University of Pretoria

CIRAD

In collaboration with
the Agricultural Research Council

ACTIVITY SYSTEMS AND LIVELIHOODS IN EASTERN CAPE PROVINCE RURAL AREAS (TRANSKEI) :

HOUSEHOLD TYPOLOGIES AS SOCIO-ECONOMIC CONTRIBUTIONS TO A LANDCARE PROJECT

Department of Agricultural Economics,
Extension & Rural Development

Post Graduate School of Agriculture
& Rural Development

Working Paper 2000/2

Sylvain Perret, Johan Carstens
Randy Randela & Sibusiso Moyo

CIRAD-Tera num 2000/28
October 2000

Activity systems and livelihoods in Eastern Cape Province rural areas (Transkei) :
Household typologies as socio-economic contributions to a LandCare project.

Sylvain Perret[1], *Johan Carstens*[2], *Randy Randela*[2], *Sibusiso Moyo*[3]

Acknowledgements

The authors would like to thank the following persons and their institutions, with regard to their support and/or direct contribution to this study :

- *Dr. Derek Swart, from ARC –Range & Forage Institute- at Grootfontein Small-Stock Centre, who coordinates the LandCare project in the Eastern Cape,*
- *Brian King, from Grootfontein Small-Stock Centre, who coordinated most field works during this study,*
- *Felix Hobson, from EC-DALA, at Stutterheim (Dohne),*
- *Leon Coetzee, from EC-DALA, at Queenstown,*
- *A number of staff members and extension officers from EC-DALA, who made this study possible while carrying out the interviews with the farmers,*
- *The farmers and their families, who participated actively to the interview phases, providing useful background information.*

Foreword

The usual disclaimer applies, since this work paper has actually not been peer-reviewed. Further scientific publications should be issued later on.

Should the following text show some mistakes or misinterpretations, or generate some misunderstandings, the reader is most welcome to express constructive comments and reactions.

---

[1] *University of Pretoria / CIRAD*

[2] *ARC – Development Impact Analysis*

[3] *University of Pretoria – Dept. Agricultural Economics*

Activity systems and livelihoods in Eastern Cape Province rural areas (Transkei) :

Household typologies as socio-economic contributions to a LandCare project.

Sylvain Perret, Johan Carstens, Randy Randela, Sibusiso Moyo

Activity systems and livelihoods in Eastern Cape Province rural areas (Transkei) :

Household typologies as socio-economic contributions to a LandCare project.

Sylvain Perret, Johan Carstens, Randy Randela, Sibusiso Moyo

1. The LandCare Project at a glance

The South African LandCare Programme is a community-based and government-supported land management programme, co-ordinated by the National Department of Agriculture. It is a process focused towards conservation of the natural resources through sustainable utilisation by a community with a conservation ethic, created by education and community-based monitoring of these resources. The essence of LandCare is that it is a grass-roots programme supported by both public and private sector through a series of partnerships. The LandCare Programme offers practical assistance to effect land conservation activities that are identified, implemented and monitored by a community – primarily the farming community.

The LandCare Project of the Eastern Cape (Integrated Multiple Livestock and Crop Agricultural Systems Development, a Community Development Project) is part of the LandCare Programme, driven by the National Department of Agriculture. The overall goal of this programme is to optimise productivity, food security, job creation and better quality of life for all.

In line with the above longer term objectives, the Eastern Cape LandCare Project has as immediate objective the creation of financial stability in targeted communities by means of agriculturally directed interventions. In order to determine the most appropriate interventions, the Project started off by first determining the needs and potential of the targeted communities and the area through socio-economic studies and by establishing a link between research and application of technologies in the communities.

The LandCare Project is driven by a consortium of resource institutions in full co-operation with the communities. These institutions are the Agricultural Research Council, Eastern Cape Dept. of Agriculture and Land Affairs, and the National Wool Growers Association. They operate by means of a steering committee and focus all their efforts on 5 especially selected communities, during a first phase. Three of these communities fall within the former Transkei area namely in the districts of Tsomo, Nyandeni and Mount Fletcher.

2. Transkei : a rural area in the Eastern Cape

The Eastern Cape area was a hotbed of struggle in the 19th century, with successive encroachment of Boers and the British. The basis for the bantustan structure was laid early by the British in the 1890s with the introduction of a Council system for the Transkei, and the incorporation of headmen into the system. The self-administration process continued until the Transkei became nominally independent in 1976, with Ciskei becoming self-governing in 1972.

The Eastern Cape area was particularly affected by the major policy changes over the last ten years, with the gradual removal of Apartheid legislation since 1990, the re-amalgamation of the two independent homelands in 1994, and the creation of the current Eastern Cape Province.

Bembridge (1984) described the history and the main socio-cultural traits of the Transkei area. He especially underlines the prominence of labour migration since the end of the 19th century and its implication on livelihoods and activity systems at household level in rural areas.

Eastern Cape is currently one of the poorest provinces in South Africa, with 70.7% of its population classified as poor. It also shows the highest unemployment rate, 48.5% (Central Statistics Service, Population Census, 1996 ; Statistics South Africa, Rural Survey, 1997).

From the same sources, the following data highlight some features **at whole province level**.

Population EC province : 6 million inhabitants

Non urban population : 3.7 million

Former Ciskei + Transkei areas : 3.7 million

Livelihood systems (source of income as a basis for livelihood) : Wages : 26% of households

Pensions : 40%

Remittances : 23%

Farming : 4%

27% of households earn less than R400 per month, while 11% earn more than R1500 per month.

Within **rural areas** of the Eastern Cape province, the following data have been highlighted :

84% of the households access land for agricultural activities *l.s.*

76% of households access grazing areas

The reasons for farming expressed by rural household are :

95% for subsistence

3% for profit

35% of farmers experience crop failures.

3. A two-fold approach

3.1. First phase : understanding the diversity at community level

In rural areas of the Eastern Cape Province, the considerable uncertainty about markets, land-tenure and land-access issues, as well as the constraining climatic conditions, and the remote location to urban centres and infrastructures are forcing people to develop a wide range of activities and/or to resort to different sources of income as a risk-limitation strategy or as means to sustain a livelihood (Lhopitallier & Caron, 1999). Thus, even though located in a limited and quite homogenous area, households may be very different to each other. This is the background hypothesis of the present approach.

This diversity, previously disregarded or seen as a hindrance to technology transfer, has now to be taken into account for development support purposes (recommendation domains, target groups...).

Typological techniques have been developed to address this diversity (Perret, 1999). The survey phase consists of collecting information with questionnaires, through interviews at household level.

The questionnaire has been built up according to past experiences in the area (Zarioh & Laurent, 1997) and to local knowledge. Exchanges have been organised among the survey team and the operators involved, in order to refine the questionnaire.

The following main items were selected (and developed within the questionnaire) :

Household level of income, sources of income (farming, casual local job, permanent local job, remittances, pension, welfare, family/community solidarity (in kind))

Expenditures (food, farming)

Proportion of income gained from farming activities

Household farming style (none, subsistence, wealth storage/social function, casual local marketing, casual marketing (commodity chain), significant local marketing, significant marketing (commodity chain))

Household farming activities (none, house gardening, field crops (dry land), micro-livestock, livestock, wool)

Access to land (none, garden, grazing land, arable dry land, irrigation scheme)

Family members / labour force (old, adults, school, pre-school)

Household head (gender, age, education character)

Composition of the household

For different activities in the household : allocation of labour, decision-making system.

3.2. Second phase : focusing on productive activities

This phase refer to the design of a direct support to farming activities (technical advice, infrastructures, training, connection to a supply chain, etc.) at farm and community level. The focus is more comprehensively on practices and decision-making processes, as well as on the operation and strategy of farmers, whereas the first phase refers more to the overall community and households' diversity. Although crucial, the second phase is not presented in this report.

4. A household typology in Xume (Tsomo district) (S. Perret)

4.1. The interview phase

A total of 81 interviews were conducted in five wards of the, Xume administrative area, (Elalini, Catshile, Enyanisweni, Mnyamandawo, Ezidulini) in Tsomo District, between July 2nd and 13th 1999.. In each ward at least 15 interviews were conducted according to a random sampling process. Eight extension officers of the Eastern Cape Department of Agriculture and Land Affairs were involved with the interviews (capacity building of these officers was one of the expected outcomes of the study).

The 81 households involved in the survey represent a total of 476 persons (on both full time / part time basis). The Xume community population is 2488. Thus, the survey covered a satisfactory 20% of the population.

The most noticeable problems are (i) the lack of certain information, or their poor accuracy or reliability, especially those about income and expenditure, and (ii) the probable misunderstanding that often occurred about the house garden and the arable land. Many interviews got mixed up with both kinds of fields while answering questions about access, use and the productivity of these fields.

However, much information has been gathered and allows a better understanding of the diversity of activities within the community. All the information was gathered according to people's verbal responses and perceptions.

4.2. Main characteristics of the community

The main traits of the community are listed here, as well as the variables that eventually do not account for the discrimination of types but characterise the whole community.

The community of Xume can be seen in different ways according to the viewpoint chosen : it is an ageing, local-born, and poverty-stricken community, dependant on welfare. But it also develops subsistence farming activities, and basically, it is a community of stock-keepers and wool growers.

A. An ageing, local-born community

Most generally, the households are extended families (group of people related by kinship, where more than two generations live together). On average 5.9 persons live in the household, either on a part-time or full-time basis. Old pensioners, looking after their grand children, are in charge of many households, whereas adults are often absentees.

51 percent of households are headed by a couple, within which the man is considered as the head;

33% are headed by a lonely woman (either single, widowed, divorced...);

10% are headed by a married woman, whose husband works far away [4];

6% are headed by a lonely man (either single, widowed, divorced...);

50% of households' heads are more than 59 years old;

25% are more than 69, and 25% are less than 48;

Of all the household heads 86% were born in the community, or married a member of the community, where-as 14% are immigrants. A total of 95% declare that they have a permit of occupation for their residential site.

The size of the residential site ranges from 70 to 6400 m^2 (average: 4185, median: 4900).

---

[4] *It is noticeable that some interviewed women consider their husband as the head, even though he is away and she makes all decisions within the household, including about farming activities.*

B. A poverty-stricken community, dependant on welfare and relying on different sources of income and activities.

Among the households, 59% make some income out of farming, but only 9% rely on farming as their only source of income.

43% of households access remittances from a working husband, spouse or children (outside the community).

43% access one or two pensions (old age- or sick-pensions).

9% access salaries and wages from permanent local jobs.

6% access salaries and wages from intermittend local jobs.

5% access welfare pensions (childhood, disablement...).

The average income is R6081 per annum (median: 6000).and 25% of households earn less than R2440 per year, whereas 25% earn more than R8400.

Of all households in this group 96% declare that they are short of money, at least during certain periods of the year (generally January to March, but November to March for the poorest);

58% of the households declare that they do not access enough food, at least during certain period of the year (generally January to March);

68% declare that they have debts outstanding.

C. A rural community with subsistence farming activities

94% of households access either a garden (close to their residential site) or arable land (but only 12% have fruit trees – mainly peach trees-) without a regular irrigation system and 28% have access to a communal garden.

85% of households grow crops in these fields. They plant and/or plough mechanically with a hired tractor (72%), their own oxen or donkeys (23%) or their own tractor (5%).

Almost 40% have significant, regular crop production out of these fields, mainly available in summer. The major crops are maize, bean, cabbage, pumpkin, potato, spinach...

Only 4% sell their products (even from time-to-time).

Those who grow crops indicate the lack of irrigation water and drought as the main constraint to crop production (81% of replies), then lack of fencing (15%), followed by thefts, rocky soils, poor fertility, diseases, lack of equipment, remoteness of fields, weeds...

94% of households own micro-livestock; 88% own chicken (meat/egg purposes, 10 on average); 75% own pigs (2 on average); 15% own geese, ducks, pigeons, rabbit and/or turkeys.

Of the above 94%, only 4% sell micro-livestock (animals, meat and/or eggs...), and in 84% of these households a woman take care of micro-livestock.

D. A community of stock-keepers and wool-growers

Since there is no camp system for collective management of grazing areas in Tsomo, each and every one may access rangeland.

79% of households have a kraal, (privately owned), on their residential site;

60% of households own cattle (or keep it for relatives) - The average number is 6 (median: 5);

68% own sheep (meat/wool purposes) - The average number is 41 (but half the flocks have less than 20 animals);

44% own goats (mainly indigenous) - The average number is 7 (median: 6).

Among the stock-keepers, only 20% sell either animals or meat;

78% of sheep owners sell wool, mostly to speculators.

Some of them own donkeys and/or horses.

Figure 1. Basic/main source of livelihood in Xume community (survey sample)

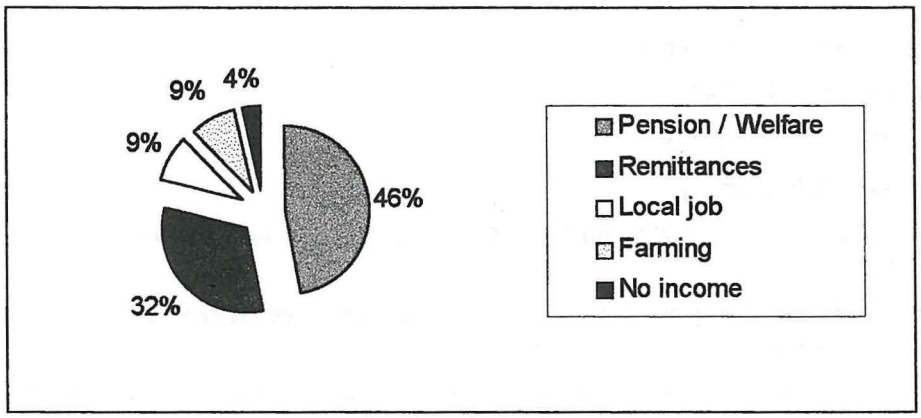
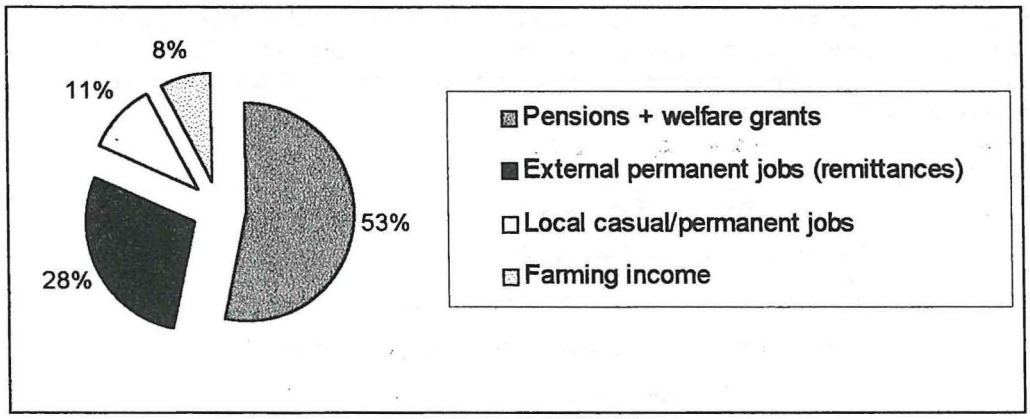


Table 1. Livelihood & activity systems in Xume community (% of household involved in, survey sample)

No income	4
Pension/Welfare + Farming	22
Remittances only	15
Remittances + Farming	16
Farming only	9
Pension/Welfare only	9
Pension + Farming + Remittances	6
Local job only	5
Local job + Farming	4
Pension + Remittances	5
Other combinations	5

Figure 2. Proportion of income from different sources in Xume (proportion of money flows from different sources at the community level, survey sample)



(The total yearly money flow for the whole sample is R492.559, thus R6081 per household on average, and R1035 per person on average).

A PRA-style survey was carried out in Xume at the same time as the typology study (Khanya, 2000). Its findings underline the major problems facing people in Xume :

- Lack of domestic water (women are walking up to an hour return to fetch water)
- Poor roads making access difficult, especially to the clinic
- Lack of fencing, so animals roam, eating crops
- Lack of irrigation water, which would reduce risks and increase productivity
- Lack of purchasing power, so that local businesses are not thriving and there is little money to circulate around
- Livestock diseases are reducing productivity, as is stock theft
- Poor access to health services, as it is some distance to the nearest clinic and the road is bad
- Seasonal diseases and malnutrition
- Skills are lacking
- Lack of electricity
- HIV/AIDS is not recognised and little seems to be done about it
- Lack of attention to street children and orphans

In addition, some institutional problems affect Xume :

- Pensions/grants not being paid
- Lack of support services, except Departments of Agriculture & Land Affairs, Education and their own initiatives
- Some target groups are forgotten : youth, unemployed, even by DALA
- There are poor links with the formal structure of the TRC (local governmental authority)
- Bureaucracy is limiting opportunities, for instance the primary feeding scheme where women are not being paid
- People are very unaware of what is happening about projects, departments and the TRC are not accountable
- The community health worker is a volunteer, and for the important role she is playing she is not paid.

4.3. Household typology in Xume (Tsomo District)

At the end of the systematic browsing and grouping analysis of each questionnaire, the following typology came up, according to the criteria that were chosen. This typology aims at matching the frame and the objectives of the LandCare Programme. Thus, it firmly refers to farming and land use activities. With regard to this, it seemed relevant to distinguish pensioners from adults-headed groups, as they access a permanent and reliable source of income, they have accumulated skills, assets and livestock, but finally changes might occur shortly for most of these households. On the other hand, it seemed also wise to identify clearly the poorest among the poor.

Non farming types

1. Very poor single female-headed households

2. Pensioners with some subsistence farming activities

3. Adults' households with external activities and sources of income

Farming types

4. Stock-keepers-pensioners

5. Part time stock-keepers, with off farm activities and sources of income

6. Full time farmers

A. Description of types

1. Very poor single female-headed households (5/81)

They are mainly single female-headed households (4/5). All own their residential site, some are immigrants and were not given access to arable land. The head can be around 55-60, and then support some of her children and grand-children, or can be young, around 30, with her young children, families remains rather small (5.2 on average).

They possibly access low remittances or gifts in kind by relatives (local solidarity), or welfare grants for children. When existing, husband or spouse is away and do not work or do not send any money. The total yearly income is below R1200 (average 560, std. 606). Expenditures for food supply range between R360 and R1800 per year (average R770, std. 610). There are debts outstanding, and no savings.

Subsistence farming activities remain scarce and under-developed (no or occasional crop growing activities, with no or low yields, some micro-livestock, no marketing). The heading woman is in charge of all farming activity.

There are only few livestock, not marketing. No expenditure is dedicated to farming activities.

These households have food/money supply shortages all year round.

Strategy : defensive (survival strategy), the objective is to get a job for someone in the household.

Trajectories : most probably towards 2, (ageing and access to a pension) ; possibly towards 3 (through access to a job for a member of the household or to increased welfare grants) ; towards 6 (access to arable land and means to sustainably grow and market crops).

2. Non farming single pensioners-headed households (16/81)

All these households access one pension. Thus, their minimal yearly income is R6000. Half of them combine pensions, remittances from children or external jobs' salaries of adults. Thus, the average yearly income is relatively high (R8670). Income from farming is scarce and low.

A large majority of these households are widowed-woman headed (11/16). The head is 70 years-old (average). They live with some of their children and grandchildren (6.5 members o.a., mostly adults).

Most of them grow crops in a garden or arable piece of land, with low yields and no marketing. Chicken and pigs are self-consumed as well. The heading woman is involved in each and every decisions and activities on farming.

Some households own few cattle (less than 7), and some sheep or goats (less than 10), also slaughtered for self-consumption. They do not market animals or meat. A small quantity of wool may be sold to speculators.

Expenditures for household supply in food reach R1760/year on average (std. 1150), whereas expenditures for farming activities are around R285 on average (std. 340) (mainly for seeds, tractor hiring, some vet-medicines).

Strategy : self consumption & subsistence farming, access to complementary external income for the adults.

Trajectories : towards 1 (head deceased, no external source of income) ; towards 3 (head deceased, external source of income) ; towards 6 (access to means in order to sustainably grow and market crops). The trajectories of these households and of the relatives have a high dependency upon the succession process rather than to be implemented (modalities of transmission of patrimony, assets and animals).

3. Adults headed households with external activities and sources of income (15/81)

All these household have external activities or sources of income. In most of them, the husband or a child works outside the community (often in mines) and send remittances monthly to the household. In other cases, the husband or spouse access local occasional or permanent jobs, or a disablement-welfare grant. The head may either be male or female and on average 48 years-old. The household accommodates 5.5 relatives on average, mostly adults and children. Available family labour force is 2.1 on average.

The total yearly income is extremely variable (R3010 on average, std. 2000). Income from farming activities are scarce and low (less than R100/year). They spend R1700/year on average for food supply (std. 850).

Most of them grow crops in a garden or arable piece of land, with low yields and no marketing. Chicken and pigs are self-consumed as well. Some sell piglets locally and occasionally. The heading woman is involved in each and every decisions and activities on farming, and takes care of crops and micro-livestock with children.

These households own few livestock, (either cattle, sheep or goat) for self-consumption or wealth storage. None are marketed. Small quantities of wool can be occasionally sold to speculators, by those owning sheep. Decisions on livestock are made by the heading man or by the spouse in case of remote off farm activity by the husband. Females and children take care of livestock.

These households indicate sheep diseases, and breeding problems (no mating) as their major constraints on farming. Expenditures for farming purposes are R300 on average.

Strategy : External sustainable source of income, farming for subsistence and for some additional income (opportunities), accumulation/capital through livestock.

Possible trajectories : probably towards 2 (ageing) ; possibly towards 6 (job loss –mine closure or dismissal-) ; towards 4 (ageing and accruing accumulation of livestock), towards 5 (accruing, accumulation of livestock).

4. Stock-keepers pensioners (19/81)

All these households access one or two pensions. Thus, their minimal yearly income is R6000. Half of them combine two pensions and/or remittances from children or external jobs' salaries of adults. Thus, the average yearly income is relatively high (R9220 on average, std. R4110). For most of these households, farming is gainful and represent R540 on average (maximum observed R3100, std. R1010)[5].

A large majority of these households are headed by a couple of pensioners (72 year-old o.a.). They live with some of their children and grandchildren (5.7 members on average). The average labour force is 1.8.

Most of them grow crops in a garden or arable piece of land, whilst some have significant yields and market vegetables occasionally at local markets. Chicken and pigs are self-consumed. The heading male is involved in each and every

---

[5] *The information gathered does not seem fully reliable, especially about wool supply and the price paid to farmers for wool. Farmers were reluctant to deliver proper accounts during the interviews, and were most probably hiding some revenues.*

decision and activity re crop production (with or without support of his spouse and children), whereas micro-livestock management remains a female activity (often with children support).

These households own cattle (6 on average), sheep (37 o.a.) or goats (4 o.a.) and possibly some donkeys and/or horses. Sheep and goats are slaughtered for self-consumption, and some lambs are sold locally. Wool is also sold to speculators. The main constraints experienced by these stock-keepers are sheep diseases and ticks, as well as limited access to medicines, vaccines, dip tanks... Limited access to water and theft problems are also mentioned.

Expenditures on household food supplies reach R1670/year on average (std. R1470), whereas expenditures on farming activities are around R550 on average (std. 730) (mainly for seeds, tractor hiring, vet-medicines).

Strategy : self consumption & subsistence farming, accumulation and social status through stock keeping, access to complementary external income for the adults, marketing for additional income.

Possible trajectories : towards 5 (head deceased, external source of income and succession) ; towards 6 (head deceased, no external source of income, succession and concentration of means of production in an adults household) ; towards 3 (head deceased, external source of income, no succession) ; towards 2 (head deceased, ageing and end of farming – stock sold-). The trajectories of these households and of the relatives have a high depency upon the succession process than would be implemented (modalities of transmission of patrimony, assets and animals).

5. Part time stock-keepers, with off-farm activities and sources of income (13/81)

All these adults-headed-households make a living with external jobs. Most husbands work outside the community and send remittances on a monthly basis to the household. Some combine it with old age-pension when they accommodate an old relative. Total yearly income is R6700 on average. All of them generate income out of farming (R180/year, maximum observed R1350, std. R345, see footnote [2]).

All these households are headed by a couple of adults (49 years-old on average). They live with their children (7.4 members on average). Family labour force is 2.5 on average.

All of them grow crops in a garden or arable piece of land, some have significant yields. Chicken and pigs are self-consumed. Piglets or other micro-livestock can occasionally be sold locally. Micro-livestock husbandry and crop production are female business.

These households own cattle (5 on average), sheep (50) or goats (9). Sheep and goats are slaughtered for self-consumption, and some lambs are sold locally. Most of them market wool to speculators. The main constraints that are encountered by these stock-keepers are sheep diseases and ticks, and limited access to medicines, vaccines, dipping tanks.

Expenditures for household supply in food reach R1980/year on average (std. 1140), whereas expenditures for farming activities are around R770 on average (std. 1030) (mainly for seeds, tractor hiring, vet-medicines).

Strategy : wealth storage, additional income and social status through stock-keeping, access to complementary external income for the adults, self consumption & subsistence farming

Trajectories : probably towards 4 (ageing) ; towards 6 (job loss –mine closure or dismissal-),.

6. Full time farmers (11/81)

All these adults-headed-households mostly make a living mostly from farming activities. Some combine this income with occasional local jobs or support by children (remittances). Total yearly income is R2740 on average (std. R1930). Farming activities generate R2220/year on average (std. R1510) (see footnote [2]).

Most of these households are headed by a couple of adults, some by a single woman (50 years-old on average). Families are rather small, with adults and their children (4.4 members on average). Family labour force is 2.4 on average. All heads were born in the community.

All of them grow crops in a garden or arable piece of land, some have significant yields, but do not sell. Chicken and pigs are self-consumed. Piglets or other micro-livestock can occasionally be sold locally. Micro-livestock husbandry is a typical female business, whereas crop production is a family business.

These households own cattle (6 on average), sheep (64) and/or goats (10). Some have also donkeys and/or horses. Sheep and goats are slaughtered for self-consumption. Oxen are used for traction (ploughing tools).. All of them market young animals and/or wool.

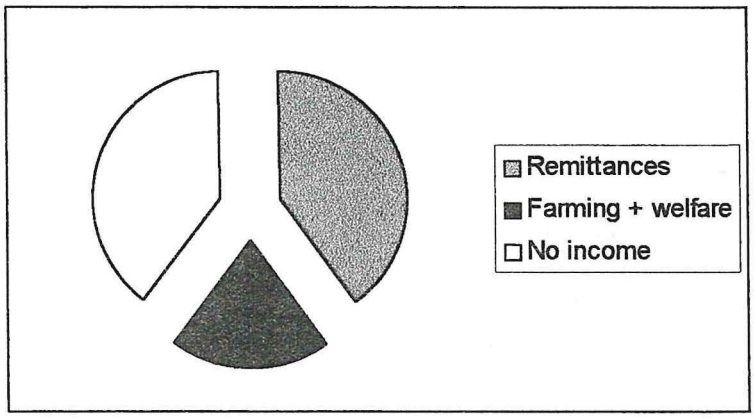
The head makes all major decisions about livestock, whereas the day-to-day management is a family business. The main constraints that are encountered by these stock-keepers are sheep diseases and ticks, and limited access to medicines, vaccines, dipping tanks.

Expenditures for household food supply reach R1470/year on average (std. R1280), whereas expenditures for farming activities are around R770 on average (std. R1040) (mainly for seeds, tractor hiring, vet-medicines).

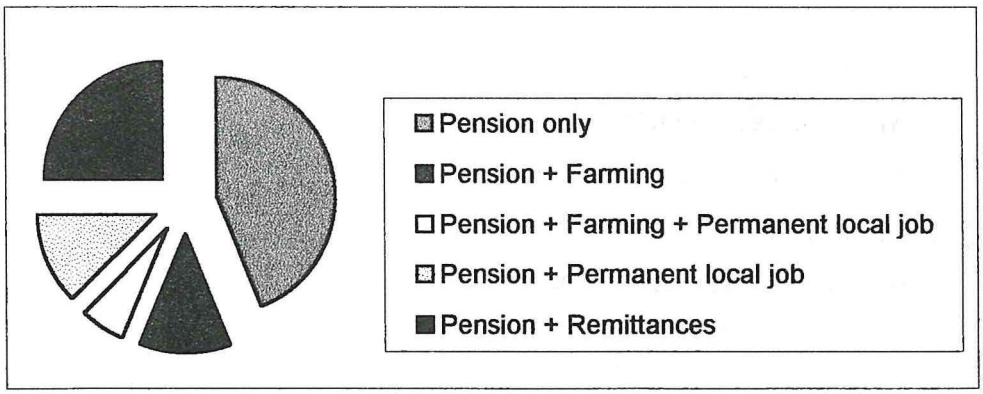
Strategy : self consumption & subsistence crop production and micro-livestock production ; cash flow, wealth storage and social status through stock-keeping and wool production ; access to complementary external income for the adults.

Trajectory : probably towards 4 (ageing and access to a pension).

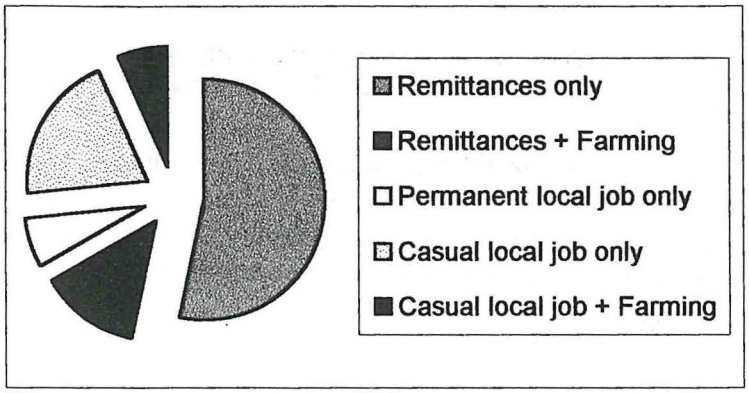
Type 1. Livelihood & activity systems (proportion of household involved in)



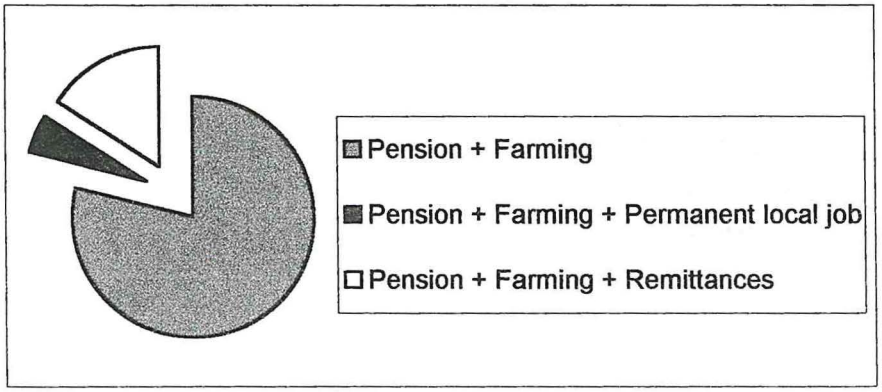
Type 2. Livelihood & activity systems (proportion of household involved in)



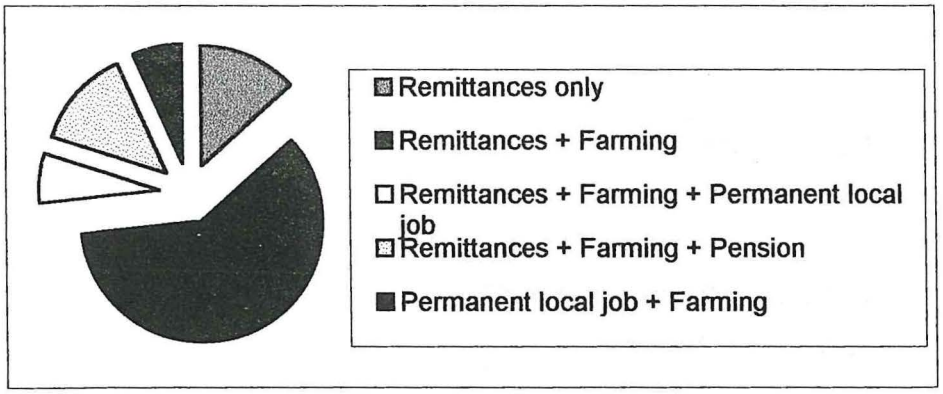
Type 3. Livelihood & activity systems (proportion of household involved in)



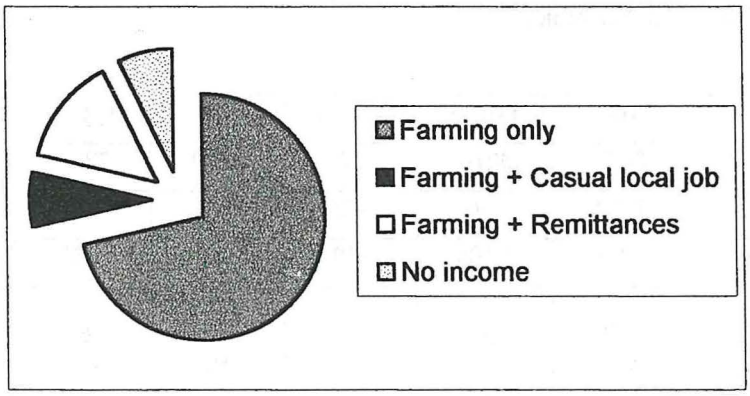
Type 4. Livelihood & activity systems (proportion of household involved in)



Type 5. Livelihood & activity systems (proportion of household involved in)



Type 6. Livelihood & activity systems (proportion of household involved in)



B. Analysis of variance : validation and variable-ranking phase

The objective is to validate statistically the grouping in types that is proposed in the typology.

Using multivariate analysis of variance (see appendix), it is possible to test the hypothesis of homogeneity between types. The variable "type" is integrated into the F-test as factor. As quantitative variables are required, qualitative data are coded (e.g. gender –male=1, female=2-, house-gardening –no=0, yes=1…).

The outcome allows the identification of the variables of which significance of F is low, meaning that the null hypothesis (homogeneity of types) can be rejected. A threshold of 0.01 is proposed to test the hypothesis. Significant of F value also allows ranking variables (see appendix).

According to this output, 9 variables explain and validate significantly the factor (types), the significance of F being far below the threshold (<0.001):

Age of the head
Number of sheep kept
Yearly farming income
Number of goat kept
Total yearly income
Number of old persons in the household
Income from pension / welfare grant
Income from remittances
Wool marketing

Also significantly discriminative is the number of cattle owned (0.001) and the gender of the head (0.01).

All other variables do not allow rejecting the null hypothesis.

4.4. Synthesis

The following table lists some of the main criteria that were used for type definition and provides supportive data. Some of them might become indicators of the impact of the LandCare project.

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Total income per household	< 1200	8670	3010	9220	6700	2740
Total income per capita	< 100	1334	550	1620	905	620
Farming income	0	< 100	< 100	540	180	2220
Number of animals owned/kept						
cattle	< 2	< 7	3	6	5	6
sheep	< 4	< 10	7	37	50	64
goat	< 3	< 10	5	4	9	10
Marketing of animals	No	No	No	Yes	Yes	Yes
Marketing of wool	No	Yes	Yes	Yes	Yes	Yes
Expenditures for inputs to farming activities	0	285	300	550	790	770
Expenditures for external food supply	770	1760	1700	1670	1980	1470
Number of relatives accommodated in the household	5.2	6.5	5.5	5.7	7.4	4.4
Available labour force	2.2	1.8	2.1	1.8	2.5	2.4
Gender of the head	F	F	M or F	M	M	M or F
Age of the head	46	70	48	72	49	50
Access to a pension	No	Yes	No	Yes	No	No

(Incomes & Expenditures in ZAR per annum, all data are averages, except max. indicated with a prior <).

Xume is definitely a rural community with many typical rural activities developed and which contribute to the households' livelihood : gardening and crop production on arable land, micro-livestock raising, multi-utilisation of rangeland –firewood and medicinal plants collection, hunting, grazing…-. Further to this, most of household purchases and selling of food, animals and agricultural produces occur locally.

Farming activities are divided in two types : crop and micro-livestock production, and stock-keeping. The first often fulfils the objective of food self-supply by households and women playing a key-role in this. The latter corresponds to a range of objectives : income in cash for full time farmers, additional income for pensioners and off-farm workers, accumulation, social status, self consumption of meat.

The outputs that came from the survey in Xume match the household economic model proposed by Low (1986). This model was developed from Southern African data and provides strong logic to explain some constraints weighing upon farming activities in areas such as studied here.

As reported by Eckert & Williams (1995), Low reminds us that economic rationality will allocate household labour to its highest paying opportunity. He than notes that in Southern Africa this is frequently off-farm in the relatively well developed non-agricultural labour market. This off-farm market dominates household work incentives and labour allocations. Low also theorises that, after migration to off-farm employment, labour remaining in the rural households will be allocated first to production for home consumption which is valued at retail food price plus transportation costs to kitchen. And only last, remaining labour will be allocated to production for sale which is valued at lower farm gate, unprocessed commodity prices minus transport to market.

This model suggests that off-farm employment opportunities seriously deplete the available labour supply of rural households for farming. Workers remaining on the farm are those with the lowest opportunity costs as defined by the external labour market. The off-farm market favours men (*e.g.* mines & industries). Thus many rural households are de facto headed by women (or pensioners) for whom household and child rearing responsibilities pre-empt extensive field labour in agriculture. As a consequence, labour intensive farm technologies are probably not appropriate in most types identified in the area (except type 6, full time farmers).

Type 1 : Modes of farming (Percentage of household involved at least in a given activity)

Farming activities	1	2	3	4	5	6
House gardening	40%	**81%**	**80%**	**79%**	**93%**	**91%**
Dry land crops	40%	50%	47%	**79%**	60%	55%
Fruit trees	0%	12%	0%	21%	20%	9%
Chicken	**80%**	**94%**	**73%**	**84%**	**100%**	**91%**
Pigs	**80%**	**75%**	**80%**	**74%**	**73%**	**73%**
Other micro-livestock	0%	0%	7%	0%	27%	9%
Goats	40%	19%	47%	53%	**93%**	**73%**
Sheep	20%	50%	27%	**95%**	**100%**	**82%**
Cattle	20%	25%	33%	**84%**	**100%**	**73%**
Horses/Donkeys	0%	0%	0%	26%	0%	27%

5. A household typology in Mount Fletcher district (S. Moyo)

5.1. Introduction

Information collected on the Mount Fletcher community has revealed some very interesting classes that are in existence within the society. From the information in the questionnaires, it is clear that the main variable that differentiates between the various groups or types in existence is livestock ownership. Livestock numbers seem to have a very high explanatory power, as stock keeping is taken seriously by almost everyone in Mount Fletcher. Cultivation of crops is done less frequently and only by a few.

Therefore the number of different types of animals owned and the purposes for which they are kept measures the degree of wealth of a household. Issues like whether there are pensioners in a household or not, are also important although they are second to agriculture.

5.2. Description of types

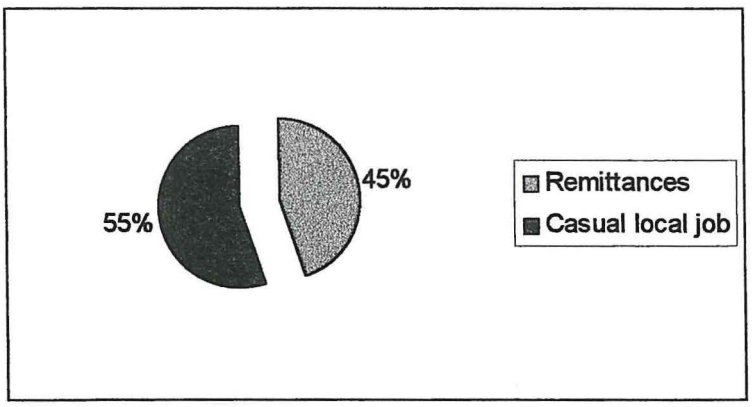
A. Type 1: Very poor single female-headed households (8/98)

Females with an average of 50.38 years, with low education levels head this category of households. They became residents of this community either through marriage or by birth. Each household has a small garden by the homestead where cultivation of maize and vegetables is done on a subsistence basis. They do not engage in any form of intense large-scale agricultural activity that can sustain them, and hence depend on remittances and casual jobs for survival. Out of seven of the eight households who declared their income, the average is R4435.71 per annum. Ownership of livestock is also very low per household. For example no household in this category owns sheep, only one household has a single pig, 50% of the households own cattle and the mean cattle number is 2.75 (std dev = 0.96), only one household owns 15 goats and seven households have an average of only 7.43 chickens. Food and money shortages are therefore the order of the day.

This category of households consists of people who seem to be very much constrained from engaging in any form of agricultural activities by issues such as drought, lack of access to productive land, and also unavailability of capital.

The sources of money for type 1 inhabitants can be depicted in the form of a pie chart below.

Careful analysis of the data reveals that 100% of the households in this category have a small garden where they grew vegetables, etc. and that 50% of the households have access to arable land where they cultivate on an extensively. scale 87.5% rears chicken, 50% cattle and yet only 12.5% of the households owned pigs and goats, and none of the households rears any sheep.

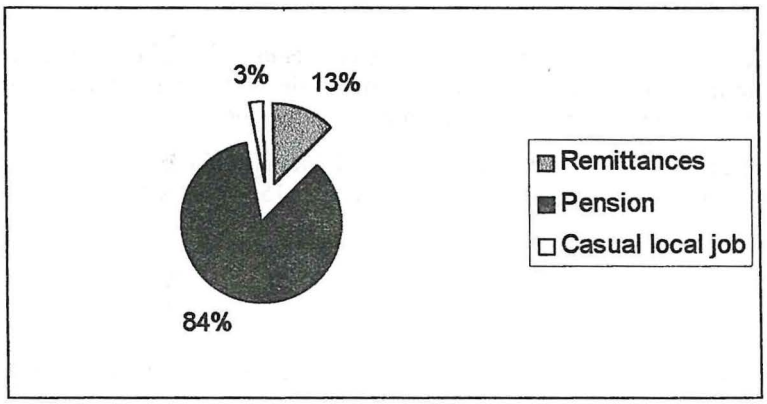


B. Type 2: Non-farming single pensioner-headed households (15/98)

These households are basically not engaged in any serious farming activity. Their main source of income, is the regular pension that is received by the household every month. A striking similarity of the members of this group is that they all have one pensioner in the household and therefore the mean pension for all households is R6000.00. Mean total income though is higher at R7243.33 per annum (std dev = R2045.57), implying that there are other sources of income like remittances, and casual jobs that are carried out in and around the community. Livestock numbers, especially micro-livestock is not significantly different from type 1. Only four households own one or two pigs and the mean number of chickens for 10 household owners is 10.60 (std dev = 9.71). The mean number of cattle is 2 and only one household owns 5 sheep. For goats the mean is 4.67 (std dev = 2.50). This highlights the postulation that these households are non-farming. There is no significant output that comes out of cultivation of maize, potatoes, etc.

Two thirds of these households are headed by women, and the mean age of household heads is 66.73 (std dev = 7.34).

Sources of money for type 2 households:



The above figure clearly shows that most of the income for type 2 households is derived from pension as it accounts for 84% of total income with remittances coming second and casual local jobs contributing only 3%.

To add on to this, all type 2 households have a garden from which they do their cultivation. 46.6% of these households carry out dry-land cultivation, 60% own chickens, 40% own goats, there is equal ownership of pigs and cattle (26.7%), and finally only 6% own sheep.

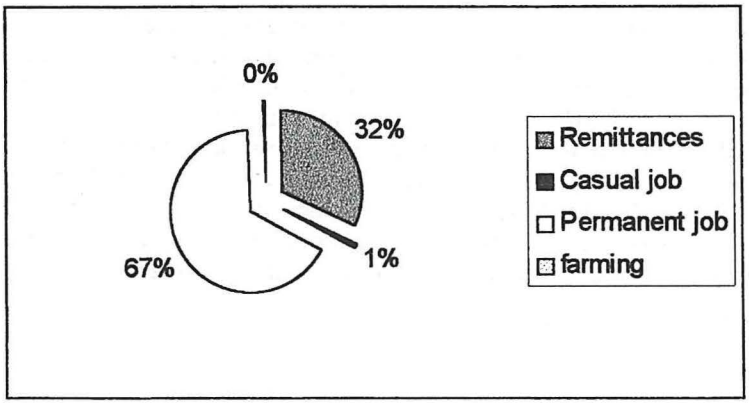
C. Type 3: Adult headed households with external activities and sources of income (13/98)

Household heads are males and have an average age of 51.85 years and are of low educational background. 84.6% of them were born in the community and the rest of them are residents because of marriage.

Livestock ownership is very low, with means of all types of animals, (except goats and chicken) below one with the latter having means of 2.60 and 6.69 respectively. Farming is therefore not a major income earning activity. In any case, the maximum earnings from farming is R120 per annum, with all the other households receiving less than that or nothing at all. There are many constraints to farming that are experienced by these households such as drought, pests and diseases, land and lack of capital to carry out some agricultural activities (e.g. hiring a tractor for ploughing). Therefore the only source of livelihood for these people are remittances and permanent local jobs. The income for these households is therefore very variable; having a mean of R6662.00 and a standard deviation of R6560.37 for the 10 households who declared their incomes.

Males are predominantly the decision-makers, as most of the activities undertaken have to be approved by them, with the spouse and the children being the ones who execute these duties.

Sources of money for type 3 households :



Type 3 households have a permanent job as their major source of income, followed by remittances. This is the sort of income that we classified as resulting from external activities as such activities are carried out at some place remote from the community under investigation. Casual jobs and farming account for almost no income at all.

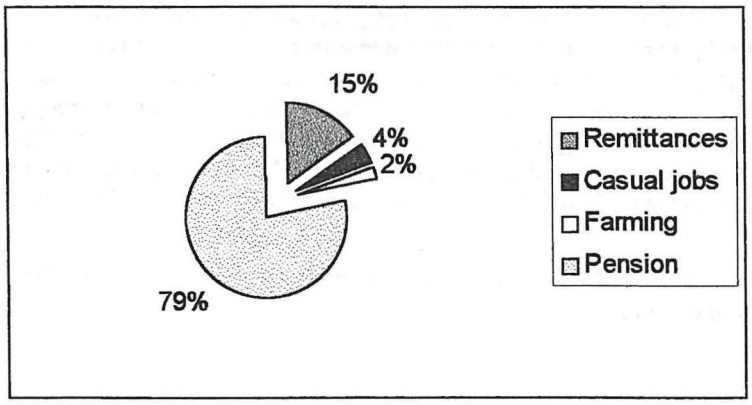
All households still own a small garden for vegetables, 69.2% cultivate dry land, 61.5% have chicken. The levels of livestock ownership in these households are quite low as they range from 7.6% in sheep to 15.4% in cattle and pigs and finally 46.2% in goats.

D. Type 4: Farming pensioners (18/98)

This category of households is headed by both males and females (de-facto heads), with an average age of 69.94 (std dev = 13.35). Each household has at least one person who is a pensioner. These 18 households take farming seriously as is shown by the size of their harvest and livestock numbers. The mean number for maize bags is 4.17 (std dev = 2.42) and the mean number of livestock are as follows: sheep 23.86 (std dev = 18.24), cattle 13.75 (std dev = 15.66) and goats 12.80 (std dev = 8.16). Micro-livestock numbers are quite high especially for chickens, which averages 161.33 and a pig in every third household. A third of the households declared their earnings originating from farming activities. Among them, the mean income from farming is R580.67, and varied widely from a few hundred into a thousand or so for some households. Expenditure on farming is R1502.33 per annum on average.

Only two households had two pensioners and the rest had a single pensioner. Therefore every household was guaranteed of a minimum R6000. Adding up the incomes from farming and pension, a mean of R8518.56 per annum is arrived at. Interestingly, type 4 households still experience money as well as, food shortages and had no savings at all. A major constraint to farming was pointed out to be diseases that infect both livestock and crops.

Sources of money for type 4 households :



Pension is shown as the major contributor to the livelihoods of this category of households. It is followed by remittances, casual jobs and then lastly income from farming. Households in this type are classified as farming pensioners. That is true but the pie chart above does not show that as it was built from income arising from an activity. Information of the income from livestock sales, etc was not captured fully, and thus explains this shortfall. Otherwise we would expect the share of farming to be higher than what is currently depicted.

To show that this type consists of farming pensioners, all households own cattle, 94% of them own sheep, 83% goats and 66.7% chicken. Pig ownership is low at 33.3%. 66.7% of the households also practice dry-land cultivation and also have small gardens in their homesteads in which they cultivate vegetables.

E. Type 5: Part-time stock-keeper with external sources of income (18/98)

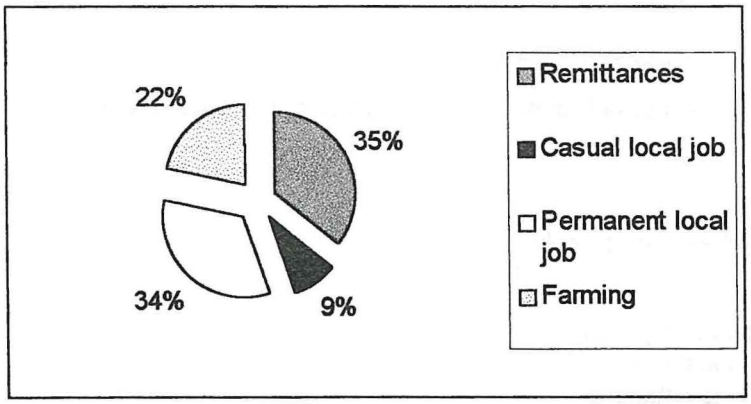
Heads that have an average age of 49.56 years, with low to medium educational levels heads households in this category. The main sources of income for these households are the remittances, casual jobs and sale of agricultural produce. Remittances seem to be contributing significantly, as in some cases as much as half the total income. Farming also has a significant contribution although it is being carried out on a part time basis. Only five households keep about 4 pigs each, 13 households keep an average 16 chicken. The mean of all other animals is 6 for cattle, 11 for goats and 17 for sheep. The average remittance received by a household per annum is R1593.33, but have a very big standard deviation of R3260 from the mean. Average total income in this group is R5340 (std dev = R4536). It is probably lower than expected because there seems to be inconsistencies in the level of income information given by the respondents. Maize cultivation seems to be producing some quite significant results with averages of 5.50 bags being reached in eight households who offered information on their yields.

Expenditure in farming activities ranges from a mere R160 to almost R3000 in an agricultural season.

As in all other categories, 100% of type 5 households own have a small garden in their yard and 77.7% carry out some form of dry-land cultivation. To add on to that, they are part -time farmers and own quite significant numbers of livestock. 94% of the households own cattle, 72.2% goats, 38.8% sheep, 27.7% pigs. The pie chart below adds on to this as it clearly shows the sources from which the income is derived.

Remittances and a permanent local job clearly shows us that most of the income for these households is not from farming although farming also contributes quite significantly.

Sources of money for type 5 farmers:



F. Type 6: Full time farmers (26/98)

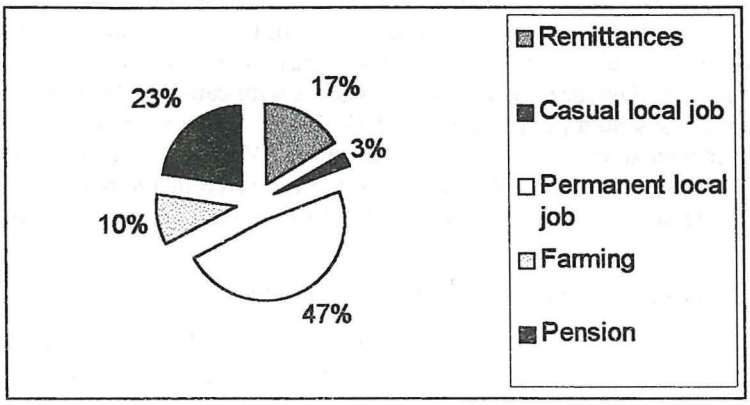
Full time farmers consist of the most affluent households in the Mount Fletcher sample. Of the 26 households in this category, seven of them have at least one person in their household who is earning a pension on top of the being a full time farmer. Agricultural activity takes top priority in this group, as shown by the numbers of livestock, sale of livestock products and cultivation. Micro-livestock numbers are 2 on average for pigs, although ownership ranges from 1 to 12, for chicken the mean is 23. For macro-livestock, sheep seem to be the most popular animals owned, with means of 73 per household. This leads most of these households to be major wool producers in the community, as shown by

the quantities of wool they supply to the two major markets. The mean amount of income derived from wool sales is R710, with a standard deviation of R440.20. Cattle and goats owned per household are on average 13 and 33 respectively. These figures are by far the highest of all the types of groups covered in Mount Fletcher.

Farming therefore contributes on average, R1864.62 per annum, and mean total income is R10666.96. 50% percent of the households indicated that they save part of their income although they still face some financial difficulties. Type 6 households spend about R3000 per agricultural season on average, with the highest performers in this category investing more that R10000. These figures are also the highest of all the types of households identified.

It is interesting to note that the mean age in this type is almost 60 years, the average number of adults per household is 4. This probably has implications for the time needed to accumulate wealth.

Sources of money for type 6 households:

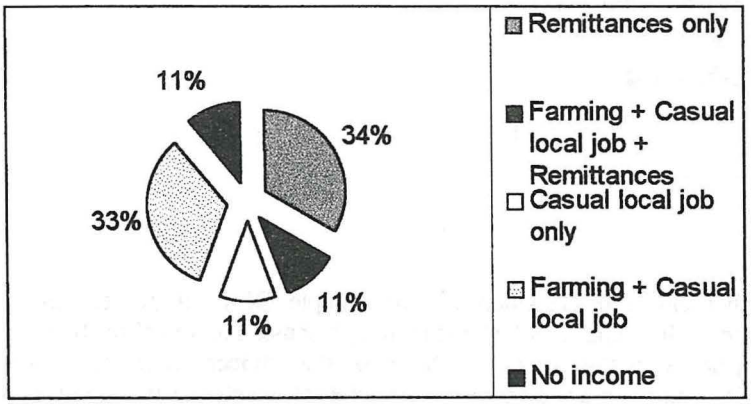


The pie chart depicts that largest source of livelihood as coming from a local permanent job that some household member has. Important as this information might be, it is a bit misleading because of the problem mentioned earlier that exact information on the sales figures for livestock, for example, was insufficient or lacking, therefore leading to a scenario whereby it is not shown as the most significant contributor (although these are full time farmers). It must be remembered that for the classification of these households number of livestock was used instead of income.

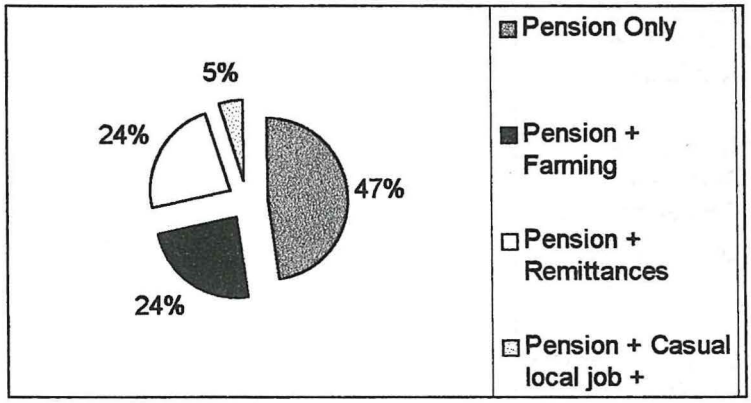
5.3. Livelihood systems for the different types of households

The following pie charts describe the combinaison of source of income that are mobilised by the different types.

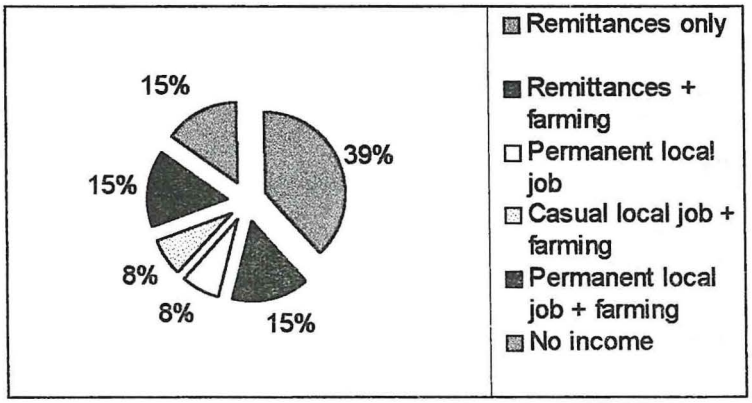
Type 1. Livelihood Systems



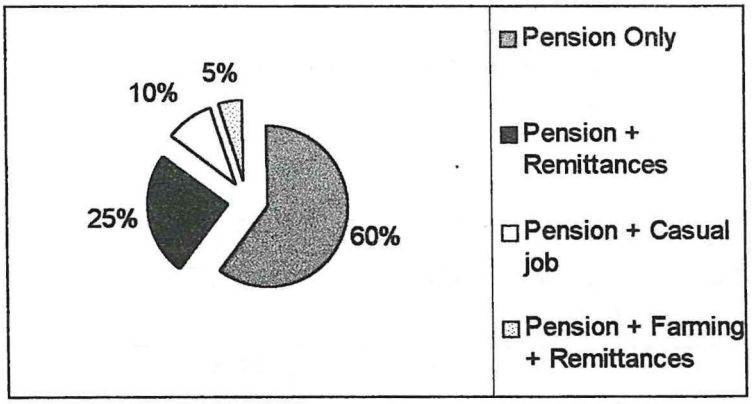
Type 2. Livelihood Systems



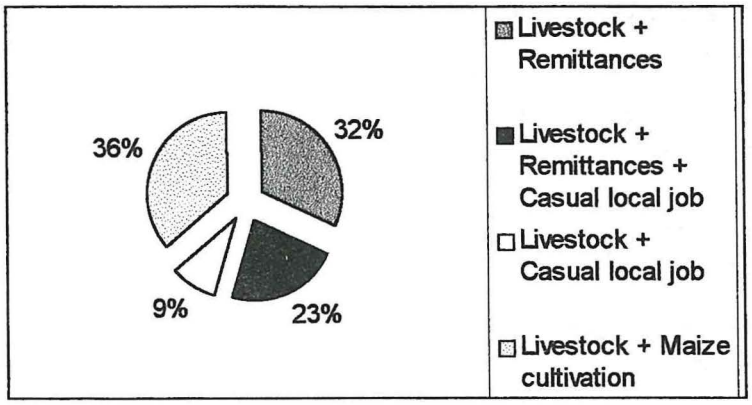
Type 3. Livelihood Systems



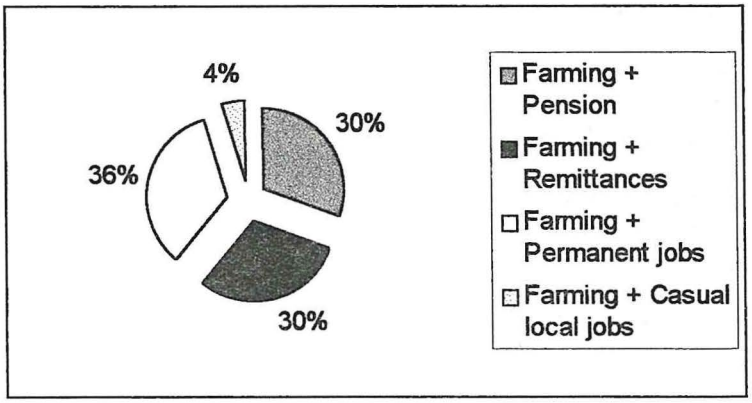
Type 4. Livelihood Systems



Type 5. Livelihood Systems



Type 6. Livelihood Systems



5.4. Modes of farming

The following table underlines the different activity systems that are carried out by the farming types.

Summary of the modes of farming (% of households involved in some activity)

Farming Activities	1	2	3	4	5	6
Garden	100%	100%	100%	100%	100%	100%
Dry-land Crops	50%	46.6%	69.2%	66.7%	77.7%	84.6%
Chicken	87.5%	60%	61.5%	66.7%	72.2%	88.5%
Pigs	12.5%	26.7%	15.4%	33.3%	27.7%	65.4%
Cattle	50%	60%	15.4%	100%	94%	100%
Sheep	0%	6%	7.6%	94%	38.8%	100%
Goat	12.5%	40%	46.2%	83%	72.2%	84.5%

5.5. Synthesis

Table showing criteria used to differentiate between the different types.

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Total income per household	3881.38	7243.33	5124.84	8518.56	4453.44	9243.96
Farming Income	26.25	130	9.23	193.33	963.33	932.31
# of Cattle	< 5	< 5	< 5	> 5	> 5	> 5
# of Sheep	< 10	< 10	< 10	> 10	> 10	> 10
# of Goats	< 10	< 10	< 10	> 10	> 10	> 10
Farming expenditure	719.00	589.33	430.00	1251.94	1040.50	2947.88
Expenditure on food	3160.50	2707.33	1810.00	2641.11	2918.33	4392.69
Marketing of animals	No	No	No	No	Yes	Yes
Marketing of wool	No	No	No	Yes	Yes	Yes
Pension access	No	Yes	No	Yes	No	Yes
Gender of head	F	F & M	M	M & F	M & F	M & F
Age of head	50.38	66.73	51.84	69.94	49.55	58.96

Testing the independence of the six types

The significance of the groups was tested using Multivariate Analysis of Variance and it was determined that the groups are quite distinct. The different groups were tested using a hypothesis that they were the same. The F-test showed that the hypothesis should be rejected, implying that the six types identified can indeed be relied on.

The output comes in the form of figures lined up in seven columns. These being the Variable, Hypothesised Sum of Squares, Error Sum of Squares, Hypothesised Mean of Squares, Error Mean of Squares, the F value and finally the column for the significance of F. The F-test is an analysis of variance test. It is a statistic that the computer calculates for us in order to test the hypothesis that there is no difference in means of the groups. Note that the hypothesis is that there is NO difference in the means in all the different groups with respect to the different variables under consideration.

The last column on the significance of F, is a percentage to which the F statistic is significant. In simpler terms it tells us the extent to which the null hypothesis can be relied on. The lower the significance of F, the higher the likelihood of rejecting the null hypothesis. In controlled experiments e.g. in laboratories the accepted value significance is 1%. In the social sciences the accepted value of the significance of F is quite high, sometimes about 10 to 15%. What this implies is that if for example the significance of F is 0.01 or 10 %, we are 90% confident that the null hypothesis is not valid and therefore worth rejecting.

One good thing about the test that we could rely on is its ability to tell us which variables have the greatest explanatory power and those, which we could least rely on.

The output shows that, 9 variables explain and validate the groups that have been identified in the analysis. These are number of adults in the household, quantity of wool, number of sheep, age of household head, number of goats, pension and the total income received by the household. The rest of the variables are of less significance in the test.

5.6. Conclusion

The information that was gathered using the socio-economic survey questionnaire has made possible the process of categorisation of households into different types of people that live together in the Mount Fletcher community. It is very important to partition people into groups where they have similar needs, and encounter almost the same problems. That way development efforts can be applied evenly and better results are expected than doing it in a haphazard manner. From the work carried out above it is clear that type one consists of the most vulnerable people in the community, and that vulnerability decreases as we move up the stratum to types 2, etc, until type 6 is reached.

A notable important trend is also the money expended on farming by the different types of households. The trend is that as we move from type 1 households, which are in any case the poorest of the Mount Fletcher community, to the richest type 6 households, there is a general increase in the amount of money that is spent on these activities. This characteristic also made it possible to place the different households in different types.

It is also important to note that households were mixing various farming modes, for example in type 1 households, there were 12 households, who carried out dry-land cultivation, had a small garden in their yard and also had all the types of livestock. But in general there is no pattern in the mix of livestock and crop cultivation for the different households in different categories. A striking phenomenon is that as we move from type 1 households to type 6 households there is a general increase in activity. Type 6 households seem to be involved in many more activities that yield them more income than all other groups. The same can be said of type 5 versus type 4 versus type 3, etc.

6. A household typology in Nyandeni district (R. Randela)

6.1. Introduction

Information from the surveys done in Nyandeni area of the former Transkei offers some interesting outcomes. The information was collected using the structured questionnaires. It is apparent from the information gathered that small-scale farmers or farming households consist of heterogeneous groups herein referred to as types. These types are grouped either as "non farming" and farming types. "Non farming" types are those farmers that do not look beyond the borders of their family farms for their produce probably due to a lack of farming capacity. In essence they are involved in subsistence farming on a micro-scale. The segmentation of the farming sample is classified according to certain criterian such as age, source of income, household farming style *etc.*

6.2. Description of types

"Non-Farming Types"

Very Poor Households (Type 1)

Pensioners with Subsistence Farming (Type 2)

Adult with Subsistence Farming (Type 3)

"Farming Types"

Pensioners with (Commercial) Farming Potential (Type 4)

Adult with (Commercial) Farming Potential (Type 5)

Full Time Farmers (Type 6)

A. Very Poor Households (16/114)

These households are almost equally headed by both male and female. On average the age of the head is 51 years (mode 59, median 53) ranging from a minimum of 38 years to a maximum of 63 years of age. The majority (88%) of the heads of the households are born in the community and have both primary (50%) and secondary (38%) educational level. Of the female-headed households, the majority of them are widows.

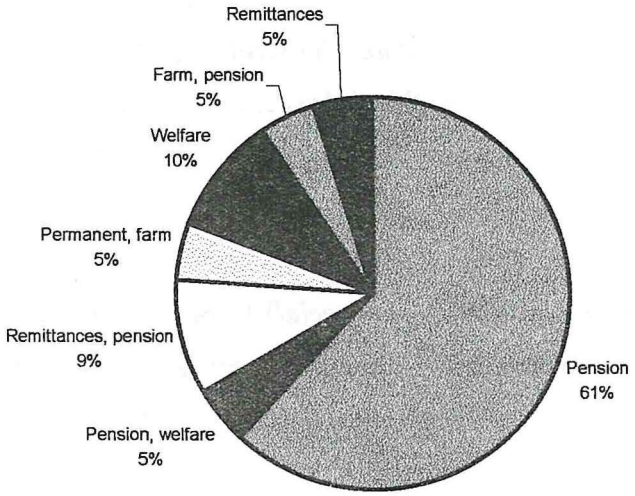
These households practice crop farming in the homestead (household gardening) and they produce for subsistence purposes. The most limiting factor constraining crop production is mainly diseases and other factors such as irrigation water, lack of fencing, unavailability of the productive land, lack of capital, *etc.* Livestock ownership per household is low, for instance, these households have less than three sheep, cattle and goats on average. Animals or animal products are not marketed. These households do not have access to any source of income. Surprisingly, on average these households spend R250/year on agriculture and R2253/year on foodstuffs. Their expenditure on food ranges from R240 to R5700/year. As expected they have no savings. More over, these household are in short food supply all year round.

Strategy/objectives: a job for someone in the household, survival strategy

B. Pensioners with Subsistence Farming (21/114)

These households are predominantly widowed women headed. The majority of the female-headed households are in the community through marriage contracts. These households have an equal number (33%) of both male and female that have less than 7 years of educational training. The average age of the household head is 70 years (mode 67, median 69) with a minimum age of 61 and maximum age of 80 years of age. The majority of these households have access to a pension fund (see chart below)[6]. Thus their minimum yearly income is R6000. Some of the households have access to other sources of income e.g. remittances and other external activities. Thus, the average yearly income is relatively high (R7488). However, income from agriculture is very scarce and low since they primarily produce for household consumption. Thus, farming is not a major income earning activity to these households. Some households own cattle and sheep (less than 4 on average) for home consumption. The most limiting factor regarding cattle production is diseases, e.g. tick-borne diseases.

The Livelihood System of Pensioners with subsistence Farming



These households spend an average amount of R932/year on farming. They grow crops in their home gardens or on an arable piece of land, with low yield and insignificant market activities. These households spend an average amount of R2851/year on food. They experience money/food supply shortages almost throughout the year.

Strategy/objectives: Home consumption produce, access to external income

C. Adult with Subsistence Farming (42/114)

All these households have external sources of income. Most of them, the husband or children works outside the community (usually in mines) and send remittances every month to the household. The head of the household may either be male or female, 48 years of age on average. In other cases the husband or spouse access local occasional/permanent jobs, or disablement welfare grant. Income varies extremely (R10911 on average). Income from agriculture is extremely low (R130 on average). Expenditure on farming amounts to R681/year.

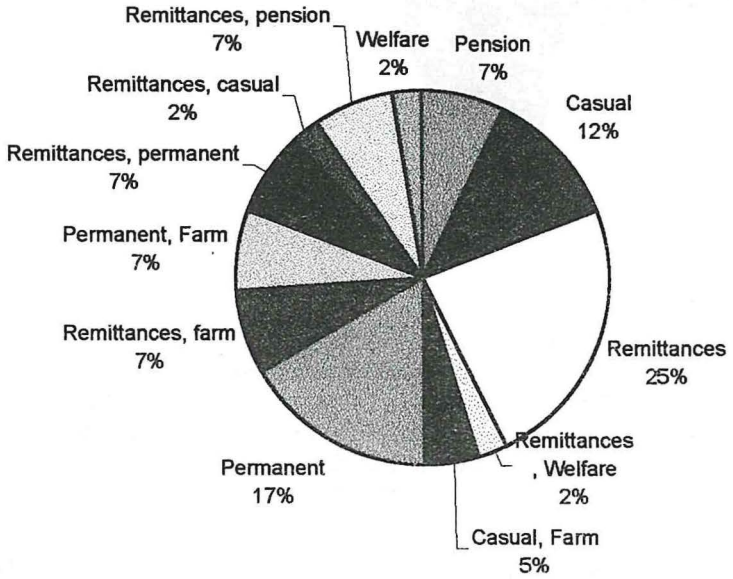
---

[6] *Surprisingly all these households qualify for a government pension fund, but not all have access to it.*

The majority of the households grow crops in a garden or arable piece of land with low yield and very insignificant marketing activities. Some households own a few livestock (>3 on average), either cattle, sheep or goat largely for household consumption.

Strategy/objectives: Home consumption produce i.e. subsistence farming

The livelihood System of Adult Farmers with Subsistence Farming



Note: casual and permanent refers to casual and permanent jobs

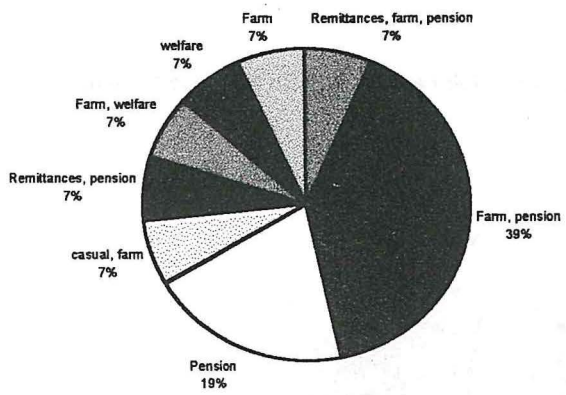
D. Pensioners with Farming (15/114)

These farmers are largely headed by males. The average age of the head of the household is 71 years (mode 65, median 67) ranging from a minimum of 64 years to a maximum of 89 years of age. All these households have access to pensions. The majority of these households also derive their income from agriculture, remittances and welfare grants. Their expenditure on farming amounts to R694/year and their income from agriculture is estimated at R229/year. Their total annual income is R7253 on average. These farmers have neither savings nor debt outstanding. Expenditure for food is R6116/year on average. The majority of these households have less than 7 years of formal education.

They grow crops in home gardens or on arable land. Some of these households produce a significant amount of crops for the market. They also own cattle (6 on average), sheep (30 on average), chickens (24 on average) and pigs (26 on average). Some farmers market their livestock occasionally. Both women and children take care of the livestock, but the decision to slaughter those animals rests with the head of the household.

Strategy/objectives: commercial motive, wealth storage and social status, access to external income

The livelihood System of Pensioners with Farming Potential



E. Adult with Farming (15/114)

These households are largely male headed. The average age of the household is 45 years (mode 45, median 45) ranging from a minimum of 34 to 53 years of age. They have several income sources e.g. remittances (R4883/year on average), permanent local jobs (R3686/year on average) and farming (R3278/year on average). As a result their total income amounts to R12579/year on average ranging from a minimum of R6000 to R36000/year. These households spend relatively a significant amount of money (R2055/year) on farming to buy farming inputs (e.g. seeds, fertilizer, vet medicines, hiring of tractors etc). Expenditures on food do reach R8987/year on average. These households do experience food/money shortage all year round.

All of them grow crops in their gardens or on an arable piece of land, with some getting significant yields. Maize is the widely grown crop by the farmers. These households also own cattle (7 on average), sheep (36 on average) or goats (8 on average). The majority of the households do market their livestock. However, there are major constraints limiting livestock production, especially diseases (e.g. tick-borne diseases).

Strategy/objectives: Commercial motive, wealth storage and social status especially with cattle.

F. Full Time Farmers (5/114)

These households are male headed making a living from agriculture. Farming is their major income earning activity. The average age of the household is 54 years of age. Total yearly income is R2357 on average. Their yearly expenditure on agriculture is R1802 on average. Expenditure regarding household food supply reach R5736/year on average. Interesting to note is that as farmers grow older, expenditure on farming also increases. The majority (80%) of these households has less than 7 years of formal education and they earn an average income of R1294/year, whereas 20% of the households have secondary school education and they earn an average income of R6608/year from farming. Thus, there seem to be a positive relationship between number of years spent in formal education and the level of income earned.

All of them grow crops in gardens as well as on arable pieces of land, and have significant crop yield (e.g. >20 bags of maize). These households own cattle (8 on average), sheep (36 on average) or goats (6 on average). They do market their livestock/livestock products, e.g. wool. However, animal production is constrained solely by diseases.

Strategy/objectives: Access to complementary external income

Table 1 : Criteria used to differentiate between the different types of households

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
No. of cattle	<5	<5	<5	>5	>5	>5
No. of sheep	<10	<10	<10	>10	>10	>10
Total income	-	7488	10911	7253	12579	2357
Income from agriculture	-	8	130	229	3278	2357
Age	All ages	>60	<60	>60	<60	All ages
Household farming style	subsiste nce	Subsisten ce	Subsistence	Wealth storage & casual local marketing	Wealth storage & casual local marketing	Significant local marketing
Household source of income	No income	Remittan ces & pension	Remittances, welfare & permanent/casual jobs,	Remittances, pension, welfare and farming	Remittances, permanent/casual jobs & farming	Farming
Farming expenditure	250	932	681	694	2055	1802

Note: Income and expenditures figures are in Rands, and all data are averages.

Table 2 : Farming Modes

Farming activities	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
	% of respondents					
House gardening	100	100	98	100	93	100
Dry land crops	31	52	71	93	67	80
Chickens	69	62	86	93	100	100
Pigs	50	52	40	87	60	80
Goats	19	0	26	20	47	60
Sheep	19	38	40	93	93	100
Cattle	31	48	31	87	87	100
Horse/donkeys	0	0	0	7	7	20
Fruit trees	13	29	26	27	47	0
Other micro livestock	19	10	14	27	40	40

Testing the independence of the six types

In order to test the significance of the groups, a multivariate analysis of variance was performed using a Statistical Package for Social Science (SPSS) (see appendix). Different groups were tested against the hypothesis (null hypothesis) that the groups were the same. Similarly, it was hypothesised that there is no difference in the means in all the different

variables under consideration. To achieve this, the following variables, largely used towards the categorisation of farmers' groups were chosen:

- Number of cattle (CATTLE)
- Expenditure on farming activities (EXPEND F)
- FARMING (income from farming activities)
- Head level (HEAD LEV) i.e. educational qualification
- PENSION
- Number of sheep (SHEEP)
- Total income in the household (TOTAL IN)
- Number of pigs (PIGS)
- Labour force (LABOUR F)
- Head of the household (HEAD)
- Number of goat (GOAT)
- CHICKEN

Information collected on the variables was either quantitative or qualitative in nature. To be compatible with SPSS requirements qualitative data was then converted into grouped values represented by 1, 2, 3 *etc* depending on the responses provided. The results of the analysis are presented in appendix.

The results of the analysis as shown by Table 3 is lined up with seven columns being the Variable, Hypothesized Sum of Squares, Error Sum of Squares, Hypothesized Mean of Squares, Error Mean of Squares, the F-Value and finally the column for the significance of F. The F-test is an analysis of variance tested. It tests the hypothesis that there is no difference in means of the groups.

The last column, significance of F, is a percentage to which the F-statistic is significant. It simply tells the magnitude to which the null hypothesis can be relied on. Using 5% level of significant, it is evident from Table 3 that the following variables are significant, namely cattle, expenditure on farming, head level, pension, sheep and total household income. Thus at 5% level of significance, these variables best explains the differences that exist amongst various groups. Thus, we are 95% confident that the null hypothesis is not valid and therefore worth rejecting. However, it is also worth noting that the other variables are significant as well, but not at the chosen level of significant (5%). For instance, at 10% level of significance, the variable head and goat becomes significant as well. Interestingly, this type of analysis has an advantage of indicating which variables have the greatest explanatory power.

5.3. Conclusion

The socio-economic survey information gathered made it possible for the categorisation of Nyandeni farmers into various types. It is apparent from the surveys that type 1 consists of the most vulnerable people in the community and vulnerability decreases as we move up the stratum to type 2 until 6. Stratification of the rural population into livelihood classes reveals that economic well-being differs systematically across livelihood classes. It is noteworthy that farmers have different livelihood strategies including diverse farming modes. However, to a certain extent livelihood strategies differ from one group to the other. In addition, the percentage share of each income or combination of income sources as part of a livelihood strategy also differs. This difference is evident mostly when groups are categorised with age as the main criterion. Although these households have different income sources, any household type depending upon an unreliable income source generate an insecure livelihood. Such a household type should be viewed as being extremely vulnerable, and with the loss of income source, could easily be pushed into type 1.

Farmers' categorisation provides a useful picture of local or regional farming activity for decision-makers in guiding development projects. A concern to be taken into account is the strong evidence that rural communities are

fundamentally heterogeneous in nature. If overlooked, this characteristic can undermine development initiatives in rural areas possibly through the influence of factionalism. It also suggests that there is a potential for conflict between integrative development strategies and the different nature of the intended beneficiaries. Despite this, however, shared economic and social needs may offer a more powerful basis for collective action.

7. Comments & conclusion

In order to fulfil the objectives of the LandCare project and in order to define practical proposals, several key ideas are raised, with regard to the following :

7.1. About farming activities

Farming activities are clearly divided in two macro-types :

- Micro-livestock/garden/crops (women are instrumental there), problems are specific (lack of fence, drought),
- Stock-keeping and wool production, with a wide range of objectives.

Households are in dire need of technical improvement (means of production, technical advice, training, services, infrastructures, local institutions...). This is where the LandCare project strives to focus and deliver.

Self-consumption of maize and vegetables is the objective of almost all families. Some cannot access plots (type 1), but most of them try to grow crops in gardens and/or on arable land. Some even produce crops all year round (type 4, 6) despite drought.

How could crop production be improved at household level ? (drought and lack of fencing are the major constraints experienced by farmers).

For most of farmers (and more than half of the households), wool is the steadiest source of cash, although, price is very often very low and fixed by speculators.

In Tsomo, the 81 households of the sample own 2236 sheep (among a total of 2904 large animals). *Assuming the representativeness of the sample, this means that the sheep population within the community is about 11000 (among 14500 large animals).*

How could wool production and sheep productivity be improved ? (sheep diseases and lack of remedies and services – access to vaccines, dipping tank- are the major constraints).

How could improved services to wool growers be organised (types 3-5-6) ?

Is it possible to connect more farmers to the supply chain ? (what is the carrying capacity and connected environmental issues in the community's grazing area ?)

With regard to these questions, the second phase has been undertaken, focusing on wool production and animal husbandry aspects.

Thus, the typology is not only a result as such but also the background for further actions.

7.2. General considerations. Towards a regional typology of rural households ?

At the end of this first phase, the most striking outcome is the similarity between all 3 typologies. The following frame highlights the main types that have been found out, with their respective proportions, as observed in the communities investigated.

Non farming types (mostly self consumption)

1. Very poor households (mostly female headed, almost no monetary income and/or landless) : 5 to 15%

2. Non farming pensioners : from 15 to 20%

3. Adults headed households, off-farm sources of income : 10 to 40%

Farming types (some marketing)

4. Stock-keepers-pensioners :12 to 25%

5. Stock-keepers with off-farm sources of income : 13 to 18%

6. Full time farmers : 4 to 30%

It is noticeable that in remote areas (far from towns), there are less very poor, more full time farmers, less off-farm income.

Conversely to what has been highlighted in former Ciskei area (Zarioh & Laurent, 1997), as well as in other rural areas in the country, landless households seem scarce in former Transkei. Also, as shown by Lhopitallier & Caron (1999), the sub regional dynamics is specific. The lesser influence of East London, acting as a strong urban magnet, generates more networking and exchanges between small and medium towns. Also, the remoteness of certain community (Mount Fletcher district) and their very dry average circumstances have a crucial influence on the development of full-time sheep farming, along with a long history of livestock keeping and wool production.

Still, full-time farmers are not the wealthiest groups amongst the communities' households. Despite its scarcity, off-farm employment opportunities sway inner labour allocation, thus activity systems at household level. Full-time farming does not seem to be the objective of most households, which aim at diversifying their sources of income. Today's diversity represents the background for tomorrow's diversity, and development programmes l.s. (i.e. land reform, development projects, *etc*) should take this into account.

Pensions also play a paramount role in households' livelihoods (for instance, in Xume community, pensions and welfare grants represent 53% of the overall money flowing through the households). Like off-farm income, they do not seem to undermine the development of farming, but conversely to support it in most cases. A question remains : what is next ? Households' heads are ageing, while 50% of the communities' population is under 20 years old. Transmission of farming potential is a major issue in most households that have been interviewed.

8. References

Eckert, J. B. & Williams, W. (1995) *Identifying serious farmers in the former Ciskei : implications for small-scale farm research and land reform*. Agrekon, 34 (2): 50-58.

Low, A. (1986) *Agricultural development in Southern Africa : a household economics perspective on Africa's food crisis*. Raven Press Publ., Cape Town, SA.

Perret, S. 1999. *Typological techniques applied to rural households and farming systems : Principles, procedures and case studies*. University of Pretoria, Working Paper 99/2, CIRAD Tera, num 65/99, 35p.

Zarioh, N. & Laurent, M. 1997. *Analyse du système agraire et de la diversité des systèmes de production dans une région de l'ex-bantoustan du Ciskei, RSA*. Unpublished Thesis report, CIRAD-CNEARC-ENITA, 77p & annexes.

Khania / EC-DALA (2000). Institutional Support for Sustainable Rural Livelihoods in the Eastern Cape. A case study of Xume Administrative Area, Transkei. Full report, November 1999, 204p. (www.khanya-mrc.co.za).

Bembridge, T. J. (1984). A systems approach study of agricultural development problems in Transkei. PhD dissertation, University of Stellenbosch, 685p.

Lhopitallier, L. & Caron, P. (1999). *Diversité et recomposition de l'espace rural dans le district d'Amatola, province du Cap de l'Est*. L'Espace Géographique, 28 (2) : 170-184.

9. Appendix

Analysis of variance at Tsomo

* * * * * * Analysis of Variance -- design 1 * * * * * *

EFFECT .. TYPE
Univariate F-tests with (5,75) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
AGE_HEAD	9860.46360	7184.96850	1972.09272	95.79958	20.58561	.000
CAS_JOB	2841858.59	16900363.6	568371.717	225338.182	2.52231	.036
CATTLE	472.99490	1423.00510	94.59898	18.97340	4.98587	.001
CHICKEN	284.51156	3581.48844	56.90231	47.75318	1.19159	.321
CROPS_DL	1.30989	18.41850	.26198	.24558	1.06678	.386
EXP_FARM	4603883.30	39095514.0	920776.659	521273.520	1.76640	.130
EXP_FOOD	8110366.66	108095786	1622073.33	1441277.15	1.12544	.354
FARMING	42046372.6	43147918.6	8409274.53	575305.581	14.61706	.000
GARDEN	1.18440	11.03782	.23688	.14717	1.60956	.168
GENDER_H	3.54385	16.33270	.70877	.21777	3.25468	.010
GOATS	866.39791	2479.33048	173.27958	33.05774	5.24173	.000
INCOME_T	716404469	1036632563	143280894	13821767.5	10.36632	.000
LABOUR	6.82451	73.86685	1.36490	.98489	1.38584	.239
NUM_ADUL	19.61136	217.89482	3.92227	2.90526	1.35006	.253
NUM_OLD	33.75428	15.13461	6.75086	.20179	33.45406	.000
NUM_PSCH	1.64310	27.24579	.32862	.36328	.90460	.483
NUM_SCHO	34.04362	224.94404	6.80872	2.99925	2.27014	.056
PENSION	974280749	246261474	194856150	3283486.32	59.34429	.000
PERM_JOB	22114094.9	457510596	4422818.97	6100141.29	.72504	.607
PIGS	8.08214	227.49811	1.61643	3.03331	.53289	.751
REMITT	159644123	366098100	31928824.5	4881308.00	6.54104	.000
SHEEP	47459.5398	106241.818	9491.90795	1416.55758	6.70069	.000
WOOL_MKT	9.34385	10.53270	1.86877	.14044	13.30692	.000

Analysis of variance at Mount Fletcher

Variable	Hypoth.SS	Error SS	Hypoth.MS	Error MS	F	Sig. Of F
CATTLE	440.27925	1140.56026	88.05585	15.20747	5.79030	.000
EXPEND_F	33895000	160861027	6779000.09	2144813.69	3.16065	.012
FARMING	119676078	1012604551	23935215.6	13501394.0	1.77280	.129
HEAD_LEV	4.80902	29.28974	.96180	.39053	2.46282	.040
PENSION	6.29663	11.35769	1.25933	.15144	8.31590	.000
SHEEP	19826.5859	50291.4141	3965.31718	670.55219	5.91351	.000
TOTAL_IN	479835.068	1861382.14	95967.0135	24818.4286	3.86676	.004
PIGS	6680.28609	94613.4423	1336.05722	1261.51256	1.05909	.390
LABOUR_F	18.81197	158.07692	3.76239	2.10769	1.78508	.126
HEAD	2.07868	15.57564	.41574	.20768	2.00186	.088
GOAT	235.21453	1642.34103	47.04291	21.89788	2.14829	.069
CHICKEN	2353.02213	32039.0026	470.60443	427.18670	1.10164	.367

Analysis of variance at Nyandeni

Univariate F-tests with (5,38) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
ADULTS	47.7720	96.11429	9.55442	2.52932	3.77746	.007
AGE_HEAD	1800.54	5665.34524	360.10823	149.08803	2.41541	.054
CATTLE	1889.47	4170.15714	377.89584	109.74098	3.44353	.012
CHICKEN	945.405	6174.48095	189.08108	162.48634	1.16367	.345
FARMING	1539224.5	59808898.2	3078448.49	1573918.37	1.95591	.108
GOAT	8087.629	17653.3476	1617.52593	464.56178	3.48183	.011
MAIZE BAG	92.59248	594.01548	18.51850	15.63199	1.18465	.335
PENSION	30429848	446133333	60859697.0	11740350.9	5.18381	.001
PIGS	20.33680	150.64048	4.06736	3.96422	1.02602	.416
Q_WOOL	1617486.9	3305568.7	323497.381	86988.6509	3.71885	.008
REMITTAN	16121621.2	358286333	3224324.24	9428587.72	.34197	.884
SAVINGS	1.68052	7.47857	.33610	.19680	1.70781	.156
SHEEP	65129.888	80910.9071	13025.9777	2129.23440	6.11768	.000
TOTAL_IN	398060260	1298657611	79612051.9	34175200.3	2.32953	.061