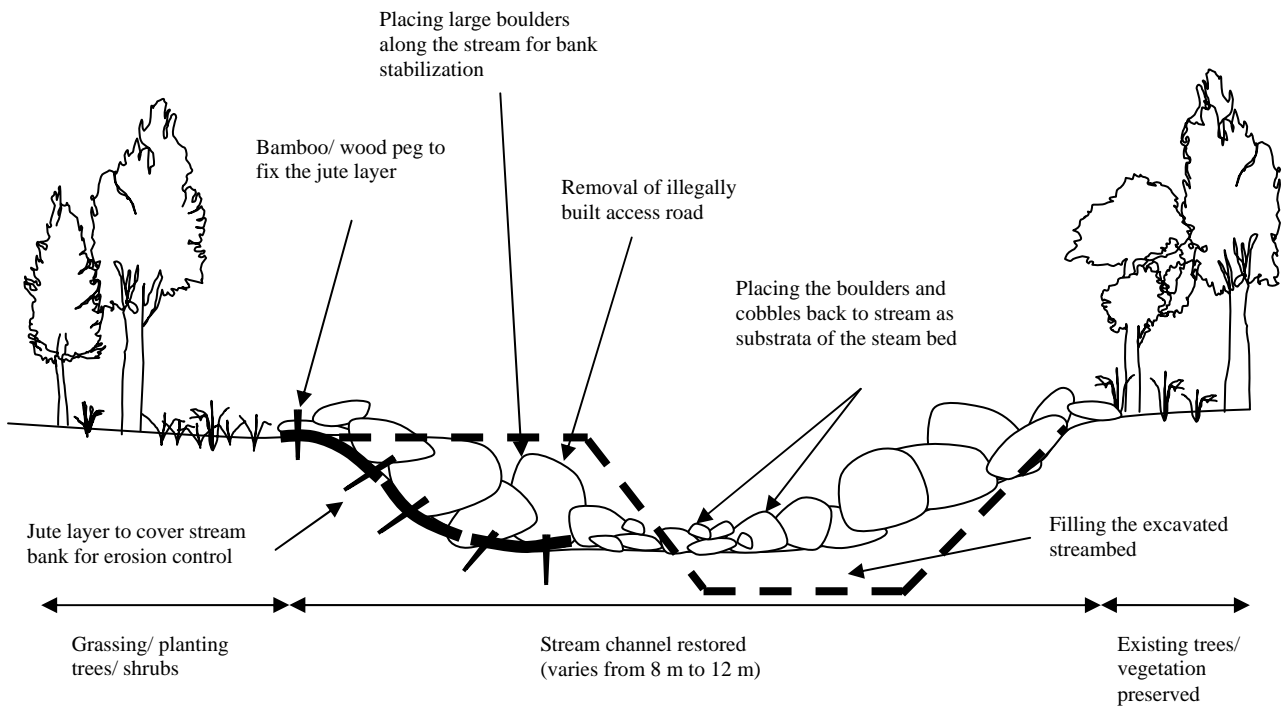
15. Alongside with other existing legislative and administrative measures, we believe these new measures will strengthen the protection of natural streams and rivers in Hong Kong.

WAY FORWARD

16. Based on the preliminary findings of the monitoring programme described in paragraph 8 above, the ecological recovery of Tung Chung Stream is in good progress. We will continue to monitor the ecological recovery of the reinstated section of the stream for another year, and will consider whether further enhancement works would be required. Meanwhile, we will continue to monitor the effectiveness of various measures in protecting natural streams and rivers.

Environment, Transport and Works Bureau
March 2005

Diagram illustration of the reinstatement works



Note : The dotted line represents the cross section of the stream after disturbance

Annex B

Photographs comparing the damaged section of the Tung Chung Stream before and after the reinstatement works



(a) After excavation (before reinstatement) (7 November 2003)



(b) After reinstatement (3 April 2004)



(c) After a heavy rainstorm (21 May 2004)