

SUCCEED · SUSTAIN SLOPESCAPE: Enhancement Programme for Vegetated Slopes

Education Video Long Version

English Subtitle

Hong Kong is a city well covered by a comprehensive and accessible road network. The Highways Department is responsible for the development and maintenance of the road network, improving the connectivity and enhancing long-term prosperity.

Due to Hong Kong's rapid development in the 1950s and 60s and large-scale construction of infrastructure and road network, a large number of man-made slopes were created that needed to be covered by vegetation.

At that time, *Acacia Confusa* and other exotic species were introduced as pioneer species to reinforce the slopes.

These pioneer trees could quickly restore vegetation cover and prevent soil erosion.

Acacia trees are fast-growing, and are able to grow in poor soil conditions.

Acacia trees have a short average lifespan of 50 to 60 years. They are susceptible to wind, drought, compaction and secondary pathogens when injury occurs, and the trunk would bend or collapse easily, posing a safety risk.

Acacia is ecologically monotonous. It does not attract birds and insects, and suppresses the growth of other plant species nearby. So it is rare to see other species underneath an *Acacia*.

Acacia trees grow in dense environment on slopes, where their root development is constrained. Having weathered half a century's conditions, many *Acacias* are becoming senescent. Their deteriorating health problems and declined structural stability have been posing a significant threat to public safety.

Acacia trees, like humans, have a natural life cycle. Withered or structurally compromised *Acacia* trees would be removed. Through recovery and recycling, they will have a second life and continue to serve the community.

A collapsed tree will result in obstruction of traffic, even casualties and property damage.

According to the maintenance record from Highways Department, the number of inquiries and complaints on *Acacia* tree failure have been increasing annually.

Acacia accounts for 35% of the tree removal cases reported to the Highways Department.

The Highways Department launched the "Enhancement Programme of Vegetated

Slopes” in 2016

The department has launched the SUCCEED • SUSTAIN SLOPESCAPE: Enhancement Programme for Vegetated Slopes to gradually and systematically replace senescent and structurally unstable Acacia trees on roadside slopes, with three main objectives: Safeguard public road safety; Promote sustainable development; Enrich biodiversity.

Let’s look at the concept of the programme.

The forward-looking programme is a proactive measure addressing the risk of tree failure. The procedure is to plan and consult, remove the Acacia trees, then replant new vegetation with native species.

Step 1: Planning

Representatives from the Highways Department will carry out inspection of the vegetated slopes on site.

Following the field work is consultation with various stakeholders, including attending District Council meetings for opinions from the community, and seeking professional advice from tree experts. They will also explain the societal and environmental benefits of the programme to the general public.

Step 2: Assessment & prioritisation

The Highways Department Landscape Division will evaluate *Acacia* tree groups on five aspects, to determine the priority of tree removal.

The five aspects include:

Failure potential: whether leaves are wilting on the tree, if the tree trunk is leaning, etc;

Tree size: the larger the tree, the higher the risk;

Site record: history of tree failure and the public enquiries or reports;

Site condition: terrain or slope gradient where the trees are located;

Target rating: potential or instant risk of the trees to road conditions and the public.

Step 3: Replacement of slope vegetation, remove Acacia trees that are a potential hazard

Stumps will be kept so the roots will continue to hold on to the soil and maintain the stability of the slope.

The Highways Department will carry out replanting works on the slopes, mostly with local and native species.

The department will consider the following factors so to ensure the principle of “the

Right Trees at the Right Place” is complied with.

- Environmental factors: slope gradient, soil and micro-climate, etc
- Characteristics of the new tree species, e.g. wind resistance, adaptability to the climate and pest resistance

Common local and native species planted on slopes include *Sterculia lanceolata*, *Bauhinia Variegata* and *Liquidambar Formosana*. The fruit of these species can attract local insects and birds and enrich biodiversity in the vegetation.

Multi-layered planting can create different heights, shapes and colours in different tree clusters, making roadside scenery more diverse.

The new plantations can sustain and replenish themselves naturally, preventing the need for future replacement.

Look at the slope at Yuen Chau Kok, Sha Tin. It is situated by the road and a cycling track, originally planted with *Acacia* trees.

At the site in Wong Tai Sin, after the removal of *Acacia* trees, trees such as *Celtis Sinensis* and *Ilex Viridis*, and shrubs such as *Rhododendron simsii* and *Ixora Chinensis* have been planted. The new vegetation has greatly improved the site aesthetically and ecologically.

Acacia trees have completed their mission and are now retiring.

Local native species will take over the responsibility of safeguarding roadside slopes. They will SUCCEED and SUSTAIN.

The Highways Department will refer to technical guidelines in planting new slope vegetation, which is of high ecological value, and offers a safer and more sustainable roadside environment to the public.

Step 4: Reuse and recycling

The programme not only replaces the slope vegetation, but also promotes the recovery and recycling of wood, so retired senescent trees can live a new life.

Old trees are reintegrated back to society as timber or wood chips so they can contribute to society. For example, they can be recycled as furniture and construction material, and wood chips used to cultivate fungi and compost.

The 4R principle is used in the recovery and recycling of old trees.

REFUSE: replacing with species that don't need future replacement

REDUCE: leaving behind the stumps of removed trees to reduce waste

REUSE: reusing old wood

RECYCLE: upcycling of old wood

Let's look at some local examples of wood recycling.

Raymond Ng – Reclaimed Wood Furniture Company

"In the course of wood recovery, we realised that the wood has a life of its own. It shouldn't be abandoned. It should stay with us and be a part of our everyday lives."

Ivan Wong – Wood Sculpture Artist

"A wood sculptor's main job is to make handicrafts out of recovered wood, such as wooden cups, spoons and relief sculptures.

This is a piece of Acacia wood. It is relatively hard with low flexibility. With thicker Acacia wood, we can make stools or sculptures for art prints.

Since the trees are a potential threat, we can give the wood to artists to transform into furniture that can be placed back into the same environment, so people would know what trees used to be there."

After the vegetation replacement and waste yard recycling work, we will review and improve the programme.

We hope you will support and appreciate the outcome of the "SUCCEED · SUSTAIN Slopescape Enhancement Programme of Vegetated Slopes".