
Soil conservation through multi-purpose wind breaks/shelter belts in Vietnam

SUMMARY:

Properly spaced trees help provide many of the same benefits of a complete perennial cover: fine soil particles contain most of the humus and nutrients in the soil, and if lost, soil fertility is reduced, while windbreaks help protect cropland by reducing wind velocities for a distance approximately 15 times the height of the tallest trees, thus providing significant reductions in the rate of soil loss over large areas. Establishing wind breaks is a practice that is highly suitable for degraded soils in the coastal regions of Vietnam prone to water erosion and to the winds accompanying typhoons during the rainy season. Eucalyptus and cashew, the tree species that have been identified to break the cycle of land degradation, are also suitable for moderately saline soils.

CATEGORY:

[Climate change and disaster risk reduction](#) [1]

[Natural Resources Management](#) [2]

COUNTRIES:

Vietnam

DESCRIPTION:

Introduction

Traditional tree species may be used to protect soils along coasts which are prone to severe soil erosion due to strong winds. Recent interventions of local institutions and community based organizations in Vietnam promoted the planting of multi-purpose tree species suitable for moderately saline soils which hold promise for soil conservation and for other benefits.

Objective

Through this practice local communities are able to protect their natural resources. The landless labourers, wage earners and handcraft makers who are the beneficiaries of the practice can also exploit it for livelihood diversification.

Implementation of the Technology

Coastal areas in Vietnam are prone to soil erosion due to dry winds during the summer season and to the winds that accompany typhoons during the rainy season. Severe soil erosion, accumulation of sand dunes and salt encrustation on surface soil have reduced the productivity of lands. In addition, the fertility status of soils has been further significantly reduced due to removal of the top soil. To break the cycle of further degradation, a number of tree species were identified and their seedlings were raised in community nurseries. The most important tree species identified by local institutions together with the community are eucalyptus and cashew. Cashew trees are usually established on degraded soils in the central coastal provinces. The current spacing adopted is 10 m x 5 m (200 plants/ha). Before 1990, however, farmers resorted to a density of planting of up to 400 trees/ha. The selected tree species were found to be resistant and effective in substantially reducing soil erosion and wind speed.

The practice requires minimum costs for the establishment of plantations. Participation of community

members and local disaster management committees can reduce establishment costs.

The practice may be implemented in coastal areas through community based organizations. Provision of spacing, row arrangement and row direction need to be decided on the basis of the tree species and of rainfall pattern.

Maintenance costs for re-planting and for water control structures along the streams such as check dams to reduce the over land flow of water are minimal.

Adequate awareness is required on the use of tree species for wind breaks, spacing between trees to minimize the mutual shade effect and to protect the soil. Local institutions can supply the tree saplings through community nurseries.

FURTHER READING:

References and Further Reading Windbreaks, Ohio State University Extension Fact Sheet
<http://ohioline.osu.edu/for-fact/002-3.html> [3] e-Resources WOCAT Soil and Water Conservation Technologies: ¿ Shelterbelts for farmland in sandy areas in China??

SOURCE:

[Natural Resources Management and Environment \(NRC\) in FAO](#) [4]

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Links:

[1] <http://teca.fao.org/technology-categories/climate-change-and-disaster-risk-reduction>

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