THE DEVELOPMENT OF SLOPING AGRICULTURAL LAND TECHNOLOGY (SALT) IN THE PHILIPPINES

1. SALT for Slopeland Crop-Based Agriculture

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ABSTRACT

The Philippines is predominantly an upland country, with 60% of its total land area considered slopeland. Most of the 17.8 million Filipinos living in these areas practice slash-and- burn agriculture. As uplands are deforested, environmental problems ensue: soil erosion, heavy siltation of rivers, floods and droughts. To save the uplands from total destruction, the Mindanao Baptist Rural Life Center developed a scheme for the uplands called Sloping Agricultural Land Technology (SALT). Its main objectives are not only to make upland farming sustainable, but also provide food for the farm family and the upland community as a whole.

INTRODUCTION

In the Philippines, the uplands are a zone where both agriculture and forestry are practiced on rolling to steep land, with slopes ranging upward from 18% (Ramos 1991). Slopelands occupy approximately 55% of the land surface of the country.

These slopelands are under increasing population pressure as more people move into these areas. An estimated population of 17.8 million people now live in the uplands. Some 8.5 million reside on public forest lands, including 5.95 million members of indigenous cultural communities and 2.55 million migrants from lowland groups (Cruz *et al.* 1988).

With a population growth rate of 2.5% per year, the number of people living in the uplands is projected to be 24 to 26 million by the year 2000, with a density of 160 to 175 persons per square kilometer (Sajise 1983).

Filipino uplanders possess common socio-economic characteristics. They are among the poorest in this part of the world, and earn less than any other group of Filipino people. They are the least educated, the lowest paid, the least healthy, the least hopeful, and the most neglected in agricultural development of all the people in the Philippines.

An average upland farmer engaged in marginal agriculture earns about US$384.00 a year. This is only one quarter of the poverty line level of $1140.00 a year.

In terms of education, the Filipino upland farmer rarely finishes grade school. He either drops out after the third grade or does not go to school at all, and is unable to read or write properly. His wife seldom has any more education. It is this acute lack of education of both parents that drives them to single-mindedly endeavor to seek a better life for their children by back-breaking labor. Clearing the slopes and planting upland rice, corn and root crops is the only farming system they know.

In a national conference on research in the uplands, Sajise (1983) considered the uplands as the ecological and social frontier where the battle for the future survival of Filipino society will be fought.

DEVELOPMENT OF A SUSTAINABLE UPLAND FARMING SYSTEM

As the population of the Philippines surged, deforestation became a problem. Statistics show

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that in 1969, out of the country's total land area of 30 million ha, 16 million ha was covered in forests. By 1988, the forested area had dwindled to only 6.4 million ha or 20% of the country's total land area (Tacio 1989b).

Each year between 1970 and 1980, about 300,000 ha of forests were converted into other uses, particularly agriculture. It is said that if the present rate of population growth in the uplands is maintained, an additional five to six million people will be opening up new land for cultivation each year. This expansion of upland cultivation will contribute to even more degradation of watersheds, and increased soil erosion, flooding, sedimentation and siltation.

Five years ago, the Department of Environment and Natural Resources (DENR) reported that 22 provinces in the Philippines had an "alarming" rate of soil erosion. Batangas in Luzon and Cebu in the Visayas, for instance, are both reported to have lost 80-85% of their topsoil to erosion (Tacio 1992).

Lester P. Brown, president of the Washington-based Worldwatch Institute, points out that while the immediate effects of soil erosion are economic, in the long run its ultimate effects are social. "When soils are depleted and crops are poorly nourished, people are often undernourished as well. Failure to respond to the erosion threat will lead not only to the degradation of land, but to the degradation of life itself."

The Mindanao SALT Development Site

The Mindanao Baptist Rural Life Center (MBRLC) is a small, Church-related non-government organization with a 19-hectare demonstration farm located in the rolling foothills of Mt. Apo, the highest mountain in the Philippines. It has emphasized upland development since it began in 1971. Determining the felt needs of local people, the MBRLC had found, involves a series of dialogues, and informal meetings with the uplanders themselves and the various organizations, both government and private, that are concerned with them. In these meetings, the participants should be allowed to freely enjoy "playing volleyball with development ideas", and even "dreaming development dreams together."

Traditionally dependent on a one-crop farming system, upland farmers consistently expressed in the meetings their need for better distribution of food and income throughout the year. They experienced abundance after the harvest, but there were times during the year when they had neither money nor food.

The farmers also complained of low and declining farm incomes. In one area, corn production had dropped from 3.5 mt/ha to about 0.5 mt/ha in just ten years. Yields of other crops had also diminished to unprofitable levels in the same period.

Some innovative farmers started planting permanent crops such as banana, coffee, coconut, and fruit trees to augment their incomes, but yields of these permanent crops were very low. The main reason for these low yields, it was learned, was the depletion of topsoil and nutrients through soil erosion.

An equally common complaint was lack of capital for fertilizer, insecticides, and seeds of improved varieties of corn and other crops. New techniques of improving crop yields called for expensive inputs. Farmers borrowed capital for these inputs, but each year the soil needed higher levels of fertilizer because the farmers continued to farm in the same old way – plowing up and down the hill. The continuous loss of topsoil reduced yields to below the break-even point between costs and returns, so that farmers incurred debts they could not pay (Watson and Laquihon 1985).

It became obvious to the MBRLC that the main problem of upland farmers was not so much improved technology for growing corn and other crops, but soil erosion. They needed a way of farming slopeland in such a way as to conserve the topsoil and, if possible, improve fertility and productivity.

MBRLC realized that the approach of modern agriculture had 'put the cart before the horse' in the Mindanao slopelands. An improved technology had been developed for growing corn, but technology to prevent soil erosion and maintain soil fertility had been overlooked. Thus, MBRLC set out to develop an integrated-diversified farming system suitable for the Mindanao slopelands (Watson and Laquihon 1985). The result was the Sloping Agricultural Land Technology (SALT) shown in Fig. 1.

SLOPING AGRICULTURAL LAND TECHNOLOGY

SALT is a technology package of soil conservation and food production that integrates several soil conservation measures (Tacio 1988, Evans 1992).

Basically, the SALT method involves planting field crops and perennial crops in bands 3-5 m wide between double rows of nitrogen-fixing shrubs

and trees planted along the contour. These minimize soil erosion and maintain the fertility of the soil. Field crops include legumes, cereals, and vegetables, while the main perennial crops are cacao, coffee, banana, citrus and fruit trees (MBRLC 1988).

SALT helps considerably in the establishment of a stable ecosystem. The double hedgerows of leguminous shrubs or trees prevent soil erosion. Their branches are cut every 30-45 days and incorporated back into the soil to improve its fertility (Palmer 1992).

The crop provides permanent vegetative cover which aids the conservation of both water and soil. The legumes and the perennial crops maintain soil and air temperatures at levels favorable for the better growth of different agricultural crops.

In the Philippines, the recommended hedgerow species used in SALT are *Flemingia macrophylla, Desmodium rensonii, Gliricidia sepium, Leucaena diversifolia*, and *Calliandra calothyrsus* (Tacio *et al.* 1987).

The Development of SALT

During the development stage of SALT, some guidelines were considered essential (Watson and Laquihon 1985; Palmer 1991). It was felt that the system should:

- Adequately protect soil against erosion;
- Help restore soil structure and fertility;
- Be efficient in food crop production;
- Be applicable to at least 50% of hillside farms;
- Be easily duplicated by upland farmers using local resources and preferably without needing outside loans;
- Be culturally acceptable;
- Have the small family farm as its focus, and food production as its top priority (fruit trees and forest, etc. are regarded as secondary);
- Give results in as short a time as pos-

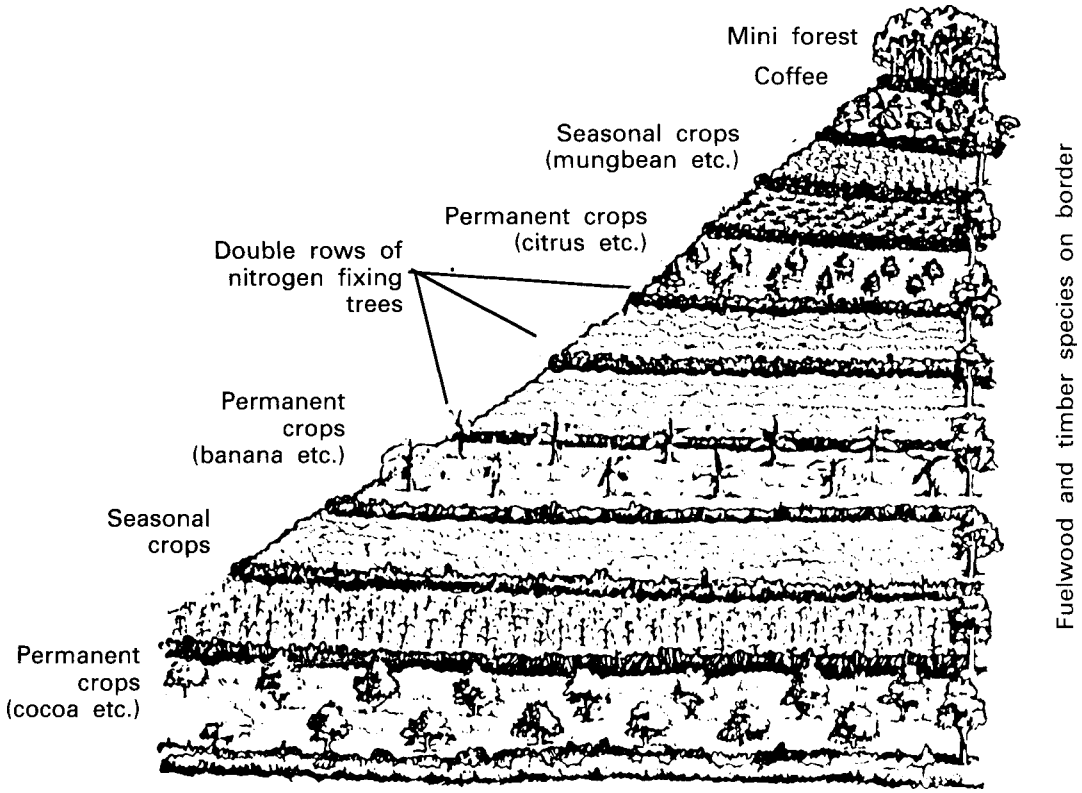

Fig. 1. A typical sloping agricultural land technology (SALT) farm

sible;
- Require minimal labor; and
- Be economically feasible and ecologically sound.

A hectare of land was then selected at the Center to serve as a testing ground for the system. In selecting the site, the Center's staff members ensured that the experimental farm had the same characteristics as land being farmed by most upland farmers (i.e., it was on Miral clay loam with a low N-P and medium K content, and a pH of 5.5). Its slope was steeper than 15°, it had been farmed for five years or more, and the soil was degraded in a manner typical of most farms in the area (Palmer 1991). The first model was laid out and put into operation in 1978 (Watson and Laquihon 1985).

The Ten Steps of SALT

SALT is an improvement over existing technologies. It is a simple, effective method of farming uplands, without losing topsoil to erosion (MBRLC 1988). It consists of the following ten basic steps:

1. *Making the A-frame.* The A-frame is a simple device for laying out contour lines across the slope. It is made of a carpenter level and three wooden or bamboo poles nailed or tied together in the shape of a capital letter A with a base about 90 centimeters wide. A carpenter's level is mounted on the crossbar.

2. *Determining the contour lines*. One leg of the A-frame is planted on the ground, and the other leg is swung until the carpenter's level shows that both legs are touching the ground on the same level. A helper drives a stake beside the frame's rear (first) leg. The process is repeated across the field. The contour lines should be spaced 4–5 m apart.

3. *Cultivating the contour lines*. One-meter strips along the contour lines should be plowed and harrowed to prepare for planting. The stakes serve as a guide during plowing.

4. *Planting seeds of different nitrogen fixing trees and shrubs.* Along each prepared contour line, two furrows should be laid out. Two to three seeds are planted per hill, with a distance of 12 centimeters between hills. The seeds should be covered firmly with soil. When the hedgerows are fully grown, they hold the soil and serve as a source of fertilizer.

Examples of suitable hedgerow species are *Flemingia macrophylla* (syn. *congesta*), *Desmodium rensonii, Calliandra calothyrsus, Gliricidia sepium, Leucaena diversifolia*, and *L. leucocephala* (see Appendix).

5. *Cultivating alternate strips.* The space between the rows of nitrogen fixing trees on which the crops are to be planted is called a strip or alley. Cultivation is done on alternate strips (strips 2, 4, 6 and so on). Alternate cultivation prevents erosion because the unplowed strips will hold the soil in place.

6. *Planting permanent crops*. Permanent crops such as coffee, cacao, banana, citrus and others of the same height may be planted when the nitrogen fixing species are sown. Only the spots for planting, however, are cleared and dug, and later only ring weeding is employed until the hedgerows are large enough to hold the soil in place. Permanent crops are planted in every third strip. Tall crops should be planted at the bottom of the farm while the short ones are planted at the top.

7. *Planting short-term crops.* Short and medium-term income producing crops (pineapple, ginger, taro, sweet potato, peanut, mungbean, melon, sorghum, corn, upland rice, etc.) should be planted between the strips of permanent crops as a source of food and regular income while farmers are waiting for the permanent crops to bear fruit.

8. *Trimming of nitrogen-fixing trees*. Every 30 to 45 days, the growing hedgerows are cut to a height of 1.0 to 1.5 m from the ground. The cut leaves and twigs should be piled on the soil around the crops, where they serve as an excellent organic fertilizer. In this way, only a minimal amount of commercial fertilizer (about 1/4 of the total fertilizer requirements) is necessary.

9. *Practicing crop rotation.* A good way of rotating is to plant cereals such as corn or upland rice, tubers and other crops on strips where legumes were planted previously, and vice versa. This practice will help maintain the fertility and good condition of the soil. Other management practices in crop growing, such as weeding and pest control, should be carried out regularly.

10. *Building green terraces*. To enrich the soil and effectively control erosion, organic materials such as straw, stalks, twigs, branches and leaves, and also rocks and stones, are piled at the base of the rows of nitrogen fixing trees. As the years go by, strong, permanent terraces will be formed which will anchor the precious soil in its right place.

DISSEMINATION OF THE SALT SYSTEM

MBRLC is basically a training center for small-scale upland farmers. Three-quarters of any training session is "hands-on-experience", because

MBRLC believes in the principle of "what I do, I know." In 1980, SALT became one of the 27 training courses available at the MBRLC. The usual duration of a SALT training course is 3-5 days. The general number of persons in a SALT training group is 20-35. Between 1980 and 1992, there has been a steady flow of training groups and graduates of SALT (Table 1).

To further enrich the Center's training, teaching aids such as leaflets, manuals, bulletins, flip charts, transparencies and slides were developed.

These materials were also broadcast over the Center's radio program, which has been transmitted by 19 radio stations. Radio listeners requesting copies were supplied free of charge. Newspapers and magazines with a good circulation also received copies.

In 1981, 30 farmers near the vicinity of MBRLC were invited to undergo a SALT training course at the Center. This was one of the first training sessions of its kind. Only twelve farmers adopted the technology, and these were supported by the Center with seeds and materials worth US$20.00. The Center's extension workers visited them and facilitated the adoption of the scheme. In 1982, SALT began to be disseminated throughout Mindanao, mainly through church groups. By 1992, more than 13,000 farmers had graduated from the SALT training course. Had the adoption and adaptation of SALT and its modifications been more rapid and farmers more responsive, the upland farmers of the Philippines might have avoided their current sad situation.

As the information about SALT technology began to spread through the Philippines, it was picked up by the Southern Mindanao Agricultural Program of the Philippine government and the European Economic Community (EEC) as one of the recommended projects in the rehabilitation of the Mount Apo rainforest.

There is now very healthy collaboration between government and non-government organizations in the area of agriculture and natural resources management in the Philippines, and promoting SALT nationwide is a good example of that collaboration (Table 1). Another way of disseminating SALT throughout the world is through conferences and seminars.

Community Development

Current extension program for SALT is based on the "impact area" strategy. Four impact areas in three provinces in Mindanao (Davao del Sur, South Cotabato and Agusan del Sur) have been selected. Two extension workers are assigned to a village in each impact area. One impact area located at the foothills of Mount Apo in Davao del Sur has already acquired 300 SALT farmer-cooperators in only three years.

Out-of-School Youth Program

To respond to the needs of young people who leave school early, mainly for financial reasons, a special training program is provided which helps these out-of-school youths become responsible citizens in their respective communities. The training they receive includes agriculture, with an emphasis on SALT and human nutrition.

One strength of this training is that students are taught skills using appropriate materials and technology. The program does not create dependence on expensive technology such as tractors. After a typical three-month session, trainees can generally implement many improvements when they return home.

SOCIO-ECONOMIC STUDIES OF SALT

A ten-year study (1981-1990) conducted at the MBRLC farm showed that a single hectare of land farmed according to SALT can increase an upland farmer's income dramatically (Table 2). Even in the first two years of the study, SALT yielded gross incomes which were much higher than the $49.00/crop/ha of farms using traditional practices (burning, plowing, constant weeding, and chemical fertilizer).

When the permanent crops (coffee, cacao, banana, etc.) started producing, the annual gross income from SALT further increased, to $571.49/ha in 1984 and $622.38/ha in 1985.

The 10-year study showed that even during times of drought (e.g. 1983 and 1990) SALT still provides income. However, this economic evaluation did not include the labor cost, because "the farmer uses his own labor", and there are few or no alternative sources of income in these areas. The costs included only seeds used for planting, insecticides and fertilizer.

Compared to traditional corn cultivation, which yields an annual income of $12.00 - $80.00 ha, farming using SALT management is almost seven times more profitable.

In the beginning of the study, the main hedgerow species used was leucaena (*Leucaena leucocephala*), known in the Philippines as ipil-ipil.

Table 1. Name of organizations, year they adopted SALT, and estimated number of their cooperators

Organization	Category*	Year	Estimated number of farmers involved
Federation of Free Farmers	NGO	1981	15
U.S. Peace Corps Volunteers	GO	981	30
Forest Management Bureau	GO	1981	15
Southern Philippines Devt. Authority	GO	1982	15
Kilusang Kabuhayan at Kaunlaran	GO	1982	100
Phil.–Australian Devt. Assist. Program	GO	1982	700
Department of Agrarian Reform	GO	1982	10
British Volunteers	NGO	1982	10
Agri. Educ. Outreach Project	GO	1983	150
Farm Systems Dev. Corporation	GO	1983	30
Davao Medical School Foundation	NGO	1983	20
Farmers Training Center for Rural Development	GO	1984	50
Department of Agriculture	GO	1984	500
Overseas Missionary Fellowship	NGO	1984	20
National Electrification Administration	GO	1985	503
Save the Children Foundation	NGO	1985	25
Support Technology Assisting Rural Transformation	NGO	1985	10
Cotabato Rural Upliftment Movement	NGO	1985	15
International Human Assistance Program	NGO	1985	15
Catholic Santa Cruz Mission	NGO	1985	50
Regional Rainfed Development Program	GO	1985	30
Philippine Business for Social Progress	NGO	1986	50
Resource Ecology Foundation for Regeneration of Mindanao, Inc.	NGO	1987	100
DAR-UNDP-Food and Agriculture Organization	GO	1988	150
Central Visayas Regional Project	GO	1988	50
Meralco Foundation, Inc.	NGO	1989	200
Kapwa Upliftment Foundation, Inc.	NGO	1989	30
Mag-Uugmad Foundation	NGO	1989	50
Muslim-Christian Agency for Rural Development, Inc.	NGO	1989	15
Soil and Water Conservation Foundation	NGO	1990	100

NGD = Non-government organization
GO = Government organization

But since psyllids (plant lice) attacked the leucaena in 1986, alternatives such as *Flemingia macrophylla* and *Desmodium rensonii* have been used. Both these alternatives were just as good as the leucaena.

In another study by Laquihon (1987), the average annual net income of farmers who adopted SALT increased by almost 100% (Table 3). Before adopting SALT, farmers involved in the study had a net income mean of $47.75. After adopting SALT, their net income went up to $90.70.

MODIFICATIONS TO SALT

The success of SALT was an incentive to improve the system further. So far, three more SALT systems have been developed: Simple Agro-Livestock Technology (SALT-2), Sustainable Agroforest Land Technology (SALT-3), and Small Agrofruit Livelihood Technology (SALT-4).

SALT-2 is an agroforestry system based on goat production, with a land use of 40% for agriculture, 40% for livestock and 20% for forestry. It is described in full in the following paper. Experience in Davao del Sur has shown that this technology can minimize erosion, improve soil fertility, and generate a good net income for an upland family.

SALT-3 is based on small-scale reforestation integrated with food production. Of the farm area, about 40% is used for crops and 60% for forestry. This "food-wood" intercropping can effectively conserve the soil, thereby providing food, wood and income to the slopeland farmer.

In recent years, fruit crops and other perennial crops have been integrated into agroforestry projects. Fruit trees have been introduced into the SALT system, known as the Small Agrofruit Livelihood Technology (SALT-4). Its general objectives are to produce food, increase incomes and promote soil conservation in a limited area of slopeland (0.5 ha).

In the Philippines, almost every major non-government organization that is working in upland agriculture is implementing the same type of program as SALT. More and more agroforestry projects are being implemented, in place of planting forest trees only, in order to lay a sound foundation for reforestation.

The demand for SALT training is so strong that a new training unit was added in 1993, making it possible to train three groups of farmers or technicians simultaneously, and by April 1994 half the training places for that year had already been booked. It has been observed that some funding agencies require a conservation package in each upland development project that they fund. Some of the leading agricultural universities in the Philippines are now beginning to teach courses in conservation farming. This trend is expected to spread to all agriculture colleges and universities in the next five years, thus stimulating more development in the uplands.

In the past two years, two organizations have emerged to address the problems of soil erosion

Table 2. Analysis of costs and returns of the SALT farm, 1980–90, 1 hectare.

Unit: US$

Year	Gross income/ha	Total expenses/ha	Net income/ha
1980	9.11	1.79	7.32
1981	4.89	0.93	3.96
1982	14.41	2.93	11.48
1983	10.35 (A)	1.97	8.39
1984	22.86 (B)	2.79	20.07
1985	24.90	2.97	21.92
1986	21.27 (C)	2.74	18.54
1987	27.61	4.90 (D)	22.71
1988	22.19	4.42	17.77
1989	30.07	4.50	25.57
1990	27.70 (E)	3.17	24.52

(A) – Decrease due to long drought in Mindanao.
(B) – Increase accounted for by permanent crops that started producing.
(C) – Decrease due to infestation of *Leucaena leucocephala* by plant lice.
(D) – Increase in cost is because commercial fertilizer had to replace the green manure no longer available from hedgerows.
(E) – Another drought occurred.

– the Philippine Soil Conservation Society (PSCS) based in Mindanao, and the Conservation Farming Movement (CFM) based in Luzon. The influence of these two organizations will further stimulate more interest in conservation and sustainable agriculture projects.

Other Asian countries have developed upland farming systems very similar to that of SALT. Sri Lanka, Indonesia, and the Philippines are the most advanced in the use of agroforestry projects, while Vietnam, Malaysia and Thailand are in the early stages of developing sustainable upland systems. In almost every case, some type of agroforestry system is being used.

By using SALT, small-scale upland farmers in the Philippines and throughout Asia can conserve soil, reduce their purchases of commercial fertilizer, increase their yields and income and become generally self-sufficient. In this way, those living in marginal, hilly areas can break out of the common cycle of expensive monoculture, dependence on imported fertilizers and insecticides, and indebtedness to large landowners or banks. In spite of this, SALT should not be considered the perfect farming system. As Watson and Laquihon (1986) stressed:

"There is not, and never will be, one system for all farmers. SALT is not a miracle system or a panacea. To establish a one-hectare SALT requires much hard work and discipline. It took many years to deplete the soil of nutrients and lose the topsoil; no system can bring depleted, eroded soils back into production in a few short years. The price of soil loss is poverty, but we have seen land restored to a reasonable level of productivity by using SALT."

REFERENCES

Cruz, C.J., I. Zosa-Feranil, and C.L. Goce. 1988. Population pressure and migration: Implications for upland development in the Philippines. *Journal of Philippine Development* 26,15.

Cuevas, V.C. 1991. The continuing problem of shifting cultivation in the Philippines: A human ecology analysis. *IESAM Bulletin* 11,1-2. Los Baños, Laguna, Philippines.

Evans, J. 1992. *Plantation Forestry in the Tropics: Tree Planting for Industrial, Social, Environmental, and Agroforestry purposes*. Second Edition. Clarendon Press, Oxford, England.

MBRLC. 1988. *A Manual on How to Farm your Hilly Land without Losing your Soil.* Mindanao Baptist Rural Life Center, Davao del Sur, Philippines.

Palmer J.J. 1991. Sloping Agricultural Land Technology (SALT) experience. Paper presented at the Sloping Agricultural Land Technology (SALT) Workshop, Xavier Institute of Management, Bhubaneswar, Orissa, India. (Unpublished mimeo).

Ramos, V.O. 1991. Government's role in upland conservation: Some ideas from the Philippines. In: *Upland Conservation in Asia and the Pacific*, C. Castro (ed.). RAPA, FAO, Thailand.

Sajise, P.E. 1983. Upland farming systems.

Table 3. Annual mean net income of farmers before and after adopting SALT, on farms with a mean area of 0.79 ha.

Unit: US$

SALT farmers	Mean net income before SALT	Mean net income after SALT	Net increase after SALT	% increase after SALT
Farmers in Luzon*	1.83	3.53	1.70	3.72
Farmers in Visayas**	1.91	3.72	1.81	3.76
Farmers in Mindanao***	1.99	3.63	1.64	3.28
Mean 1.91	3.63	1.72	3.61	

*N = 34; **N = 21; ***N = 16.

Source: Laquihon (1987)

Paper presented during a national conference on research in the Philippines, at Sulo, Hotel, Quezon City, Philippiens. (Unpublished mimeo).

Tacio, H.D., H.R. Watson and W.A. Laquihon. 1987. Nitrogen fixing trees as multipurpose tree species for soil conservation. Paper presented at the Workshop on Multipurpose Tree Species for Small Farm Use. Pattaya, Thailand. (Unpublished mimeo).

Tacio, H.D. 1989a. Agroforestry: Wedlock for survival. *Agribusiness Magazine* 3,25. Manila, Philippines.

Tacio, H.D. 1989b. Last call: Save the tropical forests. *Sunday Inquirer Magazine* 4,32. Manila, Philippines.

Tacio, H.D. 1992. Sloping Agricultural Land Technology: NGO-developed agroforestry technology in the Philippines. *Unasylva* 8, 171: FAO, Rome, Italy.

Vergara, N.T. 1985. A primer on agroforestry systems. *Unasylva* 37,147: FAO, Rome, Italy.

Watson, H.R. and W.A. Laquihon. 1985. Sloping Agricultural Land Technology (SALT) as developed by the Mindanao Baptist Rural Life Center. Paper presented at the Workshop on Site Protection and Amelioration Roles of Agroforestry, Institute of Forest Conservation of the University of the Philippines, UPLB, Los Baños, Laguna, Philippines. (Unpublished mimeo).

Webb, L. 1982. Fighting hunger by the letters. *The Commission.* Foreign Missions Journal, Southern Baptist Church, USA.