c. Implementation Aspects

As of 1982, the pilot project was still being conducted separately by the UHP while ARGSOD had initiated parallel agro-forestation attempts along with the latter's human resource development programs in the other barangays. Attempts between the leaders of the UHP team in Pantabangan and the ARGSOD to coordinate their activities have been concretized only insofar as the conceptual framework for implementation is concerned.

Difficulties arise in the actual coordination between the two groups partly because of their differences in discipline. The UHP team in Pantabangan is composed mostly of natural scientists, while the ARGSOD is a social science group. Thus, problems in communication among the various individuals composing the two groups have cropped up.

Moreover, emphasis of the processes involved in implementing development projects varies between the two groups. While UHP emphasizes the "man-land" relationship, ARGSOD gives priority to the "man-man" relationship. For the moment, the two groups have ceased coordinating with each other.

Problems of similar effects may also be noted within the UHP itself. For instance, the research, the sociology and economics study teams of UHP each conducted their own socioeconomic surveys in Pantabangan separately. Disagreements arose on matters regarding sampling and the type of questions to ask. Also, project implementation did not really turn out to be multi-disciplinary. Such problems are perhaps inherent in such a group, due to varying orientations, communication skills, and other factors.

As of early 1982, the AFDP in Villarica was being undertaken more on a voluntary basis by some of the former UHP-implementors. The UHP's funding support had been decreasing over the last two years, and has naturally resulted in diminished logistical support towards the Villarica Project.

However, with the BFD Communal Tree Farming Program in progress also in Villarica, it is likely that necessary inputs to the cooperators may be provided. Some of the Villarica UHP project implementors have in fact joined the BFD-CTF on a staggered basis (i.e., several phases of the CTF Program).

The performance of the Villarica cooperators has finally been recognized by forestry authorities. The SAMABUN recently won

a ₱4,000 award from the BFD for the regional level competition on communal tree farming. The farmers planned to use part of the cash prize for purchasing more coconut seedlings for their farms.

An important thing to note is that the implementors of agro-forestry projects and UHP scientists do find the need for them to establish linkages with various government agencies and institutions to come up with a more holistic approach towards upland development. Sajise (1979), for instance, highlights the need to come up with "institutional control valves" which would eventually achieve a coordinated effort towards upland resource development.

Projects Processes and Impacts

This section discusses project processes and impacts by looking at variations in various impact indicators in the following groups: (a) UHP agro-forestry cooperators in Villarica; (b) Villarica residents grouped according to AFDP cooperators and noncooperators; and (c) Pantabangan residents categorized according to participation in various conservation-oriented projects.

Variation Among the Villarica AFDP Cooperators (drawn from preliminary results of analyses for my doctoral dissertation)

Using data on nineteen Villarica cooperators, regression analysis was performed to examine the factors which partly account for differences in the practice of soil conservation. All nineteen cooperators adopted the cropping patterns recommended by the UHP; and as far as the crops were concerned, they varied in terms of the attempts at various forms of terracing. The relationship tried was:

$$\text{TERRACING} = f\ (\text{organic matter content in 1979, farm area in 1979, household income in 1979, highest education of household head, knowledge of conservation by household head, potential household labor})$$

Scores were attached to forms of terracing, where "5" was assigned to bench terracing, and "1" to no form of terracing. For those who practiced combinations (e.g., bench and vegetative), respective scores were added up. Knowledge was measured through

a similar scoring system, based on farmer's responses to questions on the environment. Potential household labor was derived by assigning a value of one-half to minors.

Table 17 shows the results obtained through ordinary least squares estimates, from which the following relationships may be derived (ceteris paribus), with (a) and (e) showing as statistically significant:

(a) initial higher organic matter implies a lower rate of adoption;
(b) larger farm areas imply a lower adoption rate;
(c) the higher the initial income of the farmer, the less likely that he would adopt a cropping pattern;
(d) more knowledge about conservation results in better chances of adoption; and
(e) the larger the pool of household labor, the more likely that the farmer would practice terracing.

Farmers therefore appear to be quite responsive to changes in the environment, and they seem to have benefited from knowledge gained through project implementors. However, those with smaller farms and lower incomes tended to adopt soil conservation practices more easily. The effect of income may be explained further by the fact that those with higher incomes tended to be those with other income sources besides the farm. Naturally, their time was allocated more towards activities with perceived higher and quicker returns The effect of labor available may also explain this as well; however, the variable used may also be interpreted to reflect family size and, hence, consumption needs.

Differences Between AFDP Cooperators and Non-Cooperators in Villarica

To look into differences between Villarica AFDP cooperators and noncooperators, i.e., to test whether the agro-forestry project has made a difference or not, the investigator conducted a survey in 1980. Open-ended questions to test respondents knowledge, attitudes and practice towards conservation were asked. To facilitate the interpretation of respondents' answers, a scoring system was devised mainly for classificatory purposes. Differences in cut-off scores in the three tables merely reflect attempts to meet the requirements for the conduct of x^2-tests.

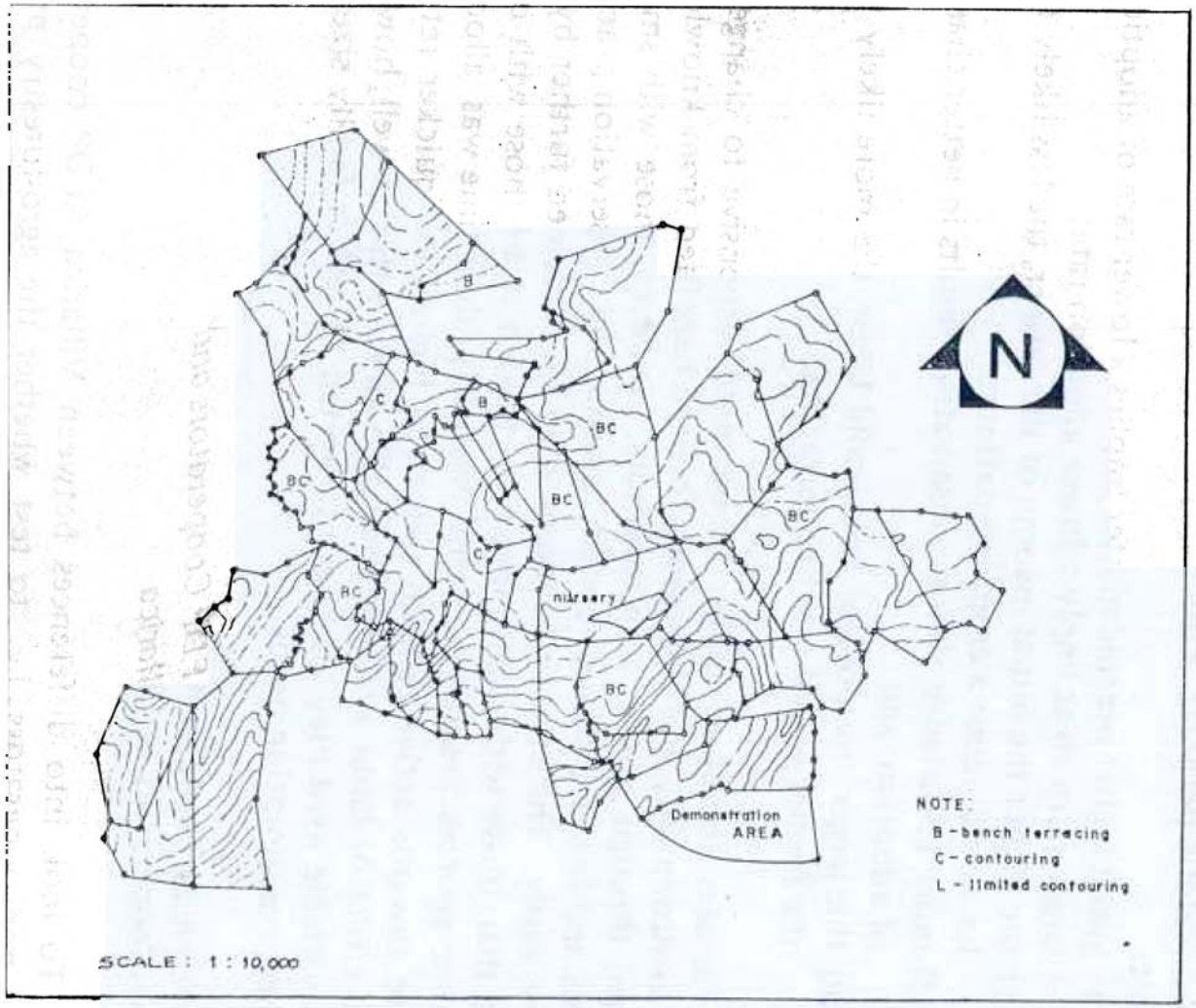

FIGURE 5
LOCATION OF FARMS WITH TERRACIN

TABLE 17
REGRESSION ON ADOPTION OF FORMS OF TERRACING BY NINETEEN VILLARICA COOPERATORS

Independent variables	Coefficient (*t*-values) Selection				Mean (standard deviation)
	1	2	3	4	
Constant	4.9652	7.5598	4.4307	7.0967	
Organic matter content	−3.1115 −3.7594)*	−3.8440 −4.8855)*	−3.0231 −3.5926)*	−3.8113 −4.7418)*	2.485 (0.691)
Individual farm area	0.0582 −0.1548)	−0.1535 −0.4021)			3.025 (1.678)
Household farm area	–		0.45948 (0.12842)	−0.0345 (−0.0933)	3.203 (1.751)
Household income	−0.01495 (−0.524)	−0.02831 (−0.9064)	−0.01791 (−0.6412)	−0.0334 (−1.0988)	23.251 (19.0)
Household head' education	0.3057 (1.5991)	–	0.3251 (1.7342)	–	6.053 (3.1)
Knowledge of conservation	–	0.0593 (1.1099)	–	0.0647 (1.2174)	32.368 (10.589)
Household labor	1.0357 (3.8688)*	0.99297 (3.5646)*	1.0257 (3.7526)*	0.9878 (3.4392)*	5.71 (1.895)
$\bar{R}^2$	0.651	0.6185	0.6508	0.6140	
F	7.71524*	6.83653*	7.70934*	6.7269*	

*Significant at 0.05 level.

Source of Data: ESIA/WID Survey, 1980 and UPLB/UHP.

Tables 18 to 24 present the distribution of the scores of the important variables for the Villarica residents, stratified according to participation in agro-forestation. All x^2-tests indicate that such respondents' stratification does not make a difference in the distribution of all the following scores: (a) knowledge of conservation; (b) practice of conservation; and (c) attitudes towards conservation.

Two possible explanations may be offered for this: (a) The AFDP project has not yet impacted on the important variables. Thus, no difference exists between cooperators and noncooperators. Or, (b) the AFDP has already influenced even the nonparticipants of the community. The second picture is more likely because technological skills could have easily spread during SAMABUN trainings which were not of the closed-door type, and many noncooperators might have already wanted to participate in the SAMABUN. In addition, tree planting inputs were easily available from the BFD which was also implementing its own communal tree farming program in Villarica.

In fact, the focus on one sample activity of an AFDP — that of tree planting as shown in Table 21 — shows no difference among the Villarica AFDP cooperators and noncooperators. In general, one can therefore say that at least 70 percent of the Villarica residents have been planting trees.

Residents were also asked about the benefits they obtained from AFDPs; the replies are presented in Table 22. Significantly, organization with government agencies registered the highest frequencies.

Impact of Various Conservation-Oriented Projects on Pantabangan Residents

The one hundred thirty-three (133) respondents who were surveyed under the ESIA/WID study were categorized according to the manner in which they were influenced by conservation-oriented projects, namely: (1) those who conducted forest conservation through direct participation in AFDP projects, particularly those conducted by UHP and the BFD-CTF (or, UHP/BFD farmer cooperators); (2) those who conducted forest conservation as a manifestation of the ARGSOD human resource development activities (or ARGSOD-influenced farmers); (3) those who were directly employed by NIA or BFD in reforestation projects (or NIA/BFD laborers); and (4) those who were not overtly influenced by any of the three

TABLE 18
KNOWLEDGE SCORES OF VILLARICA RESIDENTS

Scores	Villarica residents				Total
	UHP/AFDP Cooperators		Non-UHP/AFDP Cooperators		
110 and above	11	(65%)	1	(50%)	22
Below – 110	6	(35%)	11	(50%)	17
Total	17	(100%)	22	(100%)	39

$x^2 = 0.90 < 2.71 \quad (x_1^2, .10)$

Conclusion: Respondents' classification according to the type of Villarica residents does not make a difference in knowledge score distribution.

Source: ESIA/WID Survey, 1980.

TABLE 19
DISTRIBUTION OF PRACTICE SCORES ACCORDING TO TYPE OF VILLARICA RESIDENTS

Practice scores[a]	Villarica residents				Total
	UHP/AFDP Cooperators		Non-UHP/AFDP Cooperators		
Above 75	10	(59%)	13	(59%)	23
75 and below	7	(41%)	9	(41%)	16
Total	17	(100%)	22	(100%)	39

Conclusion: Respondents' classification by barangay does not make a difference in practice of conservation-oriented activities.

a. The practices of treeplanting, composting, intercropping, and terracing are included here.

Source: ESIA/WID Survey, 1980.

TABLE 20
CONSERVATION ATTITUDE SCORES OF VILLARICA RESIDENTS

Scores	Villarica residents				Total
	UHP/AFDP Cooperators		Non-UHP/AFDP Cooperators		
40 and above	8	(47%)	9	(41%)	17
Below 40	9	(53%)	13	(59%)	22
Total	7	(100%)	22	(100%)	39

$x^2 = .16 \quad < 2.71 \quad (x_1^2, .10)$

Conclusion: Villarica residents' classification according to agro-forestry influence does not make a difference in attitude score distribution.

Source: ESIA/WID Survey, 1980.

TABLE 21
EXTENT OF TREE PLANTING BY VILLARICA RESIDENTS

	UHP/AFDP Cooperators		UHP/AFDP Non-Cooperators		Total	
Finished tree planting activities	12	(70%)	16	(72%)	28	(72%)
Have begun tree planting and will continue in the future	3	(18%)	3	(14%)	6	(15%)
No reply	2	(12%)	3	(14%)	5	(13%)
Total	17	(100%)	22	(100%)	39	(100%)

Source: ESIA/WID Survey, 1980.

TABLE 22
PERCEIVED BENEFITS FROM PARTICIPATION IN AFDP ACTIVITIES BY VILLARICA RESIDENTS

Benefits mentioned (multiple responses possible)	UHP/AFDP Cooperators		UHP/AFDP Non-Cooperators		Total	
Appropriate planting scheme	8	(47%)	14	(64%)	22	(56%)
Cooperation with others	4	(24%)	7	(32%)	11	(28%)
Cooperation with development projects	5	(29%)	5	(23%)	10	(26%)
Cooperation with government agencies	16	(94%)	17	(77%)	33	(85%)
Organization at work	16	(94%)	17	(77%)	33	(85%)
Planning/decision making	16	(94%)	17	(77%)	33	(85%)
Improve in livelihood	10	(59%)	15	(73%)	25	964%)
Peace and order	9	(53%)	14	(64%)	23	(59%)
Total	17	(100%)	22	(100%)	39	(100%)

N.B. Multiple responses allowed. Source: ESIA/WID Survey, 1980.

(termed "none" here). It must be noted here that the fourth "none" group may still be influenced by nonforest conservation-oriented development projects.

Tables 23-25 present the distribution of knowledge, practice and attitude scores generated by the ESIA/WID study. Table 23 indicates that, in terms of knowledge scores, agency influence does not make a difference. Certainly, knowledge on the whys and hows of conservation is gained whether it is taught by natural scientists, social scientists, or through employment in agencies conducting reforestation work. Such knowledge is also easily transmitted to other members of the community.

Table 24, however, shows that agency influence makes a difference in the actual practice of conservation on the farms of the respondents. There is a higher proportion of UHP/BFD farmers practicing agro-forestry activities compared to other residents.

TABLE 23
SCORES ON KNOWLEDGE OF CONSERVATION AMONG PANTABANGAN RESIDENTS

Scores	UHP/BFD Farmer cooperator		ARGSOD Influenced farmers		NIA/BFD Laborers		None		Total	
–110 and above	13	(65%)	28	(52%)	8	(40%)	19	(49%)	68	(51%)
Below – 110	7	(35%)	26	(48%)	12	(60%)	20	(51%)	65	(49%)
Total	20	(100%)	54	(100%)	20	(100%)	39	(100%)	133	(100%)

$x^2 = 2.76 < 6.25 \quad (x^2_3, .10)$

Conclusion: Respodents' classification according to agency influence does not make a difference in knowledge score distribution.

Source: ESIA/WID Survey, 1980.

TABLE 24
SCORES ON PR[illegible]TICE OF CONSERVATION AMONG PAN[illegible]ABANGAN RESIDENTS

TABLE 24
SCORES ON PRACTICE OF CONSERVATION AMONG PANTABANGAN RESIDENTS

Scores	UHP/BFD Farmer cooperator		ARGSOD Influenced farmers		NIA/BFD Laborers		None		Total	
Above 50	18	(90%)	31	(57%)	11	(55%)	23	(59%)	83	(62%)
Less than 50	2	(10%)	23	(43%)	9	(45%)	16	(41%)	50	(38%)
Total	20	(100%)	54	(100%)	20	(100%)	39	(100%)	133	(100%)

$x^2 = 7.55 > 6.25 \quad (x_3^2, .10)$

Conclusion: There are differences in the influence of agencies on conservation-oriented activities.

Source: ESIA/WID Survey, 1980.

TABLE 25
SCORES ON CONSERVATION ATTITUDE AMONG PANTABANGAN RESIDENTS

Scores	UHP/BFD Farmer cooperator		ARGSOD Influenced farmers		NIA/BFD Laborers		None		Total	
1 – 60	8	(40%)	10	(18%)	2	(10%)	8	(20%)	28	(21%)
0 to –160	9	(45%)	36	(67%)	14	(70%)	24	(62%)	83	(62%)
below –160	3	(15%)	8	(15%)	4	(20%)	7	(18%)	22	(17%)
Total	20	(100%)	54	(100%)	20	(100%)	39	(100%)	133	(100%)

$x^2 = 14.42 > 12.59 \quad (x^2_6, .05)$

Conclusion: Classification of respondents according to agency influence makes a difference in scores' distribution

Source: ESIA/WID Survey, 1980.

In addition, attitudes towards organization, conservation and development projects also vary across the various agency-influenced groups. Certainly, a favorable attitude towards conservation is a necessary condition for its practice. As Table 25 shows, direct agro-forestry project participants are thus more predisposed to conservation.

Table 26 presents the development projects considered successful by the town residents. Agro-forestry is viewed, on the average, as a successful project, followed by piggery, poultry and goat-raising. Other development projects conducted earlier in the town, such as sewing and rabbit-raising, were considered as failures by the Pantabangeños. It is noteworthy that animal-raising, though not yet actually implemented here, is an AFDP component in other pilot AFDPs such as in Antique. Equally worth noting is that even those not overtly influenced by agro-forestry consider the project as successful.

Pantabangan is one town where local organizations are now tapped by agents of change for active participation in development projects. This perhaps reflects the lessons learned about the failure of packaged plans in the area (see Estacio and St. Peters for a brief discussion of this). And yet, cooperation with government agencies is still a most often-cited problem of organizations, followed by leadership problems (Table 27). However, in terms of the contribution of the Samahan in solving the peace and order problems, Table 28 implies that 50 percent thinks the organization is instrumental in preserving peace and order. A large percentage, 40 percent, however, did not answer the question

A number of issues still confronting the farmers of Pantabangan affect the progress and impact of any land-based development project. The first pertains to land tenure security, an old problem which has yet to be solved. Table 29 which presents land-related issues shows that despite the absence of land tenure security, various approximations to property rights are exercised by the residents. This is indicated by the eleven (11) various forms of "owning" land in Pantabangan.

A high percentage of respondents (40 percent) attributes their land problem to the lack of attention by the government, as shown in Part B of the table. Proposed solutions to the problem and means of working towards the solution vary. Aside from "self-endeavor" and the "no reply" categories, looking towards MAR and the BFD

TABLE 26
DEVELOPMENT PROJECTS CONSIDERED AS SUCCESSFUL BY GROUP-INFLUENCED RESPONDENTS

Development Project[a]	UHP/BFD Farmer cooperator		ARGSOD Influenced farmers		NIA/BFD Laborers		None		Total	
Agro-forestry	13	(65%)	18	(33%)	9	(45%)	38	(97%)	78	(59%)
Goat raising	—		1	(2%)	—		—		1	(1%)
Piggery	—		4	(7%)	2	(10%)	5	(13%)	11	(8%)
Poultry raising	—		3	(6%)	—		5	(8%)	6	(5%)
Total number of respondents	20		54		20		39		133	

a. Multiple responses allowed.

Source: ESIA/WID Survey, 1980.

TABLE 27
NATURE OF PROBLEMS ENCOUNTERED IN ORGANIZATIONAL EFFORTS

Problems[a]	Frequency
As a member	21
With other members	38
Leadership	42
Samahan rules	25
Samahan activities	21
Cooperation with government agencies	61
Organizational decision-making	28
Total	133

a. Multiple responses possible.

Source: ESIA/WID Survey, 1980.

TABLE 28
PANTABANGAN RESIDENTS' OPINION ON WHETHER THE SAM CONTRIBUTED TO MAINTAINING PEACE AND ORDER

Opinion	Number
Yes	67
No	13
No Reply	53
Total	133

Source: ESIA/WID Survey, 1980.

TABLE 29
LAND-RELATED ISSUES IN PANTABANGAN

Land-Related Issues	Total	(%)
A. Status of land ownership		
1. Awarded	9	(7)
2. With title	4	(3)
3. No title	9	(7)
4. Lent	3	(3)
5. With permit	19	(14)
6. No permit	15	(11
7. Awarded, no title	8	(6)
8. No title, lent	1	(n.s.)
9. No title, with permit	41	(31)
10. No title, no permit	11	(8)
11. Others	6	(5)
	126	(95)
B. Perceived reasons for land ownership status		
1. Because of the dam	3	(2)
2. Squatting only	14	(11)
3. Government-owned	6	(5)
4. Lack of government attention	53	(40)
5. Occupied only recently	10	(8)
	86	(66)
C. Proposed solutions to land problem		
1. Ask for title	31	(23)
2. Continue tilling	6	(5)
3. Look for other land	4	(3)
4. Buy neighbor's land	1	(1)
5. Organize & coordinate	12	(9)
6. Wait	11	(8)
7. Mark boundaries	1	(1)
8. No solutions	5	(3)
9. Others	13	(10)
10. No reply	1	(1)
	85	(64)

Table 29 (Continued)

Land-Related Issues	Total	(%)
D. How to implement proposed solution*		
1. Self endeavor	23	(17)
2. Through "samahan"	8	(6)
3. Through UHP	8	(6)
4. Through ARGSOD	3	(2)
5. Through BFD	19	(14)
6. Through MAR	23	(17)
7. Through NIA	2	(2)
8. Others	16	(12)
9. No reply	50	(38)

*multiple responses

Source: ESIA/WID Survey, 1980.

made up the second set of the most-cited solution. These agencies are responsible for the granting of security of land in the resettlement area and forest lands, respectively. Coordination with the Bureau of Lands is moreover needed for the granting of titles for the alienable and disposable lands currently used by the Pantabangan farmers who are not from Villarica. Villarica farmers, on the other hand, are farming lands under the jurisdiction of the Bureau of Forest Development.

Another related issue currently being tackled by the Pantabangeños has given rise to questions on the impacts of development projects on the quality of life of uplanders in NIA's "gap" hiring, wherein a worker is hired as a casual for three months. At the same time, irregularities in the pay scheme are also reported along with long delays in the payment of salaries. The minimal impact on income may be expected from such employment "opportunities." Table 30, for instance, shows low wages earned from casual employment in contrast with temporary employment.

A comparison of total annual wages earned from casual labor, ₱663-₱704 (Table 30) with the value of household production for an average Villarica farm household estimated by Floro (1980b)