Planted Vegetative Strips (PVS)

Philippines

Planting of economic crops/forages in strips along the contour to control soil loss through erosion.

The technology was introduced in the upland corn growing areas in Isabela province. The province is one of the main corn growing areas in the Philippines. As a means of minimizing/controlling soil erosion, economic crops like cassava and pineapple and forage grasses are planted in strips along the contour. Cassava and pineapple strips are established together with forage grass. When the cassava and pineapple is harvested, the forage will continue to provide protection against soil erosion. Planting of cassava is done yearly, while the replanting cycle for pineapple is 2 to 3 years. In some cases, forage grass is grown alone. It is more or less permanent and it is trimmed regularly. Overtime, natural terraces are formed and soil erosion is minimized. The system is advatageous in the economic benefit can be gained from both the alley crops is there on the contour strips.

left: Although the land slope is only about 8 percent, soil erosion is still serious during intense rainfall (Photo: Victor Crisologo, Jr)
right: Planted vegetative strips (PVS) of cassava and napier grass for run-off and soil erosion control. When the cassava is harvested, the napier grass will continue to provide protection against erosion. The alleys in between PVS are usually grown to come (Photo: Jose D. Rondal)

Location: Isabela
Region: Isabela
Technology area: 2.5 km^2
Conservation measure: agronomic
Stage of intervention: prevention of land degradation
Origin: Developed externally / introduced through project, recent (<10 years ago)
Land use type:
Cropland: Annual cropping
Climate: humid, tropics
WOCAT database reference: T_PHI009en
Related approach:
Compiled by: Not registered
Date: 2001-08-24

Classification

Land use problems:

- Severe soil erosion and fertility decline caused by intensive cropping (soil mining) (expert's point of view)
Productivity decline - increased application of fertilizers to obtain the same yield level. (land user's point of view)

Land use

Annual cropping

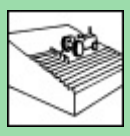
Climate

humid

Degradation

Soil erosion by water: loss of topsoil / surface erosion

Conservation measure

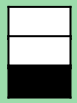


Agronomic

Stage of intervention

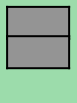
Prevention
Mitigation / Reduction
Rehabilitation

Origin



Land users initiative
Experiments / Research
Externally introduced: recent (<10 years ago)

Level of technical knowledge



Agricultural advisor
Land user

Main causes of land degradation:

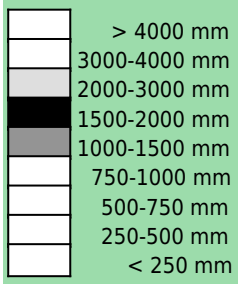
Main technical functions:
- control of dispersed runoff: impede / retard

Secondary technical functions:
- reduction of slope angle

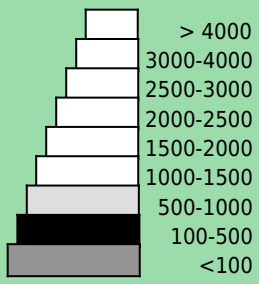
Environment

Natural Environment

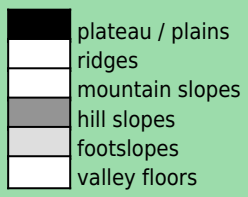
Average annual rainfall (mm)



Altitude (m a.s.l.)

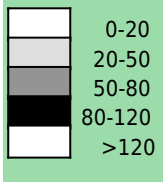


Landform



Slope (%)

Soil depth (cm)

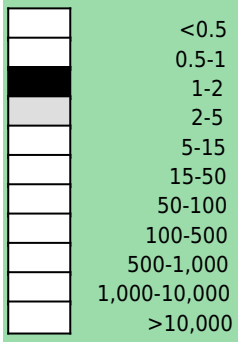


Growing season(s): 240 days(May - Dec), 180 days(Jun - Nov)
Soil texture: medium (loam)
Soil fertility: low
Topsoil organic matter: low (<1%)
Soil drainage/infiltration: good

Soil water storage capacity: medium

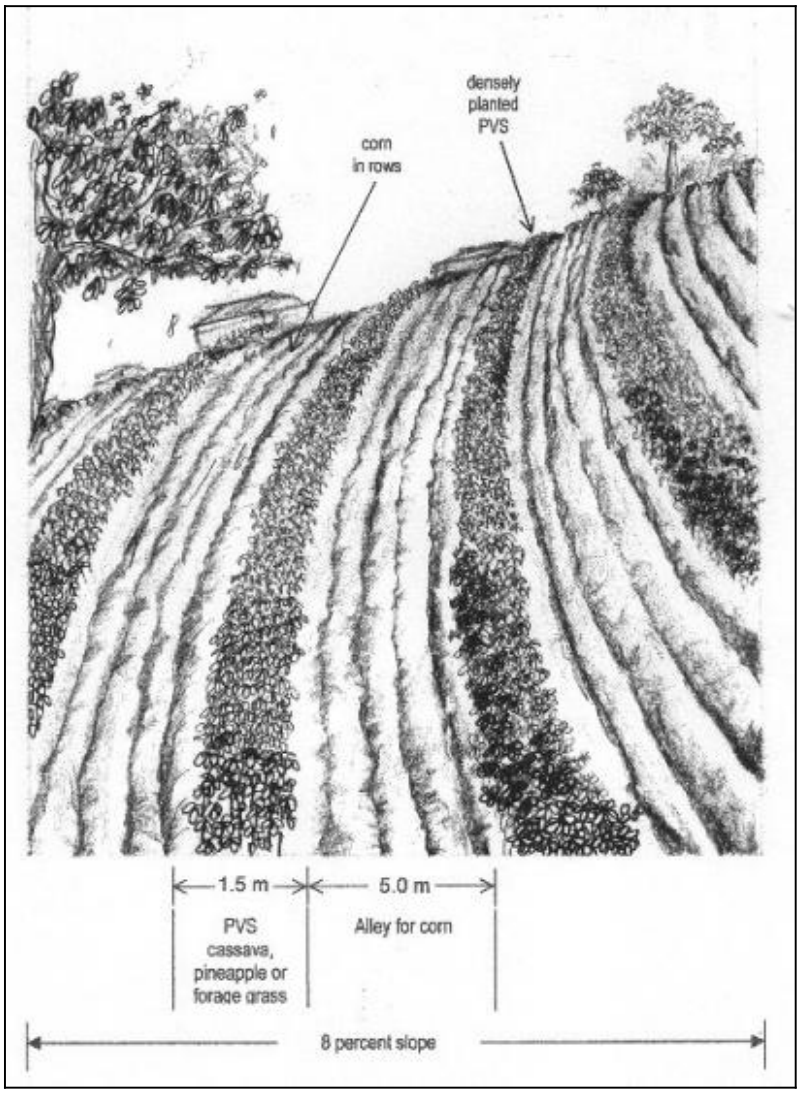
Human Environment

Cropland per household (ha)



Population density: 50-100 persons/km2
Annual population growth: 2% - 3%
Land ownership: individual, titled
Land use rights: individual
Relative level of wealth: average, which represents 1% of the land users; 10% of the total area is owned by average land users

Importance of off-farm income: > 50% of all income: Trading, working in other farms, carpentry or a family member working abroad
Access to service and infrastructure:
Market orientation: mixed (subsistence and commercial)
Mechanization: animal traction
Livestock grazing on cropland:



Technical drawing

Artist impression about planted vegetative strips (PVS) technology (Boyet Yambot-BSWM)

Implementation activities, inputs and costs

Establishment activities

- planting of alley crops
- contouring
- planting of vegetative strips (PVS)

Establishment inputs and costs per ha

Inputs	Costs (US$)	% met by land user
Labour	20.00	100%
Equipment		
- animal traction	12.00	100%
Agricultural		
- seeds	80.00	100%
- seedlings	32.00	100%
TOTAL	**144.00**	**100.00%**

Maintenance/recurrent activities

- Planting of vegetative strips (PVS)
- Contouring
- Planting of alley crops
- pruning/trimming (grass)
- fertilization (pineapple)

Maintenance/recurrent inputs and costs per ha per year

Inputs	Costs (US$)	% met by land user
Labour	40.00	100%
TOTAL	**40.00**	**100.00%**

Remarks:
labor and inputs costs are the main factors involved.
The total area to be used for PVS which is approximately 2000 square meters.

Assessment

Impacts of the Technology

Production and socio-economic benefits

++ increased wood production
+ fodder production/quality increase

Production and socio-economic disadvantages

Socio-cultural benefits

+++ national institution strengthening

Socio-cultural disadvantages

Ecological benefits

++ increased soil moisture
++ improved soil cover
++ reduced soil loss
+ increase in soil fertility

Ecological disadvantages

+ Pests

Off-site benefits

+ reduced downstream siltation

Off-site disadvantages

Contribution to human well-being / livelihoods

Benefits /costs according to land user

Benefits compared with costs	short-term:	long-term:
Establishment	neutral / balanced	positive
Maintenance / recurrent	slightly positive	positive

Acceptance / adoption:

100% of land user families (20 families; 10% of area) have implemented the technology voluntary. estimates
There is moderate trend towards (growing) spontaneous adoption of the technology. They can clearly see the benefit of adapting SWC practices in terms of added benefits (additional products, ecological)

Concluding statements

Strengths and → how to sustain/improve	Weaknesses and → how to overcome
Easy to establish and not capital intensive → Local government unit (LGU) should encourage wider adaption of the technology through information educationan campaign (IEC)	Low effectivity of some PVS species/materials → Supplementary control measures (mulching, temporary barriers)
Training and provision of planting materials/inputs	Yearly establishment (e.g. cassava) → Consider perennial species as PVS (e.g. forage grass)
	Competition for nutrient and water → Application of fertilizer and use of water harvesting techniques.
	PVS can harbor pests (e.g. rats) → Proper maintenance/cleanliness
	Interfere with cultivation → Align PVS in a straight manner if the contour allows
	Need additional capital → Provisions of incentives (e.g. subsidized inputs)