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The impact of the ICCO-supported PAS project in Tambalug (unpublished)

Dietz, A.J.; Obeng, F.; Geest, K. van der

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Ton Dietz, Francis Obeng, Kees van der Geest and others

Unpublished report

The Impact of the ICCO-supported Presbyterian Agricultural Station in Tambalug Upper East Ghana

2002

Part of the Impact Study of Co-financing Organizations

The results of the survey in Tambalug

45 people have been interviewed in Tambalug, of 12 different compounds. It was the intention to select households with a long existence and a long memory of changes in the area and of the impact of the Presbyterian (Garu) Agricultural Station (PAS). In each compound a woman of at least 35 years old was the prime informant, next to her husband, one of her grown up children (between 18 and 35 years old; we interviewed 11) and one of the elderly people living on the same compound (often the father or mother of the husband; we interviewed ten of them). Half of the twelve selected families were selected because at least one of their members was a direct beneficiary of the Presbyterian Agricultural Station in Garu; a member of a PAS group. In the other half there were no current members, although one of those households appeared to gain directly as well. For each of these two subgroups an attempt was made to select two households, which locally were regarded as relatively rich; two, which were locally regarded as relatively poor and two in between. Also an attempt was made to include Muslim households.

Of the interviewed wives only one had no 'rivals'. Ten wives had one co-wife; one had two. Of the interviewed husbands the average number of wives was two. The wives who were interviewed had on average 5 children (with a range from 2-10), their husbands had on average 8 children (range 2-17).

All interviewed people in this village belong to the Kusasi ethnic group and use Kusaal as their basic language. The majority of the wives still adhere to the Traditional religion (8x), three became Presbyterians and one became Muslim. With four exceptions the husbands share the same religion (the exceptions are a husband who still is Traditional while his wife became a Muslim, and another one where the wife became a Presbyterian; also there is a husband who became a Muslim while his wife remained Traditional and there is a husband who became a Muslim while his wife joined the Presbyterian Church). According to most parents all or most of their children became Presbyterians (7x), and in a few cases Muslim (2x). In two cases the (Traditional) parents said their children also adhered to Traditional beliefs. However, among the eleven interviewed children only one said he was still a Traditionalist. Four had become a Presbyterian, one a Catholic, one a member of the Assemblies of God and four had become Muslims. The first religious change away from Traditionalism only happened in 1987 (much later than in Kugsabile) and for most interviewees their conversion, if at all, happened recently.

Almost all children had been "to the South" and six of them now also speak Twi. One of them can also speak English, one French and one More (after working in Burkina Faso). Two of the

interviewed children also speak Bisa, although there are no Busangas in this village. Among the fathers of these children Twi is also well known: eight of them can speak it. One father can speak Bisa. Among the mothers three speak Twi (one also French), one Grunsi, and one Bisa. Four of the children had gone to the South last year and they earned between 50,000 and 330,000 cedis (av. 245,000 cedis). They gave an average of 90,000 cedis to their parents. There does not seem to be a difference between the children of households who were members of PAS and those who were not.

From the information about religion it is obvious that PAS does not restrict the membership of its groups to Presbyterians only. In fact in only one of the PAS households in Tambalug both the husband and the wife are members of the Presbyterian Church. A few more households have children who recently joined the Presbyterians. One of the leading PAS households is Muslim. On the other hand there are also two households in the survey where the wife became a Presbyterian, but neither she nor her husband became a member of a PAS group.

None of the elders, none of the wives and none of the husbands in Tambalug had had any primary school education, although three wives had attended literacy classes, organised by PAS. Only two households had succeeded to get at least one of their children a primary school diploma. Out of the twelve households ten had ever contributed to their children's education or still do so: all six PAS households and four of the six non-PAS households. However, the average cumulative contributions differ widely: from more than 280,000 cedis for PAS households (husbands 235,000; wives 45,000) to less than 85,000 cedis for non-PAS households (husbands 70,000; wives 15,000). One medium-level PAS household even spent more than 700,000 cedis on their children's education. Among the poor households three of the four ever spent money on their children's education, but in only one of them it was more than a pittance. It is mainly in the medium-level households that considerable sums of money have been spent on children's education: 610,000 cedis for the PAS households and 220,000 cedis for the non-PAS households. Among the rich households the sums spent on education have been surprisingly small and in one case even completely absent.

We will now first look at a number of poverty indicators to find out if there are differences between PAS-member households and non-PAS households and what the local overall assessments of rich, moderate and poor mean in terms of these indicators. We will present these findings in three categories (PAS>non-PAS; PAS = non PAS and PAS< non-PAS households). Per category we will start with the highest overall scores, which also show a 'poverty fingerprint' for the village as a whole.

Before doing so, we first have to say that there are a number of indicators in Tambalug where all interviewed households show a positive response: for instance, unlike Kugsabile all wives' houses have door and window frames. For other wealth/poverty indicators we can see that the majority of the households do possess certain assets, and for others that only a few examples can be found. For instance: in Tambalug most husbands now possess a bullock cart and a bicycle, but very few wives sleep on a mattress. Comparing the 'average wealth' situation in Tambalug with Kugsabile does not show a major difference for the husbands. The wives of Tambalug do own less livestock and in general seem less 'autonomous' compared to their sisters in Kugsabile. On the other hand three wives in Tambalug own sewing machines, and none of their colleagues in Kugsabile have one.

Table 1 Poverty indicators

(in bold: difference between PAS and non-PAS: >1)

A PAS households have a higher asset level than non-PAS households

Indicator	all	PAS	r	m	p	NON	r	m	p
husband owns hoe	11	6	2	2	2	5	2	2	1
husband owns sheep	11	6	2	2	2	5	2	2	1
husband owns goats	10	6	2	2	2	4	2	2	0
husband owns econ. trees	10	6	2	2	2	4	1	1	2
husband's floor is plastered	10	6	2	2	2	4	2	2	0
husband owns bullock cart	9	5	2	2	1	4	2	2	0
husband owns chicken	9	5	2	2	1	4	2	2	0
husband owns cutlass	9	5	2	2	1	4	2	2	0
husband owns cattle	9	5	2	2	1	4	2	1	1
husbands have more cloth now than 10 years before	9	5	2	2	1	4	1	2	1
husband owns guinea fowls	9	5	2	2	1	4	2	2	0
wife's house has zinc roof, and door and window frames	9	5	2	2	1	4	2	2	0
2001 harvest could feed household for >5 months	9	6	2	2	2	3	2	1	0
husband has bed and mattress	8	5	2	2	1	3	1	2	0
wives have > 2 bowls	8	5	2	2	1	3	2	0	1
husband's house has door and window frames	8	5	2	2	1	3	2	1	0
husband owns radio	8	5	2	2	1	3	1	1	1
more than one food barn	7	4	1	1	2	3	1	2	0
husband owns pigs	5	4	2	1	1	1	1	0	0
husband owns wrist watch	4	3	1	1	1	1	1	0	0
wife ate three meals yesterday	3	2	1	1	0	1	1	0	0
wife has sewing machine	3	3	1	1	1	0	0	0	0
wife has bed and mattress	1	1	1	0	0	0	0	0	0
wife owns chicken	1	1	0	1	0	0	0	0	0
wife owns pig	1	1	0	1	0	0	0	0	0
child owns goats, poultry, cattle	1	1	1	0	0	0	0	0	0
<i>Sub-total scores</i>	<i>182</i>	<i>111</i>	<i>42</i>	<i>41</i>	<i>28</i>	<i>71</i>	<i>34</i>	<i>29</i>	<i>8</i>
other indicators									
wives' average number of bowls	3.1	3.8	3.5	5.0	3.0	2.3	3.0	2.0	2.0
av. Income child 2001 (x 10,000 cedis)	40	49	110	34	3	31	20	30	44
land ownership in acres									
husbands: see C									
wives 1990	0.9	0.8	0.8	0.6	0.9	1.0	1.5	0.8	0.8
wives 2001	1.6	1.7	1.5	1.5	2.0	1.5	1.5	2.5	0.5
garden ownership in acres									
husbands 1990	0.1	0.2	0.5	0	0	0.1	0.3	0	0
husbands 2001	0.3	0.4	0.5	0.5	0.3	0.2	0.3	0.3	0
wives 1990	0.1	0.2	0	0	0.5	0	0	0	0
wives 2001	0.0	0.1	0	0	0.3	0	0	0	0

B No differences between PAS and NON-PAS households

Indicator	All	PAS	r	m	p	NON	r	m	p
husband owns bicycle	8	4	2	1	1	4	2	2	0
child owns bicycle	6	3	1	2	0	3	1	1	1
wife's house: blocks used	2	1	1	0	0	1	0	1	0
wife has more animals now than her mother	2	1	0	1	0	1	0	0	1
<i>Sub-total scores</i>	<i>18</i>	<i>9</i>	<i>4</i>	<i>4</i>	<i>1</i>	<i>9</i>	<i>3</i>	<i>4</i>	<i>2</i>

C NON-PAS households have higher asset levels than PAS households

husband yesterday had >1 meals	11	5	2	2	1	6	2	2	2
husband owns plough	9	4	2	2	0	5	2	2	1
husband's house has zinc roof	6	2	2	0	0	4	2	2	0
wife owns sheep	5	1	0	0	1	4	2	0	2
husband owns donkeys	7	3	2	1	0	4	2	2	0
husband owns cart	6	2	0	1	1	4	2	2	0
husband owns gun	4	1	0	0	1	3	2	1	0
<i>sub-total scores</i>	<i>48</i>	<i>18</i>	<i>8</i>	<i>6</i>	<i>4</i>	<i>30</i>	<i>14</i>	<i>11</i>	<i>5</i>
other indicators									
land ownership									
husbands 1990	5.6	4.5	2.3	10.5	0.8	6.6	11.5	5.5	2.8
husbands 2001	5.1	4.6	1.4	8.5	4.0	5.6	7.5	7.5	1.8
husbands' expenditure on health in 2001 (x 10,000 cedis)	3	2	1	5	1	5	4	10	0

Total wealth scores

	Rich	Medium	Poor	Total
Beneficiaries	54	51	33	138
Non-Beneficiaries	51	44	15	110
All	105	95	48	248

As has been explained before, households have been selected as 'rich', 'medium' and 'poor' based on local overall judgements of their 'wealth appearance'. Also all variables used to indicate wealth/poverty levels have been based on local judgements about what it is that makes people relatively rich or poor. We can now see that 'rich households' indeed have a higher score on the total set of indicators than 'medium households' and much higher than 'poor households'. If we combine this information with the information about households' membership of PAS groups, we see the same overall picture: both for beneficiaries and for non-beneficiaries 'rich' households are better off than 'medium' households and much better off than 'poor' households. The overall difference between beneficiary households and non-beneficiary households is 25% (138 points versus 110). In Tambalug the difference between PAS beneficiaries and non-beneficiaries in the rich and medium wealth categories is not much, but for the poor the difference is considerable. Of course nothing can be said yet about impact as the scores are a 'poverty fingerprint' of the situation in 2001 and do not yet say anything about causes and effects. We should therefore move to the second part of the analysis.

The Project's impact

Like in Kugsabile, for the interviewed households in Tambalug PAS is the only relevant NGO, and more important than any of the government agencies. Out of the twelve husbands six were in households which did experience a direct impact of PAS and all of them did get personal assistance from PAS: they got agricultural on-farm advice and off-farm training (all 6), training on gender (4), and on income generating activities (4), an exposure tour (2), pigs (3) or other financial/material assistance (4). Four of them were also member of a savings' group and three of them got a loan through PAS. Of the men four are still member of one of the PAS groups. Five wives of men involved in PAS activities were members of PAS (women) groups as well, and in addition another women (of a non-PAS household) also got some benefits from PAS activities. Some of their children are also members. The assistance the wives got from PAS were training about running a savings group (6), agricultural training (5), training in income-generating activities (4), veterinary care (3), soybean training (3), micro credit (2), pig rearing (1), fertilizer (1), and a loan (1). PAS was also involved in distributing food aid (to 7 of the wives, but the National Disaster Management Organisation and the Catholic Relief services were also involved). Two wives ever got any assistance from central government agencies, notably the Ministry of Food and Agriculture. Among the husbands three ever got assistance from a central government department (MOFA). The wives mention water projects by the District Assembly.

We will now study the differences between PAS and NON-PAS households in use of services or in activities. We will do so by again using the same three categories, and an ordering from high overall scores to low ones. We will again add a further specification based on rich/medium/poor households. Some indicators show that all households in Tambalug follow a certain advice (e.g. all wives immunise their children and all wives benefit from crop sales) or have the same opinion about a change (e.g. all women say that the quality of the water has improved the last ten years). For other indicators there are clear differences within the village. And finally there are some indicators in which no one qualifies: e.g. in Tambalug there is no wife who has a personal savings account, unlike the situation in Kugsabile.

Table 2 Changes in capitals and capabilities: PAS and non-PAS households compared

In bold: differences between PAS and non-PAS households > 1

A: PAS households benefit(ed) more or follow advice more

Indicator	All	PAS group members	Non-PAS group members
NATURAL			
husband makes ridges	11	6 2 2 2	5 2 2 1
husbands cultivate groundnuts	11	6 2 2 2	5 2 2 1
husband plough along contour	10	6 2 2 2	4 2 1 1
wives use bullock plough	10	6 2 2 2	4 2 2 0
husbands: grass bunding	10	6 2 2 2	4 1 2 1
wives sow on ridge	10	6 2 2 2	4 2 2 0

wives plough along contour	10	6 2 2 2	4 2 2 0
wives ridge along contour	10	6 2 2 2	4 2 2 0
wives practice gully control	9	5 2 2 1	4 1 2 1
husbands use goat/sheep manure	9	6 2 2 2	3 1 1 1
husbands ever planted trees	7	5 2 2 1	2 1 0 1
husbands use fowl droppings	7	4 2 1 1	3 2 1 0
husbands: composting	7	6 2 2 2	1 0 0 1
wives practice grass bunding	6	4 2 1 1	2 1 1 0
children use compost	6	4 1 2 1	2 1 1 0
agricultural yields have improved (last ten years, husb. opinion)	5	4 2 1 1	1 1 0 0
wives use sheep manure	5	3 2 1 0	2 0 1 1
husbands have a garden	5	3 1 1 1	2 1 1 0
husbands: soil fertility has improved last ten years	5	4 2 1 1	1 1 0 0
wives practice composting	5	3 1 1 1	2 1 0 1
wives use goat manure	4	3 1 1 1	1 0 1 0
husbands received pigs from PAS	3	3 1 1 1	0
wives use cow dung	3	3 2 1 0	0
husbands plough groundnut vines into soil	3	2 1 1 0	1 0 0 1
wives make use of veterinary services	3	2 0 1 1	1 1 0 0
husbands use pig manure	2	2 1 0 1	0
husband has tree nursery	2	2 1 1 0	0
wives have dry season garden	1	1 0 0 1	0
<i>Sub-total</i>	179	117 44 39 34	62 27 24 11
PHYSICAL			
husbands: gully control	10	6 2 2 2	4 1 2 1
wives use a grinding mill	7	4 1 1 2	3 1 1 1
husbands stone bunding	3	3 1 1 1	0
<i>Sub-total</i>	20	13 4 4 5	7 2 3 2
HUMAN			
wives ever visited by PAS	7	6 2 2 2	1 1 0 0
husbands got agricultural training	7	6 2 2 2	1 0 0 1
husbands ever visited by PAS	6	6 2 2 2	0
wives got agricultural training	5	4 1 2 1	1 0 1 0
husbands were trained on gender	4	4 2 1 1	0
wives trained in income generating activities	4	3 1 1 1	1 0 1 0
husbands trained in income generating activities	4	4 1 2 1	0
husbands ever visited by MOFA	3	3 1 0 2	0
wives were trained on gender	3	3 1 1 1	0
husbands farms used as demo plot	2	2 1 1 0	0
husbands got exposure tour	2	2 1 1 0	0
<i>Sub-total</i>	47	43 15 15 13	4 1 2 1
SOCIAL			

households still get assistance from PAS	4	4 1 2 1	0
wife related to political relative	3	2 1 1 0	1 0 1 0
husband related to political relative	3	2 1 1 0	1 0 1 0
the household is related to the Chief	1	1 1 0 0	0
wife is member of unit committee	1	1 0 1 0	0
<i>Sub-total</i>	<i>12</i>	<i>10 4 5 1</i>	<i>2 0 2 0</i>
ECONOMIC			
wives: standard of living has improved last ten years	11	6 2 2 2	5 1 2 2
husbands: standard of living has improved last ten years	9	5 2 2 1	4 2 1 1
husband benefits from crop sales	9	5 2 2 1	4 2 1 1
husband benefits from livestock sales	9	5 1 2 2	4 1 2 1
wife belongs to PAS savings group	6	6 2 2 2	0
child is member of economic group	5	4 2 2 0	1 1 0 0
husband is member of economic group	5	4 1 2 1	1 0 1 0
wife is member of econ. group	5	5 2 2 1	0
wives ever got financial or material assistance from PAS	4	4 1 2 1	0
husbands ever got financial or material assistance from PAS	4	4 1 2 1	0
wife gets remittance from child(ren)	4	3 0 1 2	1 1 0 0
wife pays for veterinary services to PAS	3	2 0 1 1	1 1 0 0
husband ever received loan	3	3 1 2 0	0
husband is member of school committee	2	2 1 1 0	0
wife ever received loan	2	2 1 1 0	0
child ever got assistance from government or Distr. Ass.	1	1 0 1 0	0
wife benefits from livestock sales	1	1 0 0 1	0
wife benefits from dry season sales from garden	1	1 0 0 1	0
<i>Sub-total</i>	<i>84</i>	<i>63 19 27 17</i>	<i>21 9 7 5</i>
Total	342	246 86 90 70	96 39 38 19

B: PAS members experience same benefits as non-PAS members

Indicator	All	PAS group members	Non-PAS group members
N: husband uses bullock plough	10	5 1 2 2	5 2 2 1
N: wives: water quality improved	10	5 2 2 1	5 2 2 1
E: household ever received food aid	8	4 0 2 2	4 2 1 1
N: husbands use cow dung	8	4 1 2 1	4 2 1 1
N: children use cow dung	6	3 0 2 1	3 1 1 1

N: wives practice stone bunding	6	3 1 1 1	3 0 2 1
S: husband leader in the village	6	3 2 0 1	3 1 1 1
E: husband benefits from dry season gardens	6	3 1 1 1	3 1 1 1
E: child got assistance from PAS	4	2 1 0 1	2 1 0 1
E: husband benefits from fruit sales	4	2 0 2 0	2 1 0 1
N: husbands use donkey manure	4	2 1 1 0	2 1 1 0
E: husband has personal savings account	2	1 0 1 0	1 0 1 0
Total	74	37 10 16 11	37 14 13 10

C: PAS members < non-PAS members

Indicator	All	PAS group members	Non-PAS group members
S: husband belongs to Tindana's family	3	1 0 0 1	2 1 1 0
E: husband gets remittance from child(ren)	3	1 0 1 0	2 0 1 1
S: husband member of water committee	3	1 1 0 0	2 1 1 0
S: wife member of water committee	1	0	1 1 0 0
S: wife is member of school committee	1	0	1 0 1 0
Total	11	3 1 1 1	8 3 4 1

If we compare the group of beneficiary households and the group of non-beneficiary households we can conclude that overall there are much higher scores for beneficiary households (a total score of 286 points versus 141 points). Also it is evident that there are many more indicators for which beneficiary households show a better score than non-beneficiary households. The beneficiary households show an impressive performance compared to the non-beneficiary ones. We will again look at the differences between rich, medium and poor households. Although poor households show less impact of the activities of change agencies (in which PAS plays such a dominant role in the village), the difference with medium and rich households is not so big. The impact cuts across wealth differences. It is interesting to note that in Tambalug the medium-level households among the beneficiaries show a better performance compared to the rich and certainly the poor households. However, like in Kugsabile, the differences between PAS and non-PAS households (index 203) are much higher than between the household wealth category with the highest performance scores (the medium-level households) and the poor (only an index of 145). The wealth category of households benefiting most from the PAS interventions (in relative terms) are the poor (index 273), followed by the medium-level households (index 195) and finally the rich (index 173). We can also conclude that the performance differences between rich and poor in the village are relatively low for the PAS households (only 118; and 130 for the difference between medium and poor households), while they are considerably higher for the non-PAS households (index 187).

Table 3 The impact of interventions: PAS beneficiaries and non-beneficiaries, and wealth categories; scores on selected indicators

	Rich	Medium	Poor	Total
Beneficiaries	97	107	82	286
Non-beneficiaries	56	55	30	141
Total	153	162	112	427

Like in Kugsabile, it is tempting to add one more quantitative analysis: differences between beneficiaries and non-beneficiaries, and rich, medium and poor in performance variables for the different capitals or capability changes that were measured. Unlike Kugsabile, not the medium-level households seem to have gained most (in relative terms) from being involved in the various PAS activities, but the poor. In the economic domain the medium-level households lead, though (and in the domain of human capability development the very high performance difference for the poor is even surpassed by an even higher performance difference for the rich households).

Table 4 Performance indicators for the different capitals: index figures for the differences between PAS and non-PAS households, for rich, medium and poor households.

Capability change	Rich	Medium	Poor	Total
Natural	143	148	250	165
Physical	200	133	250	186
Human	1500	750	1300	1075
Social	175	83	300	136
Economic	150	309	210	217
Total	173	195	273	203

What do the elders think about the changes that took place in the village? We interviewed ten elders, who belonged to families in which we interviewed the husband, the wife and one of their children. Half of them still live with at least one of their wives (one even still has six wives...). A few still earn their own money, partly used to help the family, and partly to buy tobacco and cola nuts for their personal consumption. The majority of the elders have experienced other areas; seven out of the ten have worked and lived outside their 'home area'.

Most elders are convinced about the deteriorating crop yields and livestock numbers in the village and the diminishing and more erratic rainfall. Own food production has gone down in most compounds, so they say, although the quality of food consumption has gone up and all farmers have changed from millet to maize. The elders are worried about the degradation of the wildlife ('almost extinct now'), the trees and the vegetation cover and about the drying up of rivers and streams. Deteriorating natural resources have been compensated by improved agricultural practices, a much better quality of water through boreholes and wells, and a much more reliable market for food. The growing difficulty to provide traditional roofing materials for houses and traditional clothes and bedding is compensated by zinc roofs, blocks, and modern clothes. People are healthier now, and children have started 'to enjoy education'. Some elders complain about the strongly reduced role of their age group, and about the lack of care for traditions. Some blame the churches for these changes. Three elders are even quite negative about the religious changes: churches destroy the traditions and provoke disobedience; they also make a lot of noise...Most elders, however, mainly see positive sides of Christian and Muslim activities: there is more enlightenment and there are less conflicts.

Three of them actually got assistance from PAS, and no one got personal assistance from ‘the Government’. However, they recognise the positive role of government agencies in providing boreholes and wells, schools and teachers, clinics and roads. There should be more of it, and - for health care - at lower costs.

We can now finalise the analysis by adding a ‘historical’ analysis of changes and change agents for each of the twelve households.

Table 5 Time-specific information for the interviewed households

nr	number of household interview
cat	wealth category of household (rich, medium, poor)
hb yr	husband born in year 19xx
nr w	husband’s number of wives
nr ch	husband’s number of children
nr ot	husband takes care of x others as well on his compound
h ed	husband has received formal education or not
wb yr	interviewed wife is born in 19xx
1w 2w	interviewed wife is first or second/third wife
yr ma	wife married in 19xx
hr	husband’s religion (Muslim, Presbyterian, Traditional) (ethnicity: all Kusasis)
wr	wife’s religion (same)
cr	children’s religion (same)
ei h	year when husband started to invest in children’s education
ei w	year in which wife started to contribute to children’s education costs
w hs	wife started to have ‘modern’ house (either zinc roof or/and blocks) in 19xx
Ph me	year PAS group membership started for husband
Pw me	year PAS group membership started for wife
Ph at	year husband got PAS agricultural training
Pw at	year wife got PAS agricultural training
Ph sg	year husband became member of PAS savings group
Pw sg	same for wives
Ph ln	year husband received loan from or through PAS (/BESSFA)
Pw ln	same for wives
Ph as	year husband received other (financial or material) assistance from PAS
Pw as	same for wives
vh M	year the husband’s farm was visited by a person from the Ministry of Food and Agriculture
vw M	same for wife’s field
gar h	year the husband started a garden (for onion cultivation mainly)
gar w	year the wife started a garden
gs h	year the husband started to adopt making grass strips on his fields
gb w	year the wife started to adopt making grass strips resp. stone bunds on her fields
sb h	year the husband started to adopt making stone bunds on his fields
cp h	year the husband started to use compost on his fields
cp w	year the wife started to use compost on her fields
pc h	year the husband started to plough along the contours
pc w	first year the wife’s field was ploughed along the contours

nr	cat	hb yr	nr w	nr ch	nr oth	h ed	wb yr	1w 2w	yr ma	hr	wr	cr	ei h	ei w	Ph me	Pw me	Ph at	Pw at
1	PR	61	2	6	3	-	61	1	77	T	M	M	80	87	87	92	99	+
2		51	2	9	4	-	61	1	80	P93	P92	P	00	00	72	82	82	-
3	PM	31	2	7	4	-	60	1	80	T	T	P	89	99	82	87	94	92
4		51	2	7	4	-	56	2	82	M	T	P	90	97	78	96	-	96
5	PP	40	2	17	1	-	51	1	65	T	T	P	70	75	99	-	82	-
6		66	2	3	2	-	67	1	85	T	T	T	-	97	99	99	00	99
7	NR	39	3	6	1	-	53	1	72	T	T	M	-	-	-	-	-	-
8		41	2	10	0	-	66	2	58	T	T	P	99	-	-	-	-	-

9	NM	31	2	7	7	-	61	2	82	M	P98	P	00	98	-	-	-	99
10		51	2	7	1	-	60	1	80	T	T	?	01	01	-	-	-	-
11	NP	56	2	10	0	-	61	1	82	T	P01	P	98	-	-	-	-	-
12		40	1	2	?	-	51	1	72	T	T	T	-	-	-	-	-	-
nr	cat	Ph sg	Pw sg	Ph ln	Pw ln	Ph as	Pw as	vh M	vw M	gar h	gar w	gs h	gb w	sb h	cp h	cp w	pc h	pc w
1	PR	-	99	99	-	-	97	+	94	-	-	97	99	-	97	99	-	+
2		00	97	-	-	00	+	-	+	94	-	97	98	92	77	-	-	+
3	PM	98	00	00	-	95	99	-	-	98	-	99	-	-	97	+	95	98
4		78	96	94	00	-	96	-	-	-	-	95	98/ 96	85	86	-	85	95
5	PP	-	97	-	-	-	-	01	-	01	00	72	-	-	96	-	53	97
6		00	00	-	-	-	01	01	-	-	-	01	97/ 98	99	99	96	00	95
7	NR	-	-	-	-	-	-	-	-	97	-	-	99	-	-	99	-	+
8		-	-	-	-	-	-	-	-	-	-	99	-	-	-	-	00	+
9	NM	-	-	-	-	-	98	-	-	-	-	82	-	-	-	-	00	00
10		-	-	-	-	-	-	-	-	99	-	00	+	-	-	-	-	+
11	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	92	-	01	-
12		-	-	-	-	-	-	-	-	-	-	-	-/+	-	-	+	-	-

The results of the sequential analysis show that Tambalug considerably lags behind Kugsabile, although recently PAS influence seems to have created a momentum of change. The first household that became involved in PAS activities (nr 2) started to do so in 1972 when the husband became a member of a PAS group in the village. His wife followed in 1982 as the first wife of the sample. In that same year the husband got an agricultural training, but the wife never participated. Already before that training the husband was the first to adopt compost as a fertiliser (in 1977). Later he became the first one to start a garden (in 1994). That was soon after both husband and wife decided to become a member of the Presbyterian Church. After that they both joined a savings group and also adopted a number of agro-technical innovations, although not as the pioneers in the village, and some only very recently. The household was also very late in starting to invest in their children's education, only in 2000. This household is still the only one in the sample where both husband and wife became members of the Presbyterian Church.

The second household which became a member of a PAS group (nr 2) shows a peculiar combination of a Muslim husband, a Traditional wife and Presbyterian children. The husband already became involved in PAS in 1978, also in a savings group. But the wife only joined recently, in 1996. The husband was the first in the sample group to adopt stone bunds (in 1985), and almost the first one to adopt compost and ploughing along the contour (around the same time), but he never went to an agricultural training course of PAS. The wife was the first one to start ploughing along the contour on her fields (in 1995). Soon after that she decided to go for agricultural training. Both husband and wife were the first ones to get a loan through PAS (resp. in 1994 and 2000).

The third household which joined PAS (nr 3) did so in 1982, with the wife following suit in 1987. She was the first wife in the sample group to get agricultural training (in 1992), even before her husband (in 1994). Afterwards they adopted a number of agro-technical

innovations and also became involved in other PAS-related activities. However, only their children became members of the Church.

The fourth PAS household (nr 5), also became involved in 1982, with an agricultural training for the husband, but only much later followed by membership of a group. The wife also joined a PAS savings group recently. Locally they are regarded as a poor household. However, they were absolute pioneers in a number of innovations long ago: as a young man the husband was the first to adopt ploughing along the contours (before 1960 even), and the first to make grass strips (in 1972). In the early 1970s they were one of the very few households investing in the education of their children, and both husband and wife contributed, which must have been rather revolutionary, in those years. It seems that this innovative behaviour did not give the household an advantage. Only recently the household picks up some of the PAS activities and also starts adopting some innovations which they long seem to have resisted. Although being poor, they did get some attention from the Ministry of Agriculture, whose officers even visited their farm recently. The wife is the only woman in the sample who dared to start her own garden recently (in 2000).

The fifth member household (nr 1) joined in 1987 (the Traditionalist husband), followed by his Muslim wife in 1992. This household is locally regarded as rich, but only very recently started to get involved in PAS activities and to adopt recommended innovations.

The sixth PAS household (nr 6) only became members in 1999, both husband and wife. They had started to adopt some of the technical innovations just before and they continued experimenting with new methods afterwards. It is household where even the children still adhere to the Traditional religion and where only in 1997 the first investments were done in education (by the wife only!).

Finally there is a peculiar case of a woman (nr 9), who upon her conversion to Christianity and upon getting material assistance from PAS, in 1998, decided to follow an agricultural training course, but (although not very clear) without joining a PAS group. Also the agricultural innovations are either absent or very recent. She did start, though, to invest in the education of their children (in 1998), and in 2000 her reluctant husband started to share that burden.

The other non-member cases generally show very late or absent adoptions as well, and generally lag much behind the PAS households. A purely Traditionalist household (nr 12) even shows hardly any technical or social adoptions at all, and is locally regarded as very poor. On the other hand a household that is locally regarded as rich (nr 7; Traditionalists with Muslim children) does not show a much better performance, despite their perceived wealth.

Like Kugsabile, Tambalug shows a rather overwhelming evidence of important changes brought about by PAS, and it also shows the pioneering behaviour of PAS members, in contrast to the non PAS members or late PAS members. But this village also needs a longer period of PAS involvement to support a further breakthrough. Especially the leading economic ventures of Kugsabile, (onion) gardens and pig rearing, started much later and with only a minority of the households currently involved, although gradually increasing.