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KIBAHA FARMERS' TRAINING CENTRE: IMPACT STUDY 1965-1968

Research Report No. 25

Anita Francke

KIBAHA FARMERS' TRAINING CENTRE
IMPACT STUDY 1965-1968
Coast Region, Tanzania

An experimental case study related to the training of farmers at the Farmers' Training Centre at the Kibaha Education Centre and based on socio-economic data from farmers in the Mpiji River Valley: Bagamoyo, Mzizima, and Kisarawe Districts.

Main Survey	
Baseline survey	1965
Follow up survey No. I	1968
Depth Survey	1968

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a.

Introduction to summary of Kibaha Farmers' Training Centre Impact study
1965 - 1968, Coast Region, Tanzania

One purpose of this FTC impact study was (is) to gather information, through the interview method, about the Coast Region farmers: farming techniques, living conditions, etc. a) so as to be able to fit the contents of the FTC courses (development input) as adequately as possible to the actual needs of the rural population concerned.

The survey was repeated through a Follow up no. I in 1968 b) so as to register any possible impact from the FTC upon the farmers.

These two purposes have been fulfilled although one should keep in mind that the development impact of an input such as a Farmers' Training Centre is bound to emerge slowly in the rural areas of a developing country like, in this case, Tanzania.

According to the original plan this before-after study will continue to be repeated over the years to come. The sample has been built up through following very closely a scientifically strict set of rules. Rural based samples of this kind are not all the time built up while adhering quite so strictly to the rules. The reason being that too much efforts would have to be put in - time and money. In connection with the Baseline survey in 1965 I gave four months in order to obtain as strict lists of names as possible and then, i.a., in order to counteract the nevertheless soft character of the data.

My survey work has been used i.a. at the university of Dar es Salaam and the Rural Development Institute at Tengeru, Tanzania, in connection with survey technique courses. Scholars outside of Tanzania have been using my Mpiji River Valley sample for their own research once they learned about the exceptionally strict set of rules that had been applied. In some cases such people did, without asking me first, give money to the respondents to make them agree to further questioning. This created in the beginning some problems for me during the Follow up survey work.

The disposition of the original thesis is included in this summary research report to give the reader an overall view of the full contents. That disposition is followed in this summary, which covers c:a 60% of the full text. Chapters III, X, and XI (see Disposition of thesis) have been omitted completely due to lack of space. Others, like Chapters II and IV, have been shortened considerably. Some of the purely descriptive material has been excluded and also some of the charts, tables and diagrams, including text, which for technical reasons could not be reproduced here. I am, however, in this summary referring to some of the text and material, which have been excluded here. The reader who might wish to go into the full version of the thesis can turn to the

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An impact study of the Kibaha Farmers' Training Centre in Tanzania's Coast Region

An experimental case study related to the training of farmers at the Farmers' Training Centre at the Kibaha Education Centre and based on socio-economic data from farmers in the Mpiji River Valley going through the three coastal districts of Bagamoyo, Mzizima, and Kisarawe.

Baseline survey 1965 }
Follow up survey no. I 1968 } Main survey
Depth survey 1968
Follow up surveys, no. II, etc., to come (according to original plan)

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CROPS

	Time of Year	Description	Name in English	Swahili
	Once grown can be used at any time.	Leaves are found then dried. The dried material is grinded before cooked.	Hibiscus Tree Fagara Olitoria	
	December - May or any time when there is an availability of water.	Fruits are consumed when still young and fresh.	Okra Hibiscus Esculentus	
	Rainy season	Succulent leaves are used as vegetables	(Triumfetta Annua) General name of slimy herbs	
	Rainy season	Seeds in capsules are used while green or dry.	Pigeon Peas	TI I
	Rainy season	Leaves are consumed when still succulent.	Emilea Sagittata Herbs - Leaves on the herbs	MCHUNGA SUNGA
	Rainy season	Fruits are consumed when ripen.	Guava Tree	
	Rainy season	Young succulent leaves are consumed.	Ipomoea Batatas Sweet Potatoe's leaves	E
	Rainy season	The whole mushroom is eaten.	General term for fungus/mushrooms	OGA
	Rainy season	Fruits are consumed.	Pumpkin	MABOGA
	Rainy season	Leaves are cooked, then dried. The dried leaves are then consumed.	Cowpeas Leaves	
	Rainy season	Seeds are consumed.	Green or black gram	
	Rainy season	Seeds are consumed.	Pigeon peas	

Translation Swahili - English in alphabetical order

Baraza - division administrative headquarters; Boma - district administrative headquarters

Swahili	Name in English	Description	Time of Year
MATANGO	Cucumbers	Fresh fruits are consumed. Mature fruits produce seeds which give oil.	Rainy season
- MHOGO	Cassava leaves - Cassava	Green succulent leaves are consumed.	Rainy season
KUU	Yams	Yams are consumed.	Rainy season
- UFUTA	Spinach in general	Fresh green leaves are consumed.	Rainy season
YA	Sesame	Seeds product oil.	Rainy season
	Egg Plant	Fresh and young fruits are consumed.	Rainy season
	Jack Fruit	Fruit is used.	Rainy season
	Dalbergia Melandzylon	Forest tree does not produce any fruits.	Any time
	Parinari Excelsa	Forest tree produces fruits which are edible.	Rainy season
	Tamarindus Indica	Forest tree produces edible fruits.	Rainy season
	Guava Fruits	Fruits are edible.	Rainy season
	Sour - Sop fruit	Fruits are edible.	Rainy season
HUNGU	Solanum Melongena A bitter native egg plant	Fleshy fruits are edible.	Rainy season
	Millet		
	Lady's finger		

CROPS

Terminology in alphabetical order

All farmers - "Other Farmers" and Participants

(Base -65) - baseline questionnaire 1965 Main survey

3 FTC - Depth survey Participants 1968

Bucket - 2 buckets \approx 1 debe

Control group - control sample

(Depth -68) - Depth survey questionnaire 1968

Depth survey - an intensive study related to FTC course variables using three different categories of respondents: Participants/"Other Farmers"-Neighbors/"Other Farmers"

Experiment group - Participants

(FI -68) - follow up questionnaire 1968 Main survey

KEC catchment area -

general catchment area - Coast and Morogoro Regions or Coast Region only

local catchment area - a 10 mile radius area surrounding the KEC site

Main survey - baseline survey 1965 plus follow up survey 1968

"Other Farmers" - non-course participants

Participant - Kibaha FTC course participant

10 house chairman - local level political leader

10 houses - smallest administrative and political unit

Ujamaa vijijini - familyhood

collective village life

Tanzanian socialism

Village Development Committee (VDC) chairman -

below the divisional level of the Ministry of Economic Affairs and Development Planning there are VDC:s and Urban Planning Committees. Above the chairman of these comes the local government Divisional Executive Officer with District Development plus Urban Planning Committees, and Regional Development Committees following.

This VDC:s and Urban Planning Committees chairman is also, under the TANU party Divisional Executive Secretary, TANU branch chairman heading branch conferences made up of "10 houses"/Ten-by-Ten (in 1968 approx. 1.800 branch conferences).

Abbreviations in alphabetical order

Am - amount	NS - not stated
B FTC - Depth survey Participants 1968	NTP - Nordic Tanganyika Project
Charc. st. - charcoal stove	(nvs) - not very serviceable
Com dev - community development(officer)	p.a. - per annum
Com. dev. officer	Partic - participants
D - finds it difficult (diff)	Prim. - primary
Depth - Depth survey	Prim. st. - primus stove
DK. - doesn't know	Rad - radio
Exp. - expenditures	Rel. - relatives
Ext. - extension officer	(S) - serviceable
Fem. - female	S - short
fr - friends	Sch. f. - school fees
FTC - Farmers' Training Centre	Sun gl - sun glasses
H - high	TANU - Tanganyika African
H.o.h. - head of household	National Union -
Impl - implements	Tanzania's only political
Inform - information	party (started in 1954)
KEC - Kibaha Education Centre	Teach - teacher
Keros. l. - kerosene lamp	Trans. r. - transistor radio
Kibaha - Kibaha/K FTC; KEC	UNRISD - United Nations Research
KSS - Kibaha Secondary School	Institute for Social
KTHC - Kibaha Training Health Centre	Development
L - local	(Us) - unserviceable
low	VDC - Village Development
long	Committee
Loc+oth - local and other	(Vs) - very serviceable
Log skip - logical skip	Wrist w. - wrist watch
LS - " "	Y - yards
M - can manage	Y - yes
M - medium	
Mag - magazine	For abbreviations not found in
Main - Main survey	this list see Chapter VII
Med - medium	(partly excluded)
M Stn - mission station	

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Agricultural research problems in East Africa

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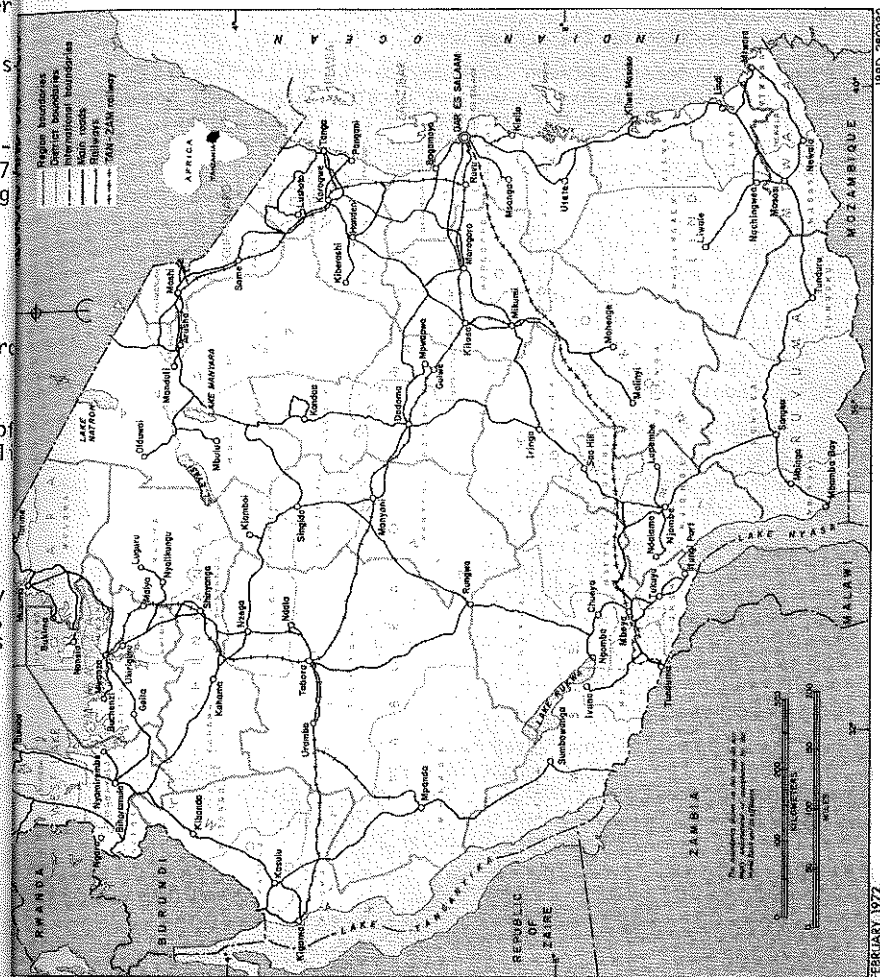
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Stockholm, September 1973

Anita Francke

MAP NO. 1



CHAPTER I

Introduction and purpose of the Kibaha Farmers' Training Centre (FTC) impact study

I: 1 Introduction of the survey work

Through an agreement between Tanzania and the Nordic Countries in 1962 the Nordic Tanganyika Project was set up at Kibaha in the Coast Region Tanzania. The Project, which started its activities in 1964, consists of a Farmers' Training Centre, a Health Training Centre, and a Secondary School. (For a more detailed description of the Project - history and aims - see Chapter II).

At the time not much was known about the living conditions/farming practices, etc. of the rural population on the coast besides general knowledge as to the fact that there was a great need for a rural training centre of the kind that was now going to be established at Kibaha. Since systematic data on the socio-economic situation in the area were not available, it was agreed upon that a rural survey should be carried out in order to increase the knowledge about the population, which the Kibaha project should serve.

I: 2 Purpose of the survey work

In line with the above decision I did in 1965 carry out a socio-economic survey in the Mpiji River valley which lies within the Project's catchment area: the Morogoro Region and the Coast Region. See Map No. 2 p. 17

The interview method was used, and the interviews were carried out in this valley since it is one of the numerous river valleys cutting the Coast Region and thus considered to be typical for the area. One tenth of a farming population of 3000 answered questions on farming technique marketing, income, health, education, migration, etc. A first report from this work came out in July, 1965:

"Rural life in Mpiji River Valley, Coast Region, Tanzania - A bench-mark survey conducted during February - April 1965".

The first purpose of the survey was to find out more about the living conditions of the coastal people/farmers in order to tailor as well as possible the training provided at the Kibaha project to the actual needs of this rural population. The survey work was linked up with the Farmer Training Centre at Kibaha in particular.

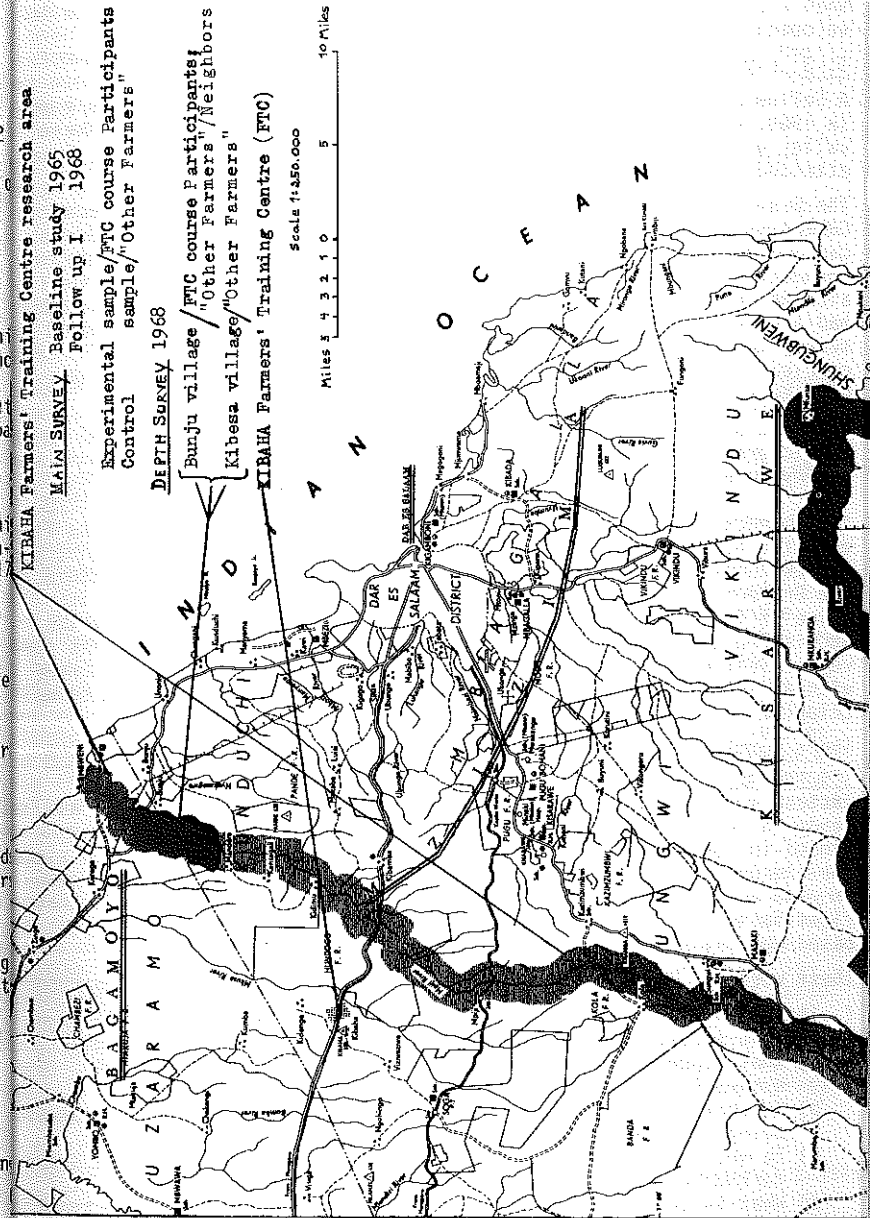
As the survey work proceeded, it was decided that a Follow up survey should be carried out at a later stage so as to allow for the measuring of any possible development impact due i.a. to the training provided at the FTC.

One would thus try to find answers to questions like:

if any FTC impact could be registered - what kind of impact, and what conclusions could possibly be drawn regarding spread and permanence (diffusion of innovations; multiplying effects);

how to increase a possible impact through more adequate curricula seen in a society with a given anthropological and socio-economic-political framework;

how to be able to make development inputs of the right kind in the right



what kinds of integrated inputs should be made in order to generate development in a given socio-economic setting.

I: 3 Layout of the survey work 1965-1968

A Follow up survey no. I was carried out in 1968 on the same sample as in 1965. Out of the 80 respondents in 1965, 13 had moved out of the valley or died, leaving a sample of 67 respondents. Out of these, 7 had attended a course at the Kibaha FTC between 1965 and 1968.

The Baseline survey from 1965 had not been followed up by the Kibaha Centre as was originally planned. No supplementary surveys had been carried out except for a few informal small scale evaluative studies in connection with the FTC. Some information gathering had been started also at the Health Training Centre, again on a very informal basis. No control survey to the Mpigi survey had been carried out. (A control survey was decided and paid for but, as can be seen in Chapter VI:3, not carried out.) This made a Follow up more complicated than would otherwise have been the case.

I am including here an extract/summary of my suggestions from 1965 to the Nordic project board regarding the combination of development inputs and survey work:

"In connection with data collecting and future development projects like e.g. the Nordic Tanganyika Project I here particularly want to point out how essential it is to establish a continuous survey apparatus within the Project organization. Sporadic data collecting loses much of its value if it is not being followed up and further developed. Since the Nordic Project did not at the time (July 1965) institutionalize its survey activities, however, the effort in 1964-65 of providing the Centre with an information and evaluation instrument was to some extent being crippled.

Short summary of suggestions to the Nordic Project in connection with the survey report

Instead - along with suggestions made to the Nordic Project Board already in December 1965 - the survey activities should have been continued in conjunction with the base line study and a control study since the closer in time the different kinds of follow-up surveys (supplementary and depth) are to the original ones, the more meaningful will that first basic survey effort become as well as further survey activities based upon it and connected with it.

These were the suggestions to the Project Board and in the survey report

1. That a follow-up report on the base line survey should be written on how the survey material had been used since the report came out:

- a) What happens to this kind of data-gathering once it has been systematized?
- b) In what ways is this information on life in the rural coast areas being used within the different Project sectors of activity?
- c) To what extent is it being interpreted in order to give ideas for further social surveying: supplementary and depth surveys, etc?
- d) What is the reaction to these data among those who ordered them: the heads of Project institutions, among other Project staff and among other persons connected with the project?

director, the heads of institutions, other Project staff, representatives of the Central and Local Government Administration and other rural development and rural survey experts, etc. A plan on how to handle the continuous flow of automatic data, and decisions on how to conduct the further planned data-gathering should have been worked out in order to follow up the base line survey in as constructive a way as possible.

This whole field - integrating socio-economic surveying with developmental activities (type the Nordic Project) - is today only at the experimental stage. That is why one should make an effort to follow up in detail how this kind of rural development research actually turns out and what does it bring about? The experience gained at the Nordic Project would, properly handled, have been of help for the planning of future projects and research work under similar circumstances in other areas. Some thoroughness would have made it possible to accumulate a lot of useful information on methods, techniques etc. to be used for tomorrow.

It would for obvious reasons have been worthwhile to make such a pioneer effort and bring socio-economic research in connection with the Nordic Project under full control.

Two streams of data and some suggestions for a system of collecting and analyzing these data

There are two different streams of data consist of those from a) "planned data-gathering" and of those from b) "automatic data-collecting".

The planned data would mainly consist of data-gathering in connection with the original base line and control areas (the original surveys), i.e. those data-gatherings conducted on a strictly scientific sample. These original surveys from the catchment areas of the Project which are to be repeated every three-five years can serve as a framework for supplementary and depth surveys which will be related to the original ones but for practical reasons carried out in the Project's smaller catchment area (10 mile radius) although on strictly scientific samples (economic growth, demographic aspects, etc.). One of the purposes of a base line study is to provide information for guidance when it comes to realizing what are the exact kinds of data one would like to obtain, and so supplementary surveys should be carried out."

As described in Chapter VI I decided to use the FTC participants as an experiment group and the other farmers as control group. The main work was in connection with the Follow up questionnaire before its fielding was to include as many "FTC course variables" as possible out of the base line variables, and then additional course variables were also included after checking with the FTC curricula and changes that had taken place in them since 1965.

4 Data processing and summary of survey work

The bulk of data available after the completion of the Follow up survey were analysed through the following steps:

- 67 respondents = all farmers Main survey 1968/
see Chapter VI (Ch. VI: 5, p. VI: 22) - parenth.=ref.to original thesis
- 60 = "Other Farmers" 1968
- 7 = Participants (FTC course) 1968/
see Chapter VI (Ch. VI: 5, p. VI: 22)

- d) a Depth survey was carried out in 1968 (see Chapter VIII) including a sample of 7 additional FTC Participants -
- e) this way a comparison between 7+7 = 14 Participants and 60 "Other Farmers" was also made possible/
see Chapter VI (Ch. VI: 7, p. VI: 58)
- f) the data, 60+14 material 1968, were also analysed through a classification program grouping the farmers into different clusters according to similarity between the respondents in connection with the variables involved (FTC course variables, and others)
see Chapter VII
- g) a land-use map was made in connection with one of the survey villages/Kibesa village survey/
see Chapter VIII (Ch. VIII: 5, p. VIII: 22 and Appendix No. III a)

These different approaches in order to try to pinpoint any possible impact of the FTC in connection with the analysis of this evaluative study material were tried since the basic analysis tool, the 1965-1968 comparison, did not produce much significant results/conclusions.

This apparent lack of change in connection with "course variables" between 1965 and 1968 is probably due

- a) to the small size of the experiment sample, which made more sophisticated analysis inadequate
- b) to the fact that the catchment area is very poor, and the development impact of an input such as a Farmers' Training Centre is bound to emerge slowly.

Thus this stage of the survey is to be regarded as a registration of a piece of follow up work to be carried out in the process of a before-and-after study but which does not as yet produce much significant evaluative results.

Seeing that this survey is a case study based on data from a peasant society, about which so far very little systematic knowledge is available, one should probably regard the kind of information obtained as data of rather soft character and apply a non formal analysis. Sophisticated quantitative analysis of the basically non-economic variables involved would for various reasons be difficult at this stage and lead to arbitrariness, etc.

The fact that an evaluative character had to be given to the survey work to some extent "from scratch" in 1968

- seeing that no continuation of the Baseline had been carried out in the form of supplementary and depth surveys between 1965-1968, which would i.a. have served the purpose of gradually structuring the survey work towards an evaluative instrument tuned to the layout of the FTC-activities

might also to some extent have decreased the chances for an FTC-impact to show up.

A general conclusion here is that a possible Follow up no. II (in line with the original plan, which has been seconded by Tanzania government) will not only function better as an evaluative instrument but also most probably register a significant FTC impact. For the outline of a possible Follow up survey no. II see Chapter XII.

social indicators in order to measure development. This work is done i.a. show economists that development is not only a matter of quantity. So factors involved in a "social cost-benefit" analysis are important in connection with economic growth. UNRISD has set up a list of goals of socio-economic character regarding development in sectors like health, education, etc. while trying to find true measuring factors, so called preindicators, in connection with the field of socio-economic development. Through compiling statistical material from 115 countries one examined what economic growth looks like when related to different factors and improvements in the socio-economic field.

This study has resulted in a development index based on c:a 20 variables, economic, social and structural, which should be able to produce a more wide-ranging illustration of the level of development than the economics entered GNP.

This UNRISD study has brought the experimental work of evaluating the socio-economic impact of inputs a step ahead. This development index is, however, an effort to try to decide the degree of development at the national level. How to transform this measuring instrument so as to fit, in a many-sided way, the economic growth process at grass root level? How to measure the welfare situation regarding the people in the villages?

The majority of the population in the third world countries is mostly made up of farmers. This population most often produces the backbone of so far normally agro-based national economy. It is of vital interest to find ways of introducing development inputs into these rural areas in adequate and multiplying a way as possible so as to assure maximum socio-economic effects within national frame-works of scarce resources. This is where the necessity of finding adequate measuring instruments comes in, in order to try to assist in finding answers to: what inputs? When? How? In what order? How to follow them up? - What forms of integrated contributions should be made in order to generate development in given socio-economic situation.

Many questions remain as to "what sets development going in rural areas". Continued experimental efforts to measure the socio-economic impact of development inputs and its effects upon and relation to economic growth would vice-versa are needed.

This is why before-after studies should be carried out in spite of the lack of a speedy show up of development input impact.

This means that involved in rural survey work of the kind here discussed on one hand the aspect of evaluation/measuring, quantifying socio-economic impact, and on the other hand, and relatively speaking as important, the fact that one does through the type of exercise described in this rural development paper slowly penetrate the problems and mechanisms of rural development in the hope of being able to contribute to secure adequate rural development inputs at the right time, in the right order and in the right way. This type of survey work thus is a complement to other categories of development inputs since it tries to find answers as to what sets development going.

Other than developing countries regarding grass root evaluative survey as a luxury, and so called donor countries regarding it as an irritating issue in connection with their "own projects" ("the outcome might

In 1970 the Nordic Tanganyika Project was handed over to Tanzania and from then on called the Kibaha Education Centre;

Chapters II and IV on the KEC and the Kibaha FTC are extracts from a year report, 1963-1967, on the Kibaha Project written by Mr. B. Melin. was the Kibaha project director during this period (some of that material comes from official Tanzanian and Nordic documents). Since the information provided in this report gives a rather full picture of the KEC FTC, it was decided that extracts from it could be used in connection with the chapters concerned;

KEC catchment areas - in the beginning the Coast as well as Morogoro region were supposed to be the catchment area of the Project. Later on was only the Coast Region

local catchment area of the Project is a 10 mile radius area immediately surrounding the project site;

in 1964 (March) Tanganyika changed its name to Tanzania in connection with the union with Zanzibar. Throughout this paper "Tanzania/Tanzania etc." has been used.

The full text of all questionnaires used in this survey work 1965-1966 can be found in Appendix No. II.

CHAPTER II

The Kibaha Education Centre (KEC) in 1964

A 5-year Agreement in connection with the establishment of the Kibaha Centre was signed in 1962 between the Nordic countries and Tanganyika. The Agreement provided for the establishment of a Farm Institute, a Secondary School and a Health Centre to be located at Kibaha in Kisumu District of the Coast Region.

The common guidelines for the establishment of all institutions, including the Health Centre, was the demand and need for training and education.

It was emphasized and desired that Kibaha should become a centre for community development for the benefit not only of Kibaha itself but also of the surrounding areas and the Region as a whole.

The Agreement

The Agreement, signed in December 1962, should remain in force for a period of five years from January 1, 1963. According to the Agreement, the Nordic Governments should provide all funds for buildings and equipment for the Centre and all expenses in connection with operation and administration of the Project during the agreement period. The contribution by the Government of Tanganyika should consist of granting the right of occupancy of the allotted land and providing access road, water connection and electric supply up to the Centre.

CHAPTER IV

Kibaha Farmers' Training Centre approach - framework and activities as outlined in the national FTC policy

1 The FTC as a part of the KEC project (multi-purpose Rural Training Centre)

Instruction of the Kibaha Farmers' Training Centre started in February 1964 and the training of farmers started in July the same year.

The aims of the Farmers' Training Centre are to assist established farmers improve their technical skill and their understanding of subsistence cash-crop farming through short courses of one to four weeks' duration. Furthermore, there should be courses for village leaders and extension workers. These courses should aim at a better understanding of the economy and the potentials of agriculture in the Coast Region of Tanzania and better organization and efficiency of the extension work. The FTC should be an inspiration centre for farmers of the Region and a place where certain services could be obtained.

For experiments and demonstrations, the FTC:s should have plots for cultivation and buildings for animal husbandry -- small and simple enough to be within reach for the average farmer but at the same time big and elaborate enough to be a marked improvement of prevailing conditions and challenge for future development.

For the extension work and for the follow-up of the trained farmers, the Centre has to keep in close contact with the Government Extension Officers concerned. These officers should serve as guest instructors at the Centre and act as interpreters for the farmers' problems. The recruitment of farmers to the courses should be the duty of the Extension Officers and they should also participate in scheduling the courses.

As part of the extension work, the FTC should also provide services (transport, work, seeds, chicks) to the farmers against payment covering the actual costs.

Administration

Farmers' Training Centres in Tanzania are administered by the Director of Agriculture on behalf of the Ministry of Agriculture and Co-operatives.

Close liaison is maintained between each Centre and the Regional Agricultural Officer and his staff by means of a Technical Committee. This Committee, which has the Regional Agricultural Officer as chairman, advises the Principal on the planning of the farm belonging to the Centre, arranges with the Principal the program of activities and the schedule of courses, and also arranges for the recruitment of farmers or other persons to attend the various courses.

Animal Demonstration Farm

For dairy cattle are concentrated at an Animal Demonstration Farm with simple houses and sheds for milking the cows, for the calves and for poultry and stores. These houses are constructed in such a way that they can be copied or modified by the farmers.

By the end of 1967, the following kinds of animals were kept in the Animal Demonstration Farm:

Domestic cows	Pure breed bulls
" calves	Goats
" oxen	Pigs
Crossbreed cows	Poultry
" heifers	Bee swarms
" calves	
" bulls	

The aim of the Animal Demonstration Farm is to collect experience and show animal husbandry in a scale which can be adopted by farmers with small and medium holdings.

The importance of the experimental activities at the Demonstration Farm should be noted. When FTC was started in 1964, it was said to be almost impossible for cattle to survive in the tsetse-infected Coast Region. The work at Kibaha has shown, however, that cattle can survive with precautions which do not require heavy investments. Continued experiments are going on to find out how to feed the cattle balanced diets the year round by producing and storing fodder in various inexpensive ways. Horse production and storing of cattle fodder is practiced only to a very small extent in Tanzania. These problems are of specific importance to the small holders.

As more and more is being learned about feeding and treatment of cattle, better and higher-producing breeds can be adopted. Starting from local cattle with high resistance, it has been possible to slowly upgrade the herd at Kibaha through some European-type high-producing cows from Kenya.

Introduction of draft animals, which is of utmost importance for the efficiency in farming, should be carried out parallel to the improvement of dairy cattle. At present, very few draft animals are used in Tanzania and in the Coast Region there are hardly any.

Most of the cultivation is carried out with a simple hoe. The use of tractors has to a great extent proved a failure, due to lack of maintenance and technical know-how. Tractors also represent a considerable investment, far beyond the resources of the ordinary farmer. Tractors also require more careful clearing of the land to avoid breakage of the implements.

Introduction of draft animals on a small scale was not a success when FTC first started. Obviously, the tsetse flies were more aggressive and dangerous on working animals than on slowly-moving grazing cattle. Now when more experience has been gained on the treatment of cattle, and a herd big enough to support a draft-animal unit, it would be possible to train and sell up to 25 oxen per year to farmers who should get the instructions at special courses at the Centre.

The use of donkeys for transports is also under consideration. Again this is a question of treatment of the animal and protection against overloading and misuse. The donkeys would be ideal to carry burdens on the narrow paths between the villages. Further investigations on the use of manufacture of simple carts has to be made. The potentials seem to be unlimited.

from far-away Israel. Day-old high-quality chicks were until now imported from Kenya and England. This was the background for the setting up of a Poultry Station at Kibaha for production of day-old chicks for distribution to farmers all over the country.

Production of day-old chicks should go parallel with instructions in poultry keeping at the FTC Animal Demonstration Farm, where different types and grades of houses are demonstrated and where experiments are made on nutritionally balanced poultry fodder made of local products.

Consumption of eggs and milk is steadily increasing among the African population. There is a great potential for a bigger milk consumption which has been shown in a recent survey from Dar es Salaam.

The importance of animal husbandry should also be seen from the viewpoint of producing manure for fertilizing the soil. At present, practically no manure is used by the farmers in the Coast Region and the soil becomes more and more exhausted until it is deserted.

Sheep breeding and pig rearing have also been introduced.

Top Husbandry

Several types of rotation crops are demonstrated on small plots for hand cultivation near the institutional buildings and on bigger plots for machine- and draft animal cultivation in different areas around the Kibaha Centre. Special attention is paid to the water- and soil conservation aspects.

The fields are set aside for research work, particularly in connection with the cultivation of cotton.

It seems to be most essential that further method studies are made and standards set for all sorts of agricultural activities from breaking and preparing of land to harvesting and grading of products. The transport problem also needs special attention.

Vegetable Garden and Orchard

A vegetable garden and an orchard have been established, i.e. for demonstration purposes, the former being split up into small plots with a large variety of different vegetables, thereby also serving experimental purposes. The orchard consists mainly of citrus trees, bananas, pawpaw and pineapples.

Forest Nursery

A nursery on full-bench terraces was established to produce forest plants being that a desire to promote forest husbandry was expressed in the original program for the Centre.

The farmers have also shown interest in the Nursery and the plantations but this has not resulted in any real effort to plant on a larger scale. Farmers who have taken plants with them home from the Nursery have wanted them more for decoration than for reforestation, which probably will be a concern for the Government and the villages rather than for the individual. The reforestation scheme based on the Kibaha Forest Nursery is aimed exclusively at pulp production. Other Government reforestation schemes, aiming at water and soil conservation, are planned. More propagation of forest plants is planned.

At the Project, some plans have been discussed regarding the possibility to organize the charcoal producers in co-operatives for the sake of improved marketing but also to force the producers to plant and maintain ten new trees for every bag of charcoal delivered. At present, the undisciplined charcoal burning is a robbery of the scarce forest resources around Dar es Salaam.

Land utilization/Rotation-crop Schedule (65 acres) for the coming 7 years at the Kibaha FTC:

Year	Plot I	Plot II	Plot III	Plot IV	Plot V	Plot VI	Plot VII
1967/68	Cassava	Sw. p'toes	Cotton	Legumes	Maize	Sesame	G'nuts
1968/69	Cassava	Cotton	Legumes	Maize	Sesame	G'nuts	Cassava
1969/70	Cotton	Legumes	Maize	Sesame	G'nuts	Cassava	Cotton
1970/71	Legumes	Maize	Sesame	G'nuts	Cassava	Cassava	Cotton
1971/72	Maize	Sesame	G'nuts	Cassava	Cassava	Cotton	Legumes
1972/73	Sesame	G'nuts	Cassava	Cassava	Cotton	Legumes	Maize
1973/74	G'nuts*)	Cassava	Cassava	Cotton	Legumes	Maize	Sesame

*) Groundnuts

IV: 2 The FTC and the training of farmers

Courses

The courses for farmers, farmers' wives and village leaders should be of rather short duration and certainly not more than 2 weeks, since it is difficult for these trainees to stay away from their own homes and families for longer periods. Courses in tractor driving and other specialized subjects where it is a matter of training rather than watching demonstrations, must be longer -- normally 6 weeks.

Each FTC has a rather high degree of autonomy in regard of courses and syllabuses and can thereby easily adapt themselves to local needs and conditions. There are, however, two main types of courses -- specialized and general.

Examples of specialized courses are:

Husbandry of Specific Crops (6 days)

Cotton, Rice, Maize, Coconuts, Sisal, Legumes, Fruits and Vegetables, etc.

Soil and Water Conservation (6 days)

Soils in the Coast and Morogoro Regions, Causes of soil erosion and methods to control erosion, Fertilizers and manure. Water supplies, Water conservation, Irrigation, Land utilization, etc.

Animal Husbandry (6 days)

Cattle suitable for the Coast and Morogoro Regions, Calf rearing, Clean milk production, Poultry husbandry, Feeding, Disease control, etc.

Marketing (6 days)

Price structure, Quality, Grading, Measuring, Calculation, Marketing Co-operatives, Storage, Pest control, Transports, etc.

time is allotted during every course, also the most specialized, for information and demonstration of fundamental health care, nutrition and sanitation.

Example of a general course in agriculture:

Farm Management (1 week or 10 days)

Introduction, Tour of Kibaha, Soil and Water Conservation, Crop husbandry, Vegetables and fruits, Animal husbandry, Dairy, Spraying and dipping, Poultry, Farm implements, Forestry, Marketing, Health and nutrition, Community development, Excursion, Evaluation.

This standard course can be adjusted in its details upon request or advice from the agricultural extension officer of the district from which the trainees have been recruited. The introduction talk with the trainees, when they have the opportunity to put forward their specific problems, may also result in certain re-arrangements.

It would probably be valuable if a farmer could attend the general course in Farm Management one year and come back the following year for a specialized course.

A full workday has the following time-schedule:

07.00	start of day, tidying of hostel
07.30	breakfast
08.00-10.00	1st and 2nd classroom periods
10.00	tea
10.30-12.30	3rd and 4th periods
12.30	lunch
14.00-16.00	5th and 6th periods
16.30	refreshments
18.45	evening meal
19.20	cinema show (3-4 times per course)

Audio-visual aids will come more and more into use as more material is collected and more experience gained. Samples and/or pictures of seeds, healthy plants, plants with diseases, insects, insecticides, fertilizers, etc., will be produced and demonstrated. A series of slides showing important details for clean milk production is in progress. A set of handtools, within the economic reach of an average farmer, will be set aside for permanent exhibition.

The improved, traditional houses of indigenous material have been built at Kibaha. The improvements were, for example, plastering of the mud walls for rain protection, cement floor, wooden doors and window-shutters. The houses had an enclosed yard and a proper pit latrine in a separate use inside the enclosure. The roof, however, turned out to be the problem. Local grass was used, but it attracted insects, snakes and rats because the traditional fire indoors was not maintained. Plaited leaves of the coconut palm would be a little better. (The local population regarded the corrugated iron sheet roof as the best in spite of the disadvantages of high costs, poor heat insulation and noise during the heavy rains.)

A series of about 25 comprehensive papers (hand outs) have been prepared on different crops, such as cotton, bananas, pineapples, maize, coffee, sis-

ding on the length of the courses. The recruitment is carried out by the Regional and District Agricultural Officer. Sometimes the wives bring their smallest child with them. The majority of the farmer-trainees are illiterate.

From the start in July 1964, in all 2,749 farmers, farmers' wives, village leaders, tractor drivers and extension workers have attended courses. In addition, 28 Standard IV School Leavers have attended a 6-month special "Crash Course" in 1967 for future extension workers.

The Kibaha FTC with its present facilities should aim at providing 12 trainee-days per year, which is the equivalent of 2,000 trainees per year in 6-day courses. The monthly target would then be 1,100 trainee-days during 11 months of the year.

A time schedule for the courses is prepared 6 months in advance. A problem in connection with the course planning is, that the most suitable season for the FTC to run a specific course is also the season when the farmers are most busy in their own fields. Irrigation could extend the plantation period at the Centre, but at the same time the irrigation would make the plantation look strange and unrealistic to the farmer. The ideal would be that a farmer could come to the Centre for several short periods during the season and study the development. This can seldom be achieved except by farmers living very near the Centre.

Fees and Facilities for Trainees

A fee of Shs 1/- per day is collected at the beginning of each course. As the total cost per trainee and day is in the region of Shs 27/-, the fee must be regarded as symbolic but with a psychological value.

In addition to the course itself, the trainee is given transport from his central place near his home to the Centre and back again, accommodation in the Hostel and meals in the dining hall. If necessary, he also gets free medical care at the Health Centre.

When leaving the Centre at the end of a course, trainees have the opportunity to take with them some plants and seeds and various booklets in Swahili (Government publications). When the Poultry Station comes into full operation, it may also be possible for the returning farmer to buy some day-old chicks and perhaps a cockerel of an improved breed for upgrading of the home stock.

Staff

The teaching staff at the FTC in 1967 consisted of a Principal, an Assistant Principal and three instructors. For development and practical field work, three assistants were working in co-operation with the instructors.

The farm activities are split up into four sections:

Animal Husbandry, Crop Husbandry, Vegetable Garden & Orchard and Machine Station.

It has been agreed that more emphasis should be put on the follow-up of trained farmers and on finding the reasons for failure or success as well as for the fact that women seem to obtain better results.

There are reasons for failure and success which cannot be explained by the motivation for increased production and

result of improved health care rather than improved agricultural techniques.

According to a social survey in the Coast Region, an ordinary farmer might not work effectively more than 2 hours a day as an average over the whole year. There are, of course, times of the year when no work can be done on the fields, but it still seems possible to increase the work-hours and production of the farmer by 50-100% with no capital investment if there was a strong enough motivation.

CHAPTER V

Summary recapitulation of the Baseline survey 1965

V: 1 Catchment area of the KEC; Definition of survey population; Census work; Construction of questionnaire, and problems encountered

As stated in the Baseline Survey report of 1965 there was not much time available to write up the report once the field work had been completed. This was due to the following:

a. a fixed time limit was set for this survey work. It was an experiment and because of lack of experience of handling this type of rural development instrument, the decision was taken that one should give the undertaking a fixed framework - budget- and time-wise.

b. if the then Nordic Tanganyika Project would have decided to build a socio-economic surveying/evaluation into the Project activities, then a control sample should have been interviewed within a three month period after the completion of the Mpiji River Valley survey so as to give a rough idea of how to carry out and use such a supplementary rural development tool.

Seeing that an analysis on changes between 1965 and 1968 - changes due to the time factor as well as to the course factor - is carried out in Chapter VI of this thesis in connection with variables used for 60 "Other Farmers" and 7 "Participants to be" in 1965 and 60 "Other Farmers" and 7 "Participants to be" in 1968, this part of the variable material will not parallel be dealt with also in this chapter beyond the, however summary, report already carried out in the Baseline report to which I am referring.

Regarding variables used in the Baseline survey, which do not appear in 1968, neither in the (FI -68) nor (Depth -68) questionnaires, see Chapter XII p. 100 in connection with a discussion of the structure of existing questionnaires and of future ones.

In the Baseline report the catchment area of the KEC; the definition of the survey population; the census work; the construction of the questionnaire; the sample method and construction, and the problems encountered are included. Regarding the control sample see Chapter VI p. 40.

As part of a brief recapitulation I am here including the sample construction: definition of included heads of household, see Chart No. 2 p. 31; the list of the villages surveyed from north to south per district, see Map No. 3 p. 32; some photos showing some of the homesteads representing all three districts, see Photos/No. 1 p. 33; the construction of the access map, which accompanied each schedule so as to make it easier to find the respondents again at possible later Follow-up surveys, see Map No. 4 p. 34, and the field diary extract giving an idea of the problems encountered in connection with the fielding of the survey, see Chart No. 3 p. 36.

V: 2 Sample method and construction

I will briefly recapitulate here why the sample consisted of 70 rather than 60 (= 10% of the total amount of 600) heads of household. The final figure of 80 respondents is explained in the Baseline report as well as in Chapter VI.

MPIJI RIVER VALLEY

IBAHA FTC research area

sample construction

definition of included heads of household (h.o.h.)

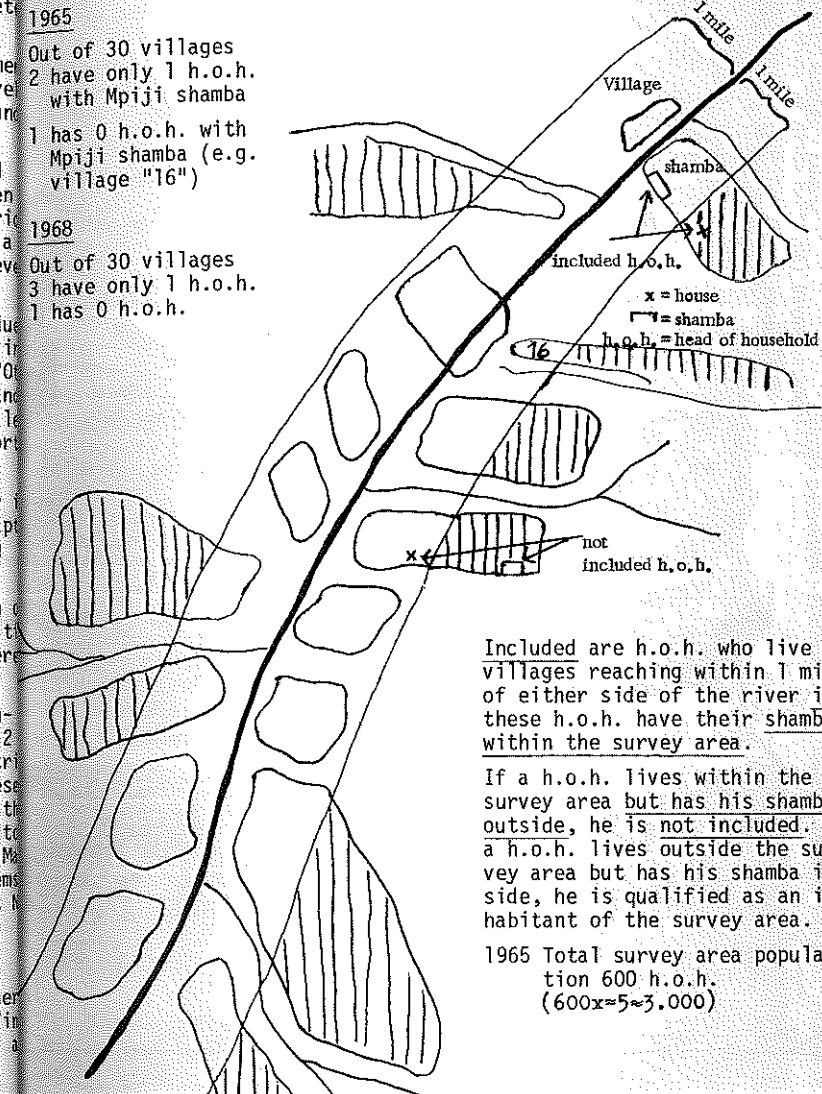
MPIJI
RIVER

1965

Out of 30 villages
2 have only 1 h.o.h.
with Mpiji shamba
1 has 0 h.o.h. with
Mpiji shamba (e.g.
village "16")

1968

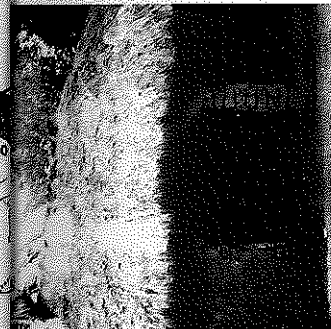
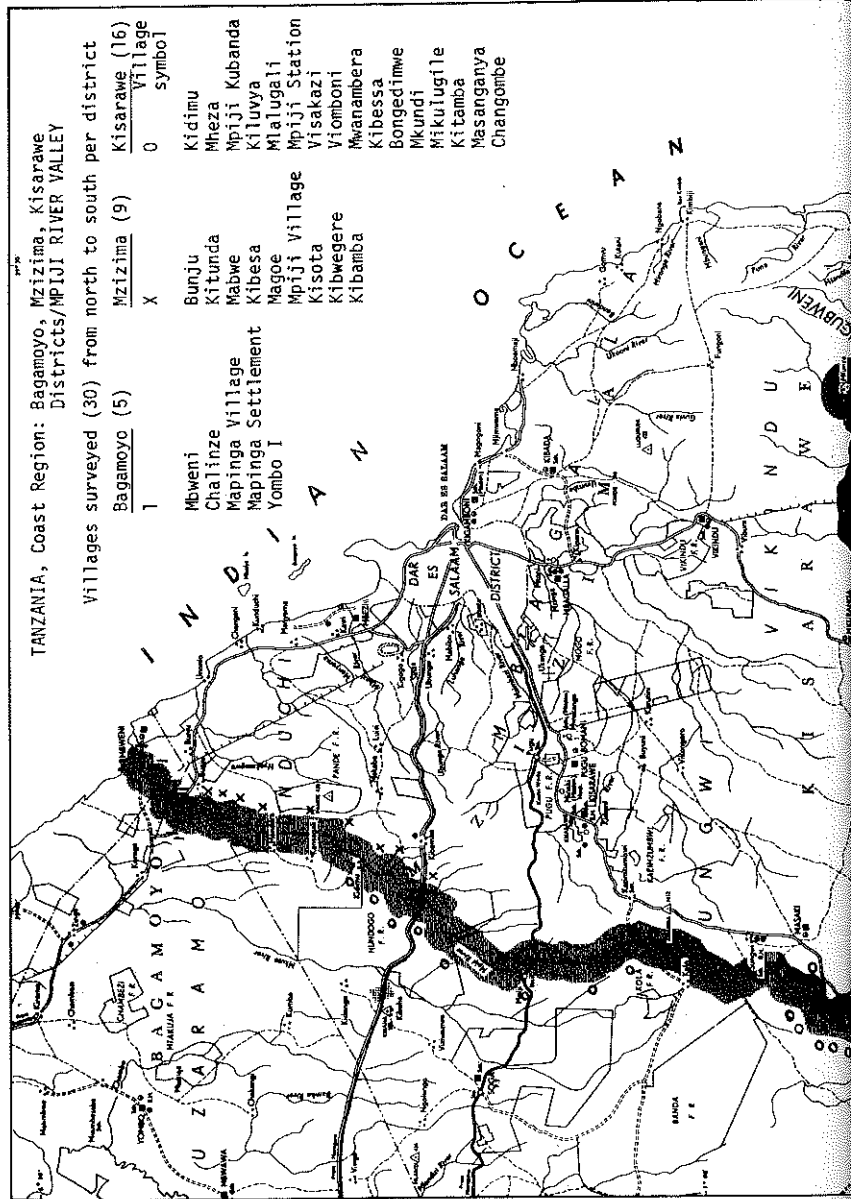
Out of 30 villages
3 have only 1 h.o.h.
1 has 0 h.o.h.



Included are h.o.h. who live in villages reaching within 1 mile of either side of the river if these h.o.h. have their shamba within the survey area.

If a h.o.h. lives within the survey area but has his shamba outside, he is not included. If a h.o.h. lives outside the survey area but has his shamba inside, he is qualified as an inhabitant of the survey area.

1965 Total survey area population 600 h.o.h.
($600 \times 5 = 3,000$)



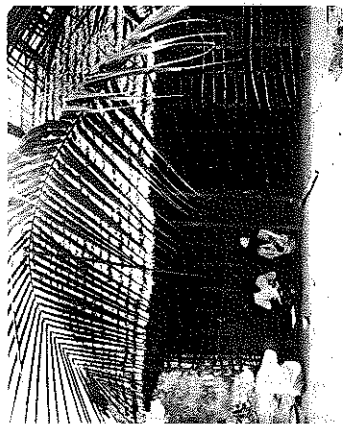
SETTLEMENT - BAGAMOYO DISTRICT



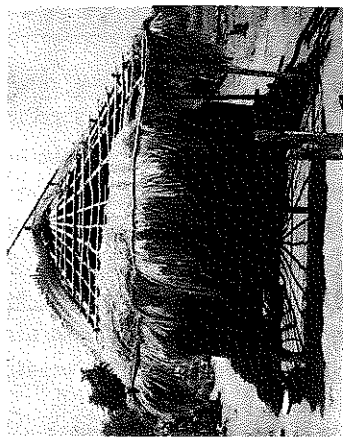
KIBESA - MZIZIMA DISTRICT



MWANAMBURA - KISARAWA DISTRICT



CHALINZE - BAGAMOYO DISTRICT



MABWE - MZIZIMA DISTRICT



KUBANDA - KISARAWA DISTRICT

1. Map of the house of Mr. Mbegu Msahilo
Kitunda describing:

ID no. 054 19
Mzizima distri

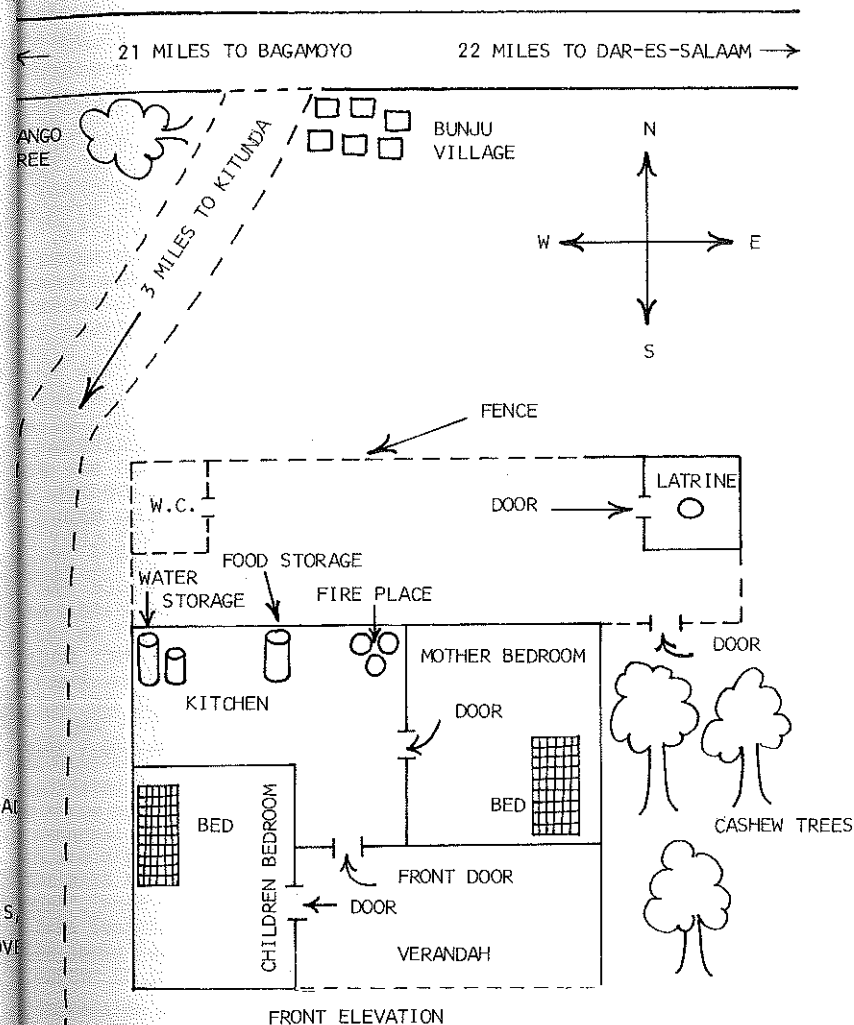
- Where the house is in relation to the Bagamoyo Road and to which part of the Bagamoyo Road (e.g. distance in miles from Dar es Salaam or or other exact mark). Include the center of the village in the map.
- Type of road/s from the Dar es Salaam - Kitunda Road up to the interviewed person's house. Mention type/s of Communication possible to use to reach the house.
- If not already mentioned state distance in miles between the village and Dar es Salaam or
- Mention how many miles from the center of the village to the house of the interviewed or how many minutes by car or/ how many minutes by walking, which ever the case was.
- State where North and South are!

I YOU TRAVEL 22 MILES FROM DAR-ES-SALAAM TO BAGAMOYO ROAD BY CAR OR BY BUS, UP TO BUNJU VILLAGE

II AT THE CENTRE OF BUNJU VILLAGE WHERE THE MANGO TREE IS, YOU TURN TO SOUTH, THE WAY HERE IS PASSABLE BY LANDROVE HALF WAY TO KITUNDA WHICH IS 2 1/2 MILES.

III FROM DAR-ES-SALAAM TO KITUNDA VILLAGE IS 24 1/2 MILES.

IV WHEN YOU REACH KITUNDA VILLAGE YOU WALK HALF A MILE TO THE INTERVIEWED PERSON'S HOUSE.



MPIJI RIVER SOCIOLOGICAL SURVEY

FIELD DIARY

MARCH 9, 1965
DAR ES SALAAM

"IN THE MORNING MEETING WITH THE SIX ENUMERATORS TO DISCUSS CERTAIN POINTS. THEN OFF TO THE MZIZIMA DISTRICT BOMA IN ORDER TO COLLECT THE AREA SECRETARY'S CLERK TO ACCOMPANY US. AFTER THAT TO BUNJU VILLAGE JUST TO FIND THAT THE JUMBE WAS NOT THERE. HE WAS IN KAWA VILLAGE FOR A COURT-CASE. SO OFF TO KAWA TO COLLECT SOMEONE ELSE FROM THE BARAZA TO ACCOMPANY US. BY NOW THE JUMBE WAS READY SO HE HIMSELF COULD COME WITH US. - FIRST WE WENT TO THE RESPONDENT TO BE, MR. A. OMARI'S, HOUSE IN BUNJU WHERE WE HAD BEEN THE DAY BEFORE TAKING PHOTOS OF HIS HOUSE ONLY, AS HE WAS NOT THERE. IT NOW TURNED OUT THAT THIS PERSON WAS NOT MR. OMARI AT ALL. THIS ROUSED MY SUSPICION, AND WHEN WE HAD DRIVEN BACK TO THE MANGO-TREE OF BUNJU I STARTED ASKING ABOUT THE HOUSEHOLDS IN THE DIFFERENT VILLAGES OF THAT DIVISION. THERE AND THEN IT CAME OUT THAT 4 OF 6 VILLAGES WERE INCOMPLETE - PEOPLE HAD RUN AWAY WHEN THE COUNTERS HAD ARRIVED ETC. OTHER VILLAGES HAD BEEN MIXED UP. HOWEVER WE WENT OFF IN THE MICRO-BUS TO KIBESA VILLAGE. HALF WAY WE REALIZED THAT THE ROAD WAS TOO BAD TO TAKE THE BUS AND THERE WAS TOO LITTLE PETROL TO GO ON, SO WE RETURNED. ON THE WAY WE MET THE MAN WHO HAD COUNTED MABWE AND MAGOE VILLAGES. ON INQUIRING I FOUND OUT HE HAD LEFT 1/3 OF MAGOE AND IN MABWE HE HAD ONLY INCLUDED PEOPLE WITH CASHEW-NUT SHAMBAS. SO IT WAS DECIDED THAT THAT WHOLE PART OF THE DISTRICT BE RECOUNTED TILL MONDAY A.M. MARCH 15. WE WENT TO DAR ES SALAAM AND DESK-WORK.

WHEN I INQUIRED ABOUT THE IDEA BEHIND COUNTING ONLY CASHEW-NUT FARMERS THE ENUMERATORS TRANSLATED THAT RIGHT IN THE BEGINNING AT KIBAHA THE NORDIC PROJECT BOUGHT SOME OF THE SHAMBAS SITUATED ON THE SITE-AREA FOR "BIG MONEY" - AND QUITE A FEW OF THESE SHAMBAS HAPPENED TO BE CASHEW-NUT ONLY.

TERMINOLOGY

ENUMERATOR = INTERVIEWER

BOMA = DISTRICT ADMINISTR. HEADQUARTERS

JUMBE = TERM FOR DIFFERENT VILLAGE LEADERS

BARAZA = DIVISION ADMINISTR. HEADQUARTERS

RESPONDENT = PERSON TO BE INTERVIEWED

THE MANGO-TREE OF A VILLAGE = OFTEN INDICATES THE CENTER OF THAT VILLAGE

one unit. This way I did in connection with Mzizima and Kisarawe Districts always start with the second name per village in alphabetical order. Because of this method the sample grew from 60 to 70 respondents.

Some of the findings of the Mpiji River Valley Survey 1965 (Baseline report)

Generally the most significant of the findings is the high percentage of the sample who have been cultivating in the Mpiji River Valley for between 10 and 30 years, who were born there, and the even distribution of the remainder over the other time period categories. Moreover, 72 of 80 expressed the opinion that they would stay in the Mpiji Valley the rest of their lives.

The sample represented a group of 10 tribal or ethnic groups. Almost all the respondents were non-educated. The majority were monogamous, widowers or single.

Facilities in the home were extremely limited, a significant percentage had no windows, and 77 out of 80 used the "three cooking stones" as stove.

More than three quarters of the sample had three "shambas", and almost all had between two and a half and four acres of land. Only a few of the sample had any animals. Knowledge of fertilizers or manure was nil, and only a few of the respondents had irrigated their shambas.

Only a few of the sample would prefer to farm than to have a regular wage, and they explained (20%) that they liked to have the freedom which farming offered.

Only about 66% of the respondents claimed not to be able to attend school. We felt that this may be due to economic factors which can be solved, perhaps, or due to age. Only 9 out of the sample or members of the family make articles themselves for sale or for use in the home.

One of the problems in the Mpiji River Valley in connection with infrastructure are lack of water, transportation, marketing facilities and communications. A suggestion would be that if an irrigation project could be initiated to increase yields, and self help schemes were established, these would probably provide incentives for further improvements. Remarks: "If only we had water, we could do something for our fields which are dry for so long", or "There is nothing to do for leisure time in the area so if we could get water we could spend more time in the shambas", were often heard. Then it should be brought to the notice of the Area Secretaries concerned that while communications seem to be good at the jumbe level, respondents living a short distance from the road do appear to get adequate news and information.

The impression was gained that if there were self-help schemes and therefore more contact with field assistants etc., communications in the area could be facilitated and development speeded up. It is my opinion that there is indeed enough interest and reserve of energy in these different villages to lead individuals to seek higher goals in the field of self-help, development and nation building. Increased incentives and level of aspirations will raise the number of persons who would be interested in other training.

Availability of water would increase crop yield, and also this will make the transportation of goods easier.

already, but it is also necessary to increase the number of technically trained personnel, especially those with knowledge of simple irrigation methods to assist these river valley people.

The sample most probably reflects typical subsistence farmers who live in the area covered, or which will be covered, by the Kibaha Centre. Though the sample represents more than 10% of the population of the Mpiji River Valley, the respondents still form a small part of the population of the total area in which the Kibaha Centre is working, however, making it difficult to give exact comments or generalizations on this small sample for the area as a whole.

The value of this bench-mark survey, stage one, is that it brings up certain points for the information of officers at the Kibaha Centre of which they ought to be aware. The information given in this first bench-mark survey will make available for the staff of the Project, other rural development planners, specific ideas on how the people what they grow, what they earn etc. and of their attitudes towards irrigation methods, health, hygiene and nutrition.

The bench-mark survey illustrates and emphasises the importance of development agents like the Kibaha Centre in that the facts reveal the marginal nature of life in these areas and thus the great benefits could accrue by applying new methods to improve the way of life of peasant farmers who form the basis of Tanzania's economy."

CHAPTER VI

Layout and summary of Follow-up survey no. 1 1968

1 Introduction

At the set out of the Follow-up survey my intention was to follow up the first part of the Baseline survey sample regarding possible changes in the valley between 1965 and 1968 - time- and course impact-wise.

Besides partly following up the Baseline survey, it was my intention to supplement the rather wide-ranging Main survey with an intensive study of a couple of villages - whereof one would have been influenced by the Kibaha FTC, and one without any Participants. While allowing for a course impact evaluation right from the start, this intensive village survey would also form another baseline to be followed up over time so as to make it possible to register whatever changes, which might be taking place.

After the wide-ranging Baseline questionnaire, which gave a rather superficial view of several villages, I felt it would be useful to concentrate upon a couple of socio-economic units in an effort to get as full a picture as possible of i.a. production techniques, and results. Aspects to be covered in this connection would be yield per acre, income per acre, labour input/labour distribution - men, women, children, average working day for men and women, man-hours per acre and year, etc.

This survey would be carried out through following closely the two villages over at least an eight-month period.

Even on the spot again in 1967, however, the general opinion among the institutions concerned in connection with rural development/rural survey work was that my Baseline survey from 1965 should be followed up completely, rather than in parts as I had planned. This opinion was based on the fact that the Baseline was considered to have been built on a sample, which was regarded as stricter than most samples in such rural areas usually tend to be. Thus, it would be a pity not to make the fullest use possible of this valley sample in order to, instead, establish a new, two village-, baseline-survey, the future following up of which would be uncertain seeing i.a. the time factor. It was felt that the results from a Follow-up of the whole valley sample could be of use to Tanzania's rural development planners who lacked basic data of that nature. Such data were badly needed in order to direct scarce resources adequately as possible according to the needs in the rural areas.

A group of students from the university would be obtainable for the interview-work as would a landrover. This being the situation I decided to go through the valley again and follow up on any possible changes. As a compromise, however, I did during the additional Depth survey in 1968 (see Chapter VIII) try to go a bit deeper into the socio-economic situation of one village, Kibesa (Mzizima district). This effort is being described in Chapter VIII as well as in Appendix No. III a.

Being that the layout of the Kibaha FTC activities was not structured as to provide a framework for built in evaluative studies, the Follow-up survey was to be regarded as an experiment. The layout structure being inadequate in this connection was a natural phenomenon, since following up of the impact of the FTC-activities had not been in-

The hypothesis to be tested in connection with this socio-economic impact study, which was in line with the suggestions brought up in the Baseline report regarding possible ways of continuing the Kibaha FTC related survey work, was that farmers (in Tanzania's Coast Region) who attend courses at a Farmers' Training Centre (Kibaha) will improve their farming techniques, ability to read and write, health care, food habits, hygiene habits, etc. due to the training provided at the Farmers' Training Centre.

VI: 2 Construction of questionnaire

Out of c:a 200 variables used in the Baseline survey questionnaire (Base -65) about 120 were repeated in the Follow-up survey no. 1 questionnaire (F I -68), which in total held c:a 230 variables. The (Base -65) questionnaire covered the following headings:

Education	Health
Migration	Nutrition
Farming	Items in household
Marketing	House description
Income	Cooking and storing of food

Out of the 120 1965-1968 variables (see Variable list No. 1 - excluded here) c:a 35 variables were directly linked up with aspects in connection with the training provided at the course. The majority of the remaining variables either were more or less indirectly linked up with this training, seeing that it includes farming as well as ability to read and write, health, nutrition, and hygiene aspects, or they were there to register change as such over time.

The (F I -68) questionnaire was pre-coded to a greater extent than the (Base -65) one thanks to the experience obtained through the 1965-1968 answers. Since the (Base -65) questionnaire had been pre-tested for field-worthiness as well as translated into Kiswahili and back into English, these exercises were not being repeated in connection with the (F I -68) questionnaire, which was being structured along the same lines as the final version of the (Base -65) one. Like the (Base -65) one the (F I -68) questionnaire obtained approval from the Tanzanian authorities concerned before being fielded.

VI: 3 Control sample

It was decided by the Nordic aid agencies that a control sample to the Mpiji sample should be established. The area chosen was the Mbezi river valley at the south-east of the Mpiji river and sufficiently far away to allow for it to serve as a control area (= holding no course participants).

This control survey was carried out after I had left Tanzania in 1968. An East Africa based Market Research company (the same one which provided me with enumerators, and assisted in the data processing work in connection with the Mpiji survey) under a contract at the amount of £1,200.00 was approached. In 1966 as the report (= frequency tables) from this control survey was reached me, I suspected that it had not been carried out in a scientific

I checked up, it turned out that this "control survey" had been carried out completely without control from the Kibaha centre. The only conclusion to be drawn, using scientific and professional integrity criteria, was that this "survey" was of no more use than had it been "fiddled" as well as put into frequency tables in the air-conditioned Nairobi office of the company involved.

When, on the spot again in 1967, I decided to use the Mpiji valley course participants as an experimental group, and non-participants as a control group.

During the administering of the Follow-up survey in the field it turned out that out of the 80 interviewees of 1965, 67 remained. (See Chart No. 1 - excluded here).

Of the 13, who had disappeared, six had moved far away, and seven were dead, etc. Out of the 80 respondents in 1965, 68 were regular ones, 12 were reserves, and 10 were extra's (= drawn from what at first was assumed to be correct village lists, although it later turned out that many were incorrect, and had to be re-done). In 1968 the corresponding figures were 56, 2, and 9, whereof 5 regular ones and 2 extra's were course participants. It turned out that these seven participants plus the head of household on the Bunju village list, a non-respondent in the 1965 survey but interviewed in connection with the Depth survey (see Chapter VIII), were the only heads of household altogether in the Mpiji valley survey area, who had been to the Kibaha FTC for a course between 1965 and 1968. This conclusion was arrived at through checking with the village jumbes as well as with the lists of participants at the Kibaha

Thanks to the photos taken of each respondent in 1965 plus the access to each person's house, it was this time easier to find the respondents. Also now I took photos of the homesteads and the areas surrounding them but one cannot draw much information from this material. The type, construction, and equipment of the houses, the building materials used, and the conditions of the surroundings had not changed in a noticeable way. Also the access map drawing exercise was repeated in 1968 to check the accuracy of the 1965 access information.

I decided to disregard the fact that the sample and valley population had decreased between the two points of time. Nor did I check up on as to whether there had been any migration into the valley during the period. The purpose of my survey was (is) to follow up on any possible changes within the sample due to the course factor as well as to the valley factor. Thus the original respondents are the key factor rather than the valley population's decreasing or increasing. A few of the original respondents had moved between 1965 and 1968 either into another valley area village or into a village near by but even so they were included in the 1968 sample.

Another issue was that some of the female heads of household of 1965 got married during the period, but even so they were interviewed again in 1968 rather than a new baseline being established in connection with their present husbands.

Generally speaking there are small differences between the group of 6 over the 1965-1968 period. The same goes for the group of 7. This fact combined with the small sample factor prevents a comparison as between the 1965-1968 group of 7 changes and the 1965-1968 group of 60 change in other words a comparison between two differences, which could confirm or reject the hypothesis: would the difference between the experimental group = between course participants to be in 1965 and participants in 1968 be greater than the difference between the 60 other farmers in 1965 and 1968 respectively?

Had the two samples been larger and more comparable in size, (and equivalent in 1965 in connection with certain background variables, and - two of them - probably equally exposed to other development inputs than the training provided at the FTC course - such as: the time factor; national, regional, district, division and village level development inputs:

literacy training

extension officers (advisors in connection with farming techniques, community development, health, etc.)

cooperative movement training inputs of different kinds

radio programs: adult education e.a.

mobile adult education units of different kinds, etc.)

then one would probably have been able to assume that the FTC course had some impact, were any difference between 1965 and 1968 in connection with course training factors to be greater within the experimental group than within the control group.

All one can now say is that some changes within the experimental group which do not show up as well in the control group might be due to that course factor.

In order to increase the experimental sample I added the seven course participants from the Depth survey to the seven from the Main and thus obtained a 60 + 14 setting, which was analysed in connection with certain variables (course centering). For this analysis see Chapter VI. This sample construction was made in order to try to make any possible course factor show up more distinctly. The exercise was unsatisfactory, however, seeing that the Depth survey participants were better off than the Main survey respondents. Thus the differences, which now did show up between the experimental group and the control group, in relation to course variables might well be due to the socio-economically higher level of the Depth survey participants.

The following analytical comments will be of a somewhat sporadic character concentrating upon conspicuous results with heavy emphasis on the variables rather than of an all-inclusive character, seeing the size-wise not completely satisfactory sample category distribution at this stage of the survey (Follow-up no. I).

There are four different groupings involved in connection with the discussion of changes - time factor; course factor - between 1965-1968:

I Main survey 1968

Main survey 1965-1968

60 = "Other Farmers" 1965
7 = "Participants to be" 1965
60 = "Other Farmers" 1968
7 = Participants 1968

Main survey plus Depth survey/Participants 1968

60 = "Other Farmers" 1968
14 = 7 Participants Main survey 1968
7 Participants Depth survey 1968

Main survey plus Depth survey/Participants 1965-1968

60 = "Other Farmers" 1965
7 = "Participants to be" 1965
67 = All farmers 1965
60 = "Other Farmers" 1968
7 = Participants 1968
67 = All farmers Main survey 1968
7 = Participants Depth survey 1968
60 = "Other Farmers" 1968
14 = Participants Main and Depth surveys 1968
74 = 60 "Other Farmers" plus 14 Participants Main and Depth surveys 1968

5 Main survey 1968

67 respondents = All farmers Main survey 1968
60 = "Other Farmers" 1968
7 = Participants (FTC course) 1968

which seemed to be an equivalent sample in 1965 in relation to the valley population (80 respondents) was now being checked up in order to get a clearer idea in connection with the seven "Participants to be" and the 60 "Other Farmers" in 1965.

variables used to check up on this were: age, income past year, read and write, uses manure, has latrine, and whether living in Other rural-urban area before coming to the present spot.

age	the average for the	
income past year	40 and for the 60:	45
reads/yes	1-400/- 100%	0-400/- 95%
writes/yes	2/7	14/60
uses manure	no information	no information
has latrine (1968)	1 person	1 person
lived before (1968)	1/7	> 50%
Other rural	4/7	56,6%
Other urban	3/7	20%
Other not required	-	23,4%

Regarding the recruitment to the FTC courses, see Chapter IV. Also other factors than those mentioned in Chapter IV were involved in the recruitment work, however, and the

this important issue with some of the elders in connection with the survey, this was their opinion:

"They feel the present method of selection is not very satisfactory. They strongly feel participants for such courses should be selected locally by the farmers themselves. In other words, if each village is to send one student to Kibaha, then it should be left to the villagers concerned to choose their representative. They agree, however, that in making the selection the advice of the Agricultural Field Assistant should be sought and that the candidate must be one of the most progressive farmers in the area and one who can benefit from such a course. Furthermore, he should be the type of man that would willingly impart the knowledge and modern technique of farming gained from his training to his fellow farmers. It is strongly felt that this will be the most effective way that Kibaha's influence can be spread and help the farming population in the area. The farmers themselves should take part in the selection of candidates, then they would realize that the Farmers' Training Centre is for their benefit."

When looking at the 1968 data/67 "Other Farmers" and Participants I compared the distribution of number of male and female children as well as with respect to age groups and school attendance (see Diagrams No. 1 and No. 2 - excluded here).

One could then see a trend saying that it is more common to have a smaller number of girls than a small number of boys. 60% of the households have 0-1 female child with 40% having 0-1 male child, whereas 40% have 2-7 female children, and 60% 2-7 male ones.

Regarding age groups - attending/having attended school, it is clear that schooling boys are in the majority in each age group and overwhelming so in the age group > 16 years old with 12 attending as compared with (total number of male children in this group = 57, female = 49). Through all age groups male children are in the majority amount-wise.

In connection with the 1968 Main survey material I also looked in particular at the question as to from where the respondents obtain advice in connection with different activities (with the sample regarded as a whole, 67, or split up into 60 "Other Farmers" and 7 Participants). I i.e. wanted to find out whether Participants turn to/refer to other sources of information than tradition, neighbors, etc. to a greater extent than "Other Farmers" do. See table No. 4 p. 45.

With due respect to the small samples one can see that in connection with the variables listed in Table No. 4 only 42,9% of the Participants either obtain no advice or turn to tradition whereas the corresponding figure for "Other Farmers" is 76,6%.

When looking at whether respondents use a passive or an active approach in connection with obtaining information from certain sources as listed in Table No. 5 p. 47 the trend seems to be that there is no difference between Participants and "Other Farmers" as to whether a passive or an active approach is being used.

IN SURVEY 1968 (60 + 7)

from where do respondents obtain advice on:

47 c) (F I -68)	why to use manure
42	why to combine local poultry with other breeds
81 d)	taking medicine regularly to prevent malaria
81 a)	using mosquito nets
84 b)	boiling drinking water for adults
91 c)	boiling drinking water for children
92 a)	using nutritious, vitamin- and protein-rich food like Eat I: pawpaw, mashed beans, mchicha, milk
93 a)	using nutritious, vitamin- and protein-rich food like Eat III: fish, meat, eggs
use description	covering up stored drinking water
	covering up stored food

at all respondents do any of these "good" things - do they do it because of following tradition or does the message (also) from other/modern sources of advice reach the respondents with any lesser or greater degree of impact upon their way of living?

respondents were grouped into five modernization classes through classification variables.

Modernization classes	Classification variable(s)	Variable contents
I	0	No advice
II	1, 2, 3, 4	Tradition, neighbors, other
III	5, 7	Tradition; doctor, hospital, dispensary
IV	6	Tradition; Kibaha Education Centre, neighbors, doctor, hospital, dispensary
V	8, 9	Tradition; school, children, agricultural instructor, VDC chairman

sification variables were established through nine combinations of answers:
 such type of advice came from such and such source of advice
 advice was listed in connection with these sources of advice:

ation per on(s)	Dispensary		VDC chairman		School	Children	(Radio)
	Kibaha	Tradition	Doctor Hospital	Neighbors	Other		
	0	0	0	0	.	.	.
	0	x	0	0	.	.	.
	0	x	0	x	x	.	.
	0	x	0	x	0	0	x
	0	x	0	x	x	.	.
	0	x	0	0	x	.	.
	0	x	0	0	x	0	x
	0	x	x	0	0	.	.
	0	x	0	0	0	.	.
	x	x	0	0	.	.	.
	x	x	0	x	.	.	.
	x	x	x	x	.	.	.
	0	0	0	x	.	.	.
	0	0	x	0	0	0	0
	0	x	x	0	0	0	0
	0	x	0	0	0	0	0

this method the following classification was obtained:

tion classes	Participants		"Other Farmers"	
	Amount	%	Amount	%
No advice	1	14.3	7	11.6
Tradition, neighbors, other	2	28.6	39	65
Tradition; doctor, hospital, dispensary	1	14.3	8	13.4
Tradition; Kibaha Education Centre, neighbors, doctor, hospital, dispensary	3	42.8	2	3.3

1968

Which of the following people have visited this farm at any time during last year

And which of the following people have you or any member of this household visited for information at any time during last year

Sources of information	Ten house chairman		Agricult. officer		VDC chairman		Kibaha		Com. dev. officer	
	Partici- pants	7 60 %	Partici- pants	7 60 %	Partici- pants	7 60 %	Partici- pants	7 60 %	Partici- pants	7 60 %
14.3	45.0	85.7	50.0	28.6	50.0	57.1	91.7	100.0	85.0	
14.3	10.0	14.3	36.7	14.3	10.0	0.0	5.0	0.0	6.7	
14.3	1.7	0.0	0.0	28.6	8.3	28.6	1.7	0.0	5.0	
57.1	43.3	0.0	13.3	28.6	31.7	14.3	1.7	0.0	3.3	
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

(F I -68) variable no. 50 gave some rather complete information as to where do respondents turn for information on certain issues - to whom do you go for information about:

Farming	Sources of information:	
Livestock	None	Local Cooperatives
Cash crop market prices	Friends	Radio
Self-help activities	VDC Chairman	Mission station
Family health matters	IO house Chairman	Newspaper, magazine
Education matters	Extension officer	Kibaha Centre
News about Tanzania	Teacher	Other/specify

Answers/amount of in connection with this variable do to some extent give a picture of the respondents' degree of extroversion. Thus I thought it might be interesting to link this information up with answers given to (F I -68) variables no. 95-97 on whether there had been any changes in connection with the respondents'

shamba work
village life and/or
life in general

between 1965-1968

- if any changes, positive or/and negative?
(See Table No. 6 - excluded here)

Out of the 18 respondents (N = 67) who in total used more sources of information than the others, 9-18 sources, 11 stated that there had been changes in their village area and in a positive direction.

The remaining 7 respondents (N = 18) either stated No answer (5) or changes (1) or One thing changed in a negative direction (1).

Out of the total group (N = 67), 30 stated that there had been changes and 23 out of these stated a positive direction.

Thus 61% of the extrovert respondents claimed changes and positive ones as compared with 24% of the less extrovert ones, who stated changes positive ones.

While comparing Participants and "Other Farmers" in connection with (F I -68) variable no. 50 and the stating of No sources of information, observations were distributed like this:

	Participants	"Other Farmers"
Farming	1 respondent	35.0 %
Livestock	1	43.3
Market prices	1	6.7
Self-help activities	0	8.3
Family health matters	1	15.0
Education matters	1	30.0
News about Tanzania	0	15.0

As a conclusion one can say that exposure to information/input of knowledge from the outside tends to have an alerting effect and tends to bring about a positive view of things. It brings about awareness, etc.

ing messages across to what will then be a less scattered rural population. This will help to speed up the process of getting development going. Disseminating information/ knowledge will in this way become a less overwhelming task seeing scarce resources. Thus a focusing of the population will for many reasons be a very crucial instrument when it comes to trying to raise the level of living and the agricultural performance, etc. of a formerly small but impossibly scattered, basically rural, population.

6 Main survey 1965-1968
60 = "Other Farmers" 1965
7 = "Participants to be" 1965
60 = "Other Farmers" 1968
7 = Participants 1968

When looking at changes between 1965 and 1968 in connection with the two samples 7 Participants and 60 "Other Farmers" I carried out a test of significant differences by means of χ^2 between the groups "Participants to be" 1965/Participants 1968 and "Other Farmers" 1965/"Other Farmers" 1968. One can of course argue that such an exercise is not very relevant seeing the small size of the experimental group. On the other hand it is a way of sorting up the material and compressing what was a rather bulky and unsurveyable primary data material. Included in the test (see Table No. 7 - excluded here) were only variables, where any significant difference was found, and although p. values up till ≤ 0.25 were accepted, the no. of variables that qualified is very small. P. values in connection with the experimental group are very scarce since the very high degree of change between 1965 and 1968 needed, seeing the small amount of individuals in the sample, hardly did occur.

Changes over time which might directly be ascribed to the course factor are the difference in connection with the experimental group answers between 1965-1968 to exceed that of the control group - with the two samples being bigger) could be checked through the following "course variables" from the Variable list No. 1 (c:a 35):

I -68)

No.

Summarized acres of land here

Food crops here

Cash crops here

Tree crops here

a. If crop rotation - why do you change crops

What animals do you own - amount

What poultry do you keep - amount

Which of the following farm implements do you own

Have you ever used manure on your fields

a. If yes - what kind

d. If no - why don't you use manure on your fields

- 71 If yes - how do you save your money
- 79 If you or some member of your family is sick, what do you do you go for help
- 80 a. Tell me what you think causes malaria
- 81 Do you use mosquito nets
- 81 b. Do you take anything regularly to prevent malaria
- 81 c. If yes - what
- 83 Can people get sickness from water
- 83 a. If yes - which one/(s)
- 84 a. Do you boil your drinking water
- 85 How many of your children were born at home
- 85 a. and how many in a maternity clinic or hospital
- 90 When women are pregnant, do they avoid certain foods
- 91 What do you feed your small babies with when suckling or
- 91 b. Do you boil their drinking water
- 94 Check whether the following items are in the household and the number of each and conditions

House description:

Where is drinking water kept/covered? - Where is food stored/covered?

Where are chickens kept; any grain store; have latrine; have dra

The most important cash-crops in the Coast Region are cashew-nut, cotton, and sisal. Other important crops are cassava, banana, sorghum, millet, fruits, citrus, simsim, and pulses. For crop production, volume, and value in connection with the three survey districts (Table No. 8 - excluded here).

Regarding variable no. 39 Do you keep animals in the x^2 test - experimental group tends to show a decrease and the control group tends to increase.

With the exception of the areas in the vicinity of Dar es Salaam, coastal farmers do not keep cattle. In 1965 in Bagamoyo district there were around 330 heads of cattle owned mainly by the Wakwavi, a Masai-akin tribe. In Kisarawe district there were 8,000 heads of cattle owned by Wakwavi and a few Wakwere. At the time Government was establishing up coco-nut and cattle schemes, and five such projects either established or were in the process of being started in the Coast Region. There have been recent plans at the Kibaha Education Centre Dairi now holding c:a 400 cows, regarding the distribution of cattle to and Ujamaa villages in the Coast Region. In connection with this farmers would attend courses at the FTC on the handling of cattle aspects. One of the difficulties of keeping cattle in a tropical country, however, is the risk of infections and various diseases caused by insects, and then i.a., particularly in the Coast Region, the tsetse

Regarding variable no. 24 Amount of acres/changes in acreage 1965-1968

CHANGES IN ACREAGE 1965 - 1968

in survey	Participants		"Other Farmers"	
	7 %	No.	60 %	No.
increase	0.0	0	25.0	15
it changed	42.9	3	48.3	29
decrease	57.1	4	26.7	16
	100.0	7 respondents	100.0	60 respondents

How much land do you have?

In 1965 this question was worded:
31 (Base -65) Can you estimate how much land you have altogether?
(in acres)

Main survey 1968 it was worded:
24 (F I -68) Summarized acres of land here:

38 (F I -68) What is the total acreage of his land at other places:

	Average value in 1965 was:		Total
Participants to be			4.14
"Other Farmers"			4.31
	Here	Other places	
Participants	4.86	1.86	6.72
"Other Farmers"	4.40	2.61	7.01

While calculating the change in acreage 1965-1968 "Other places" of 1968 are not included. Seeing the resemblance between "Total 1965" and "Here 1968" it seems probable that the respondent in 1965 gave the acreage of the shamba where his homestead is, and where the interview was carried out. Rather than not checking possible changes at all, this assumption is regarded as acceptable. Unfortunately some crucial variables have been restructured like this between the two time periods.

It is to some extent inevitable in a "before-after study" in unknown areas where one gradually finds out how to structure the information gathering so as to get a full picture of the local setting concerned - its framework all round and its particulars. This is part of the exacting process of constructing a valid questionnaire which, in this case, will manage to measure the socio-economic changes possibly brought about by a certain development input.

CHANGE IN INCOME

Main survey 60 + 7

Calculation based on changes in classification variables INC 68 and INC 65 (See below)

(F I -68)

Q. 65 How much cash did your family earn during the past year

	Participants		"Other Farmers"	
	%	No.	%	No.
Decrease	14.3	1	18.3	11
Not changed	42.9	3	46.7	29
Increase	42.9	3	35.0	20
	100.0	7 respondents	100.0	60 respondents

Variable	values	Values in primary material
		Shs
INC 68	0	0
& 65	1	1-100
(= Income	2	101-300
past year)	3	301-800
	4	801-

NB. When values are missing in 1968 material the corresponding ones from 1965 have been used

7 Main survey plus Depth survey/Participants 1968

60 = "Other Farmers" 1968

14 = 7 Participants Main survey 1968

7 Participants Depth survey 1968

brought up earlier in this chapter I did add the Depth survey Participants to the Main survey ones in order to enlarge the Participant sample. I also said that it was not a very satisfactory analysis instrument being that the Depth survey Participants are better off than the other survey respondents. On the other hand one cannot be sure as to whether this enhanced course effect is necessarily due to the being better off factor.

Some variables have been added to the questionnaire used in this connection, since there were several variables in the (F I -68) questionnaire, which, while not appearing in the (Base-65) questionnaire, were also included in the Depth survey questionnaire (Depth-68). (See Variable list 2 - excluded here)

Additional ones mainly concern course factors like:

I -68)

No.

If hens - local or/and other

If other - from where/whom did you get that idea

b. Why does one use manure

c. From where/whom did you get this information

Which methods are good in order to obtain good crops: soil conservation; spraying; manure; fertilizer; mulching; spacing

Do you use any of these practices

a. From where/whom did you get this advice

Which of the following people visited this farm during last year; which did you or any member of this household visit for information during last year; and which of these people who visited you or whom you visited have been of greatest help to you

Which are the things which cost you expenditures during the year. Amount - costs can be managed; are quite difficult; are impossible

d. If using mosquito nets - from where/whom advice

b. If boils drinking water for adults/children - from where/whom advice

Do you eat any of these foods every day (pawpaw, beans, mchicha, milk)

a. If eating - from where or whom advice

How many more children would you like to have

How many debes of water do you use in your household per day

Use description:

A check up on the equivalency between the two Participant samples provided the following picture:

	Depth survey Participants	Main survey Participants
Age (average)	51	43
Income 1- 400	2	2
401-1000	4	3
1001- DK	1	-
Reads	42.9	71.4
Writes	28.6	57.2
Have used manure	42.9	28.6
Has latrine	100.0	14.3
Where lived before here/Other rural	4	4
Dar es Salaam	2	3
Other urban	-	-

Thus, the Depth survey Participants are older than the other Participants have a higher income, are somewhat lower in literacy, but above regarding manure and latrine.

A test of significant differences by means of χ^2 was carried out also in connection with the 60 + 14 material. (See Table No. 11 - excluded here)

Regarding variable no. 41 in the χ^2 test 3 Participants and 0 "Other Farmers" keep local + other poultry. This is being encouraged at the course in order to improve the local breed. Regarding

Variable No.

42 one of the Participants (P.) states Kibaha as the source of advice in connection with this practice

55 b. more "Other Farmers" ("Other") sell cashew

47 35.7% P. have used manure as compared with 13.3% "Other"

47 d. 1/3 "Other" puts the blame on not enough money for not using manure as compared with 1/5 P.

78 Which are the things which cost you expenditures during the year? Amount in Shs (see Diagram No. 3 - excluded here).

P. pay more in connection with school fees but this is due to the Depth survey Participants 100%. Regarding taxes (average cost of 40/-) 64% P. find they can manage this expenditure, whereas 35% of the "Other" have the same attitude. This difference in attitude could be due either to influence from the course - P. might be more informed about what taxes are being used for and thus look at this expenditure with different eyes. Or it could be due to the Depth P. having a higher income. (See Chart No. 5 for a summary information regarding Tanzania's tax system as of 1968 excluded here.)

Regarding variable no. 92 Whether respondents, and babies eat pawpaw, beans-mchicha (wild spinach)-milk every day (for protein and vitamins) and sugar-mafuta/kimbo (fats)-sembe (maize flour)-mhogo (cassava) every day (starchy food) see Diagram No. 4 p.55.

92 (FI-68)

Do you eat any of these foods every day?

(Check list)/do your babies eat :

Pawpaw; beans; mchicha; milk

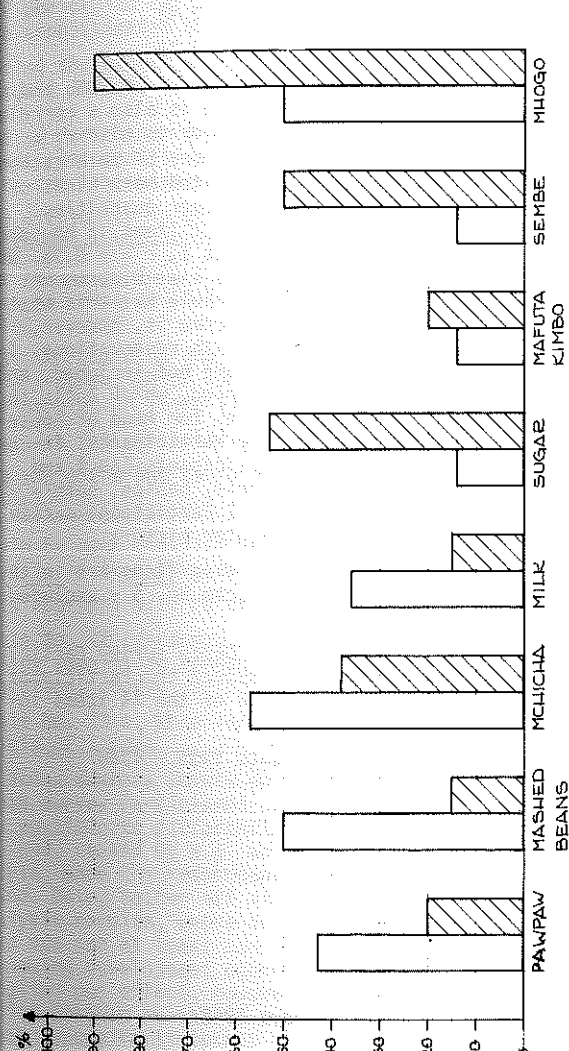
sugar; mafuta, kimbo; sembe; mhogo.

DIAGRAM NO.4

1968

14 Participants

60 "Other Farmers"



PERCENTAGE OF THE GROUPS PARTICIPANTS - "OTHER FARMERS" WHO ANSWERED YES

□ PARTICIPANTS

▨ "OTHER FARMERS"

ALL DIFFERENCES BETWEEN PARTICIPANTS - "OTHER FARMERS" EXCEPT FOR MCHICHA AND MAFUTA ARE SIGNIFICANT (P < 0.05)

For each individual an index value per food category group was calculated with each kind of food given one point if included in daily intake. Index values thus range from 0 - 4.

As can be seen in the diagram there are distinct differences between Participants and "Other Farmers" in connection with Eat I and Eat II respectively. Index values for the food categories are:

	Index Eat I	Index Eat II
Participants	1.86	0.93
"Other Farmers"	0.88	2.13

with a correlation Participants/Eat I at $r = + 0.32$, $p = 0.005$, and Participants/Eat II at $r = - 0.41$, $p = 0.001$. There is also a correlation between the variable Sex and the two food categories with $r_I = + 0.21$, and $r_{II} = + 0.31$ indicating that women eat more of both categories than men. However, the fact that women have stated more kinds of food than men doesn't have to mean that they eat larger quantities. There is also a positive correlation between variable Items in household (amount) and Eat I, $r = + 0.36$ and Manure (uses)/Eat I, $r = + 0.36$. Setting out on this FTC impact registering, results like Diagram No. 1 in connection with the weighty course training variable Eat I is what one was expecting or at least hoping for. This outcome is, however, scarce and even this diagram should be looked at with reservations. In connection with Eat II Depth survey Participants are not included, thus the Participant marks should probably be doubled, which dulls the picture. Regarding Eat I, however, only the figures for head of household are included in connection with Depth survey Participants. In connection with "Other Farmers" and Main survey Participants/Eat I and Eat II the aggregate figures for: head of household, babies, both - have been used. This probably means that the Eat I Participant marks should be increased, thus providing an even brighter picture.

Regarding variable no. 94 Check whether the following items are in household and record the number of each (see Diagram No. 5 - excluded here).

In connection with this "ownership" variable the Depth survey Participants don't show up the way one could expect. Instead the Participant sample has lower figures in connection with >1/3 of the 14 items involved.

VI: 8 Main survey plus Depth survey/Participants 1965 - 1968

- 60 = "Other Farmers" 1965
- 7 = "Participants to be" 1965
- 67 = All farmers 1965

- 60 = "Other Farmers" 1968
- 7 = Participants 1968
- 67 = All farmers Main survey 1968

- 7 = Participants Depth survey 1968

- 60 = "Other Farmers" 1968
- 14 = Participants Main and Depth surveys 1968
- 74 = 60 "Other Farmers" plus

time factor or the FTC development input factor. The survey up till now is to quite an extent of an experimental character, and the data, stemming from unexperienced samples when it comes to interview-exposure, could probably be regarded as rather soft. With the development input being explicitly structured for the evaluation of its impact, and with the survey machinery being geared towards measuring socio-economic benefits of development inputs partly via what is so far generally regarded as immeasurable variables way beyond those of cost-benefit and per capita calculation procedures, it is probably wise not to apply sophisticated analysis methods/categorical conclusions.

Being the rather meagre evaluative results of this impact study at this stage I decided to look at the material also from another angle seeing:

so far rather pronounced lack of information all aspects about the grass root conditions of a rural population in socio-economic settings like the Tanzanian one.

The difficulty in getting at such data, and the substantial resources of different kinds, needed for such information gathering, having been put in,

the, apparent, sturdiness of this particular rural survey sample when it comes to living up to construction criteria as according to the

then chose to analyse the 1968 data ($N = 60 + 14$) via a classification program, which would provide additional insight into what this valley population looks like:

What are the characteristics of the inhabitants,

How are different socio-economic factors related to each other,

What socio-economic components are these grass root societies made up, and by such classifying means the Participants possibly be singled out in all, if so - how, etc.

This approach will be dealt with in Chapter VII.

Table No. 12 (excluded here) gives an overall summary view of all the valley samples in connection with some socio-economic variables plus migration, course variables, economic affairs, attitudes, and hygiene.

Table No. 13 p. 58 on variable no. 65 demonstrates the sample groups' levels of income.

The index summary points out the being better off characteristics of the depth survey Participant sample. It is not in connection with this survey possible to differentiate the impact, caused by a higher income from one, caused by e.g. an agricultural/multi-purpose rural training course, upon the respondents' performance - farming techniques, and all kind. Being better off did not, however, show up in all the parts of the analysis results, where one would expect a strong positive correlation. Thus one can at least conclude that being better off is not an overshadowing development agent impact wise. Generally speaking it has a lingering out effect, however, which is e.g. shown through the classification program on the 60 + 14 material 1968 discussed below, where the depth survey Participants stayed away from the main cluster ($N = 50$).

E	MAIN SURVEY 1965			MAIN SURVEY 1968			DEPTH SURVEY 1968		MAIN-DEPTH SURVEY 1968		
	"PARTIC. TO BE" (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTI- CIPANTS (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTICIPANTS (7) %	PARTI- CIPANTS (7+7=14) %	"OTHER FARMERS" (60) %	TOTAL %	
you able to save money	14.3	16.7	16.4	57.1	36.7	38.8	14.3	35.7	36.7	36.5	
you ever buy things on credit	14.3	6.7	7.5	14.3	20.0	19.4	42.9	28.6	20.0	21.6	
you ever borrow money	14.3	15.0	14.9	57.1	45.0	46.3	57.1	57.1	45.0	47.3	
you owe any money at present	14.3	5.0	6.0	14.3	20.0	19.4	14.3	14.3	20.0	18.9	
yes - how much do you owe											
Shs											
10-20	0.0	1.7	1.4	0.0	3.3	2.8	14.3	7.1	3.3	4.1	
21-30	14.3	0.0	1.4	0.0	5.0	4.2	0.0	0.0	5.0	4.1	
31-	0.0	3.3	2.8	0.0	1.7	1.4	0.0	0.0	1.7	1.4	
	0.0	0.0	0.0	4.3	10.0	9.0	0.0	7.1	10.0	9.5	
don't owe any	85.7	95.0	94.0	85.7	80.0	80.6	85.7	85.7	80.0	81.1	

	RAIN SURVEY 1966			DEPT. SURVEY 1966			FAIR-DEPT. SURVEY 1966		
	"PARTIC. TO BE" (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTI- CIPANTS (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTI- CIPANTS (7+7=14) %	"OTHER FARMERS" (60) %	TOTAL %
Do you take anything regularly to prevent dysentery?	0.0	10.0	9.0	0.0	8.3	7.5	28.4	8.3	9.5
Do you do anything to your water be- fore you drink it?	14.3	6.7	7.5	14.3	10.0	10.4	0.0	10.0	9.5

TABLE NO. 16

[illegible]

to nearest per-
water supply
≤ 100 yards

<100 yards

101-400

407-800

807-1200

1201-1760

1-2 miles

2-3

၁၇

5. A

any debts of water
use in your house-
day

-2 debes

3-4

5-7

10

175

$$\frac{1}{\Delta x} = \frac{1}{\Delta x_1} + \frac{1}{\Delta x_2}$$

DOH C K110W
No action

ind of water

...and of water
is it

7S 7L 7C

Well I

River

Pool

[illegible]

"OTHER FARMERS" (GO)

0.87: How far to nearest permanent water supply

Q 88. How many debes of water do you use in your household per day

* The figure for most of these respondents is < 900 yards

DISTANCE	DEBES			\bar{X}
	2	6	7	
< 100 y				
101 - 400	1		1	4.5
401 - 800	1	1		4.0
801 - 1200	2			2.0
1201 - 1760				
1 - 2 miles	1			2.0

(Base - 65)

Q 69. Which member of your family normally brings the water for the household

MAIN SURVEY 1965

	"PARTICIPANTS TO BE" (7)	"OTHER FARMERS" (60)
Head of household - female		6
Head of household - male	2	6
Wife/wives	5	45
Children		1
Wife/wives and children		1
Wife/wives and mother-in-law		1
	7	60

Depth -68)

DEPTH SURVEY 1968

	PARTIC.	"OTHER FARMERS" /NEIGHBORS	"OTHER FARMERS"	TOTAL
134.	Bunju	Bunju	Kibesa	
How many times have the rains failed since you came to this area?				
Once	1	2	3	6
Twice	-	-	1	1
Three times	2	1	-	3
Several	-	1	-	1
Barely	-	-	1	1
Not stated	2	1	-	3
None	-	-	5	5
Don't know	2	2	2	6
	7	7	12	26

Q 135.

When the rains fail - how do you feed your family?	Bunju	Bunju	Kibesa	TOTAL
Local cassava	3	1	2	6
Fishing	2	2	-	4
Selling coconuts	-	1	-	1
Selling other things: poles, charcoal; business/duka	1	1	1	3
Buys food. Imported maize flour	2	2	2	6
Temporary employment	-	2	5	7
Help from relatives	-	-	1	1
No answer	2	-	4	6

(Base -65)

TABLE NO. 20

Q 76 Why do the rains sometimes fail?

MAIN SURVEY 1965

	Bagamoyo	Mzizima	Kisarawe	Total
God's order/God's will/This is God's concern	7	8	20	35
God causes the rains to fail because he is angry with us for forgetting his existence and living in sin	3	4	3	10
Because the rainy season is not yet due/because of long sunny period/seasonal changes ..	2	-	3	5
Because people commit sins ..	-	1	1	2
Because people have stopped believing in old ghosts and spirits	-	-	2	2
Because of the rotation of the earth	1	1	-	2
Other	1	-	-	1
Don't know/Not stated .. .	5	8	10	23
Total	19	22	39	80
Base	19	22	39	80

TABLE NO. 21

Q 77 Can man do anything to help make it rain? If so, what?

MAIN SURVEY 1965

	Bagamoyo	Mzizima	Kisarawe	Total
Yes	5	5	15	25
No	14	17	24	55
Total	19	22	39	80
Base	19	22	39	80
<u>If so, what/if no, who can?</u>				
He can pray to God	6	3	12	21
Only God can make it rain ..	2	5	5	12
He can take a cow or goat to his spirit/ask his spirit to make it rain	1	2	3	6
He can go to churches or Mosques to pray/can sing religious hymns and beat drums to God	-	1	3	4
The Sheikhs can pray to God for three or four days continuously	2	-	1	3
Other	1	1	-	2
Don't know/Not stated .. .	2	2	1	5
Nobody can make it rain ..	5	8	14	27
Total	19	22	39	80
Base	19	22	39	80

The information provided in connection with these "water tables" comes from different samples and points of time due to in what questionnaires the variables concerned are included. Although this prevents all covering comparisons, these tables still give a rather good insight regarding the very crucial water variable.

Even though time goes by, very little developmental impact will result from general development agents - with or without specific inputs being introduced concentrating upon certain problem areas, unless satisfactory domestic, irrigation, etc. water supplies are secured.

VI: 9 Interview with jumbes (local leaders)/1968

As another means of getting to know this rural area I put a set of questions to some jumbes in the three districts. Like - what were the needs of their area, possible solutions, some questions on Ujamaa, and I also included questions on the definition of a) village borders, and b) how to define the word village.

The latter questions were there seeing the difficulties encountered in 1965 when the survey area was defined, and the sample was constructed via a rather difficult, complicated, and at times highly confusing process.

(The jumbe interview schedule and answers are excluded here).

VI:10 Interview with enumerators/1965

During and after the fieldwork I put a set of questions to the enumerators to gain an impression of their opinions about the atmosphere in which the survey was received and more generally to obtain background information on certain material and on different aspects of the questionnaire. (Enumerator schedule included in Appendix No. II, Section Z together with the official letters of introduction of the Main survey - February 1965 and December 1967).

I asked about the types of rumours that circulated in the coastal districts about the survey - particularly among those interviewed and among the "jumbes" (local leaders). There were positive and negative rumours. The negative ones were that the Government was doing this survey in order to find out how many shambas existed along the Mpiji River in order to take them over. Reluctance to answering questions about shambas were therefore prevalent until this rumour had been scotched and the position fully explained to the people. The second serious rumour was found among people living far from the main road and therefore not used to seeing strangers and particularly Europeans: on the medical questions some were under the impression they would be killed or taken to hospital in order to have their blood drawn. Another rumour was that some people thought the team wanted to buy their shambas, and that we had come to find out about their possessions. A negative rumour among some of the jumbes was that no immediate results could be seen from the survey, and they felt they had wasted their time and the respondents' time.

There were, however, more positive rumours than negative ones. Naturally the inhabitants' expectations were raised as they thought in the future they would be provided with water, fertilizers, health facilities etc. Generally speaking the jumbes felt they could expect results to arise from the survey. The majority felt certain of this and often encouraged

extremely happy that someone was taking an interest in them. The length of the questionnaire is indicative of this as the respondent spent around two hours patiently answering what must have been extremely personal questions. A few people understood the purpose of the survey and that it was being conducted for the Centre at Kibaha. Obviously the jumbes knew that the survey was conducted for Kibaha. This indicates that the channel of communication down to jumbe level is good. Moreover many jumbes saw the connection between the Kibaha Centre and the Government five-year development plan.

Other impressions from the enumerators were that respondents may exaggerate the distance to the nearest dispensary, school or well hoping that a new one might be established nearer to their home, or that lamps, chairs, etc., are said to be unavailable or broken in order that someone might buy them new ones.

The general impression of the enumerators, however, was that the respondents told the truth as best as they were able without hiding anything and that there were no deliberately misleading answers or reluctance to give information. Sometimes respondents asked the enumerators questions. In one case questions were asked about methods of birth control.

Basically I believe the answers give a true picture of the living conditions in the Mpiji Valley. (The enumerators were well experienced in connection with rural survey work and had completed Form VI or came from the university (1965). In connection with the Follow-up (1968) all were university students, whereof some from the Coast Region).

The local leaders (jumbes) at different levels were very cooperative throughout this survey - Main and Depth, 1964-65 and 1967-68.

This goes for all the different steps involved in order to bring about the survey. They took part in the exacting census work during the latter part of 1964 and onwards, and in so doing became more and more involved seeing the problems encountered when trying to sort out: village- and district-boundaries criteria for who was to be characterized as an inhabitant of the survey area and who was not misunderstandings, and the rest.

They also followed us from village to village under thundering sun and pouring rain to: inform the village leaders about the survey, and at times convince them to accept the survey idea and the survey team help find the respondents clear up question marks of different kinds, etc., and they often made long extra walks to villages X or Y in order to make sure that the respondents concerned would be waiting for us in connection with the following day's interview work.

They guided us along dwindling, sometimes invisible foot-paths for, at times, endless miles they knew the short cuts they produced huge umbrellas out of nowhere when we had to leave the sheltering forest and cross the plains they helped carry the continuously hopefully over-loaded bag with questionnaires they gave us bananas to eat and fixed coconut milk to drink when we were dying from thirst.

What is being said here also goes for the village leaders, and for the villagers themselves.

Everyone involved was being very friendly and helpful, and even the 1967-68 Follow up survey was carried out in a warm atmosphere of welcome back.

The only negative reception I can remember came from lions, who would be roaring a bit up the river. This was frightening as such, and also frustrating since it prevented the leaders from instructing anyone in that village to walk off to the next village with a message saying that the survey team would be coming the following day and hoped to find the respondents concerned in that village waiting for the interviewers according to earlier agreement.

Knowing that there would be very little we could do - at least in the short run - for these people made us feel rather bad at times. For example one did feel all along the valley a lingering hope that the survey might result in more water through making the Mpiji river into more of a flowing stream from what was (is) a rather dried out 63 mile long ditch. Although increasingly learning/having to find solutions to problems of rather tangible dimensions, this particular problem remained an overwhelming one.

Representing these helpful leaders here is Mr. Suna, Assistant Division Executive Officer/Bunju, to whose office along the Dar-es-Salaam-Bagamoyo road we paid innumerable visits to check up on sample lists, etc. It is situated at c:a 24 miles from Dar right at the take off to Kibesa village, Mzizima district.

The second photo shows Mr. Suna together with some of the enumerators taking a rest in Kibesa village during the Depth survey 1968.



CHAPTER VII

Classification program on the 60 + 14 material 1968

VII:1 Introduction

What one has so far been able to conclude is that participating in an agricultural training course does not necessarily change the all round performance of such participants in a clearly noticeable way when comparing with the performance of non-participating but otherwise equivalent individuals.

In an effort to further map the characteristics of the Mpiji Valley sample I decided to analyse the data by means of a classification program worked out at the Survey Research Institute of the National Central Bureau of Statistics (Stockholm).

VII:2 Clusters - individuals

This classification program produces a cluster analysis which helps when it comes to compressing the data material. The program groups together individuals who are similar in connection with the variables involved, and one obtains a profiled view of what the sample members "look like", a focused distribution of their characteristics.

The method can be described as an effort to find natural groups of individuals.

The program works according to the "fixed neighborhood classification rule" which minimizes a "goodness of fit" criterion. (For a more detailed description of the method see Fukunaga, Keinosuke: Introduction to Statistical Pattern Recognition. Academic Press, 1972).

The following is a summary description of how the program works.

To express the distance between objects i and j a function $d_{ij} = 1000(1 - s_{ij})$ is used, where s_{ij} (similarity coefficient) is the simple matching coefficient defined as the portion of characteristics, out of all observed characteristics, bearing resemblance between the objects.

Polychotome variables are dealt with through registering similarity/dissimilarity and weighting at a-1 in connection with similarity with "a" being the amount of possible alternatives of a specific variable.

The clustering algorithm only observes distances $\leq R$, radius in a hypersphere around each object. Objects separated from a certain object by a distance $\leq R$ are called this object's neighbors. If there are no neighbors the object cannot be dealt with and is left outside the process.

One does oneself decide the value of R , which then influences the clustering. Small R values will produce many clusters and vice versa.

The algorithm works from the prerequisite of a preliminary classification. To obtain this one successively makes the objects, which have most neighbors, form clusters together with these neighbors. This continues until all objects have reached a preliminary classification.

The clustering procedure will then be carried out through iterated re-classifications. For each iteration the objects are classified to the cluster, to which presently most of the neighbors belong. This continues

The program was used on a sample group consisting of the seven Participants and 60 "Other Farmers" from the Main survey 1968 plus the seven Participants from the Depth survey 1968 (7 + 60 + 7, N = 74). Since this analysis was carried out in an effort to compress the material, 39 variables out of a possible 118 variables, which appear in the (FI - 68) questionnaire as well as in the (Depth - 68) one, were selected for the program. Thus, the variables chosen are a summary, no. I, of the variables used for the comparison between 60 "Other Farmers" and 14 Participants Main and Depth surveys 1968 (see Variable list No. 2 Ch. VI - excluded) covering:

socio-economic aspects
migration
farming all aspects including techniques
income
possessions
economic affairs
expenditures and attitudes towards the same, and
nutritional and sanitary aspects.

As step no. one I then obtained a list of correlation coefficients as a means to help in the process of further decreasing the number of variables included for the classification program proper. The program - from purely practical reasons - handles not more than 20 variables.

Figures were produced giving the average (N = 74) in connection with each variable's being strongly or weakly related to each of the rest of the variables. Rather than going by the r-values I decided to make the final selection of variables by means of "intuition". Again the twenty variables thus chosen make up a summary, no. II, of the original questionnaires. These variables fall under the same headings as those in summary no. I. Attention was paid to the fact that I wanted to continue concentrating upon variables dealing with the farmers' training course contents (course variables) as well as variables covering modernization, and then upon such variables which could well be used for a possible future analysis checking on changes between course participants and others as well as between Point of time 2 and Point of time 1, and a possible future Time 3/2/1, etc. This would help regarding the construction of different types of indices, scaling, etc. in connection with a possible Follow up survey no. II.

The next step in the data processing provided the distribution of distance. This would help to decide the "border value", i.e. the value of the R, radius in a hypersphere around each individual, the value of which then influences the clustering. The value range goes from 0 - 1000, and I decided that the 200 value (where 10 objects stayed unclassified) should be tried. In so doing I did in the classification process obtain 16 clusters or groups with 10 individuals or objects not being classified at all. There was one major group made up of 38 objects i.e. just above 50% of the total 74. Out of these 38 five were Main survey Participants. Nine of the remaining groups held one object only, two held two, three held three, and one held four.
(What one tries to obtain is a distribution, which does not include too many clusters (reasons of interpretation), nor is one interested in too many un-classified objects).

This clustering was considered as being too diversified seeing that I was looking for a concentrated view over the distribution of the characteristics of the objects. Thus, the R value was raised to 215, and then

VII:2:1 Clusters of individuals - the construction of frequency tables covering 20 variables

The 74 objects now instead fell into 11 different groups except for four objects who were not classified at all (two Depth survey Participants and two Main survey "Other Farmers"). The majority fell into one group -

- Group I covering 50 objects out of the total 74. This group held six of the Main Survey's Participants and one Depth survey Participant
- Group II had one object - a Main survey Participant
- Group III two, where of one a Depth survey Participant
- Group IV three objects
- Group V three objects, with one being a Main survey Participant
- Group VI two objects
- Group VII four objects
- Group VIII one object
- Group IX two objects
- Group X one object
- Group XI one object - a Depth survey Participant

If one does not count the seven Depth survey Participants, who were better off than the remaining 67 farmers, the objects thus divided themselves into eight different groups.

50 objects or 68% of the total 74 all fell in the same group, Group I. This outcome does reflect what is a rather equivalent river valley population in connection with certain background variables. Group I is characterized as follows in the frequency tables showing the distribution of observations per group (see Table No. 22 p.74).

AGE		NR OF WIVES		NR OF CHILDREN		NR OF OTHER PERSONS IN HOUSEHOLD		READS		HOW LONG HAVE YOU LIVED HERE		AMOUNT OF FOOD CROPS		AMOUNT OF CASH CROPS		ANIMALS	
%		%		%		%		%		%		%		%		%	
8	4	6	3	0	6	1	28	0	35	9	1-4	2	1	2	0	16	8
20	29	72	36	1	8	2	12	1	15	30	5-10	4	2	4	1	84	42
10	30-39	10	5	2	11	3	8	2	11	11	11-	24	12	8	2		
14	40-49	20	10	4	9	4	2	3	11	(years)	16	8	4	18	3		
26	50-59	2	1	4	18	9	4	2	16	8	20	10	5	18	9		
13	60-69				18	9	5		14	7	20	10	6	28	14		
22	70-79				4	2	6		10	5	10	5	7	6	3		
8	80-89				6	3	7		4	2	4	2	8	2	1		
2	90-99				2	1	8				16	2	1	10	7		
	GROUP I				2	1	11		No								
	Type object				2	1	4		No								
	38			2				0							6		No

100 50 "M" = 51, 6
using ages
25, 35, etc.

TABLE NO. 22

[illegible]

For the key to the variables used in the classification program:
values in classification program
values in primary data
scaling
calculation of variable values
score values, and
abbreviations used in this chapter
see Variable list No. 3 (excluded here), and

variable list No. 4 which is partly included here, i.e. in connection with variables no.s 38 - 39 = Question No. 94 (F I -68): Check whether the following items are in the household, record amount (IT IN H or IT HOUSE), and Question No. 95: - and conditions: very serviceable; serviceable; not very serviceable, unserviceable (IT V SERV). (For values in primary data see Variable list No. 3 - excluded here).

Key to variables used in the classification program 60 + 14 material 1968
/-values; scaling

Variables	Scaling	Variable values used in Classification Program	Observations (N = 74)
IT IN H	Low	0 - 1	39
	Medium	2	22
	High	3	13
IT V SERV	Low	0	29
	Medium	1 - 3	33
	High	4	12

The calculation of variable values in connection with IT IN H and IT Y SERV is shown here since this procedure represents an effort to establish an aggregate measure of "level of living" of a household. This exercise belongs to the work being carried out at present on how to include social indicators in connection with the GNP/capita concept, which measures level of development: i.a. socio-economic growth at grass root level.

Calculation of variable values re: "Items in household"/amount and conditions (Q 94)

Item	amount	observations	score
Bicycle	0	61	2
	1	6	4
Transistor	0	63	2
	1	4	4
Primus stove	0	60	2
	1	7	4
Charcoal stove	0	62	2
	1	4	4
	2	1	4
Kerosene lamps	0	15	1
	1	23	2
	2 - 3	20	3
	4 - 6	5	4
	7 - 10	4	4

(cont.)

Item	amount	observations	score
Tables	0	37	1
	1	21	3
	2 - 3	6	4
	4 - 6	3	4
Chairs	0	28	1
	1	18	2
	2 - 3	17	3
	4	4	4
Cupboard	0	59	2
	1	7	4
	4 - 6	1	4
Clock	0	63	2
	1	4	4
Handmill	0	57	2
	1	8	3
	2 - 3	2	4
Knives, forks, spoons	0	13	1
	1	6	2
	2 - 3	28	2
	4 - 6	17	3
	7 - 10	3	4
Plates, cups	0	14	1
	1	2	2
	2 - 3	12	2
	4 - 6	17	3
	7 - 10	12	3
	11 - 15	6	4
	16 - 20	3	4
	21 - 30	1	4
Wrist watch	0	58	2
	1	9	4

The thirteen different items have been summed up into a total score value, which has been transformed into a 4 step scale according to the following:

Item in household	Total score value	Variable value
	21 - 24	0
	25 - 28	1
	29 - 32	2
	33 - 48	3
Minimum score = 21 0 items		
Maximum score = 52		

Items/conditions (Q 95)

The score values for those items above, which have been classified as

(cont.)

Total score value	Variable value
0	0
1 - 4	1
5 - 10	2
11 - 14	3
15 - 24	4

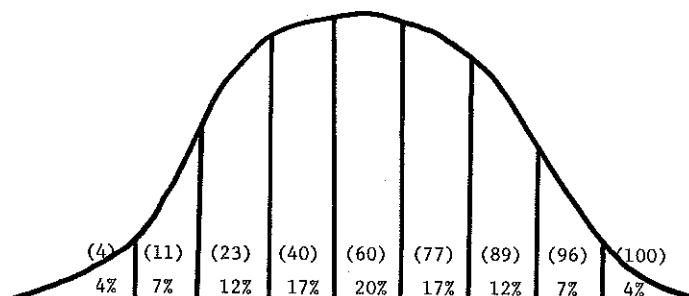
Re: the calculation of score values see the following pages

Calculation of score values (Q 94)

When it comes to establishing an aggregate measure of "the level of living" of a household, one is confronted with certain problems. In this particular case one has access to information of different kinds like whether there is a bicycle or not in the household, whether there are any lamps, any stoves of different kinds, clocks, knives, plates, etc., and if so, how many of each. How can one establish a measure that takes into consideration such diversified information? How to, e.g., compare/evaluate the information saying that in one household there is one bicycle but only one plate, whereas in another household there is quite a number of plates but no bicycle? These examples can be multiplied.

What is needed is a measure, which in an adequate way can give things their "proper" value. One needs a measure, which considers on one side how common it is that there are different items in the households concerned and on the other side their extent. A measure which considers the fact that it is probably supposed to be of greater value to own a bicycle than to own a plate.

The method I have used in an effort to solve this problem is to transfer the results from each separate variable, i.e. whether there is, e.g., a bicycle or not, into a scale, which will provide a normal distribution. I have then used the so called stanine scale (standard nine). This scale consists of nine steps and has been obtained through dividing a normal distribution into nine parts.



Through the nine percentage figures above a raw score distribution can be transferred into normal distribution scores. If one has a distribution holding a great amount of different values, the different values can be summed up into classes holding the respective percentage figures according to the stanine scale. In this case this exercise was made difficult since the variables concerned in certain cases only were dichotome - like, e.g., to have a bicycle or not to have one. I solved this by making "the most central" value within each class the guiding point. In connection with e.g. bicycle ownership 61 persons out of 67, or 91%, state that there is no bicycle in their household. Six persons, or 9%, state that they own a bicycle. I have then said that the stanine value of 4 stands for no (0) bicycle in a household. This is due to the fact that through accumulative counting of the percentage figures of the stanine-distribution, see the figures within parenthesis in the normal curve above, one will find that the "middle value" 46% out of the 91%, who do not own a bicycle, corresponds most closely with the stanine value of 4. The corresponding "middle value" out of those who own a bicycle, the 9% at "the top" of the curve, likewise obtains the value of 8 in the stanine scale.

In this way all the variables regarding items in the household have been gone through and the primary values have been transformed into stanine values. It then became possible to sum up the different scores for one person and get a total score value in connection with the aggregated variable which had now been obtained.

To avoid having to deal with too big figures in connection with the aggregated variables I made the stanine values vary between 0,5 - 4,5 instead of 1 - 9.

50 objects out of the total 74 all fell into Group I (68%). 43 "Other Farmers" out of the total 60 belong to Group I (72%). 49 respondents out of 60 "Other Farmers" plus seven Main survey Participants (67) belong to Group I (73%). 68% of the sample (50/74) belong to Group I whereas only 50% of all Participants (7/14) are included. This might be so by accident or due to the course or due to the fact that the seven Depth survey Participants have a higher income than the other Participants (one Depth survey Participant belongs to Group I with an income during the past year of 550/-Shs. Average for Group I \approx 320/-Shs. The only object in Group II (Depth survey Participant) has 3-800/-Shs. The two objects in Group III (Depth survey Participants) have 1-300/-Shs).

One Main survey Participant, six Depth survey Participants, and 17 "Other Farmers" do not belong to the Group I majority.

As can be seen the type object of Group I, i.e. the object which has the largest amount of neighbors within that cluster, has got his primary data values registered separately so as to make it easier to get as much information out of the table as possible (no. 22 p.74). (This type object, a male, comes from Mabwe village in Mzimba District).

The 50 objects in Group I resemble each other in connection with the 20 (37) variables involved.

The majority of the river valley sample concerned (N = 74) could be characterized by this frequency table. I will leave to the reader to register this rather well focused description of the majority of the sample. Noticeable is the fact that six out of seven Main survey Participants belong to this Group. This could possibly be interpreted so as to say that course participation has not had any particular effect upon living con-

At random I selected another frequency table, viz. the one showing Group III (N = 2/Depth survey Participants). (See Table No. 23 - excluded here).

VII:2:2 Clusters of individuals - the construction of type object profiles of variable values plus the profiles of four un-classified objects

Rather than dig into all eleven clusters/tables, I decided to look at all eleven type objects plus the four un-classified objects (= 15). This was done through drawing up profiles for all 15 objects (see Variable list No. 4: -values; scaling - partly included, see p.75).

Two of the variables included in the frequency table p.74 are excluded in the profiles, viz. TOOL/AMOUNT (Shs.) & ATTITUDE (towards this expenditure) and POULT L/O (local poultry or local and other). Instead I have added 12 variables, viz.:

SEX
MARITAL S
NR POULTRY
NR ROOMS
IT IN H
IT V SERV
BORROW
OWE
AMOUNT ACRE
EAT II (less good)
TAX/AMOUNT & ATTITUDE
FOOD/AMOUNT & ATTITUDE

To facilitate the reading of the profiles I categorized the variables as follows:

SOCIO-ECONOMIC
INCOME
HOUSE
SAVE/BORROW
FARMING
NUTRITION
ATTITUDES

The additional variables as compared to the frequency tables are there to give some more information about the objects in connection with course variables, and to provide some more openings for checking the change, in connection with measurable variables, over time and in relation to the course factor.

The fact that NR POULTRY is included under the heading INCOME is due to the fact that there is a strong positive correlation between the two variables income and no. of poultry ($r = + 0,55/p. = 0,10$).

values for the Group I type object. Abbreviations used in that diagram are:

How LLH	How long lived here
Nr Ch	Nr of children
Nr Other	Nr of other persons in household
Income	Income past year
F Crop	Food crops/amount
C Crop	Cash crops/amount
Attit.	Attitude (AT) towards the amount (AM) of expenditures in connection with taxes, school fees (SCH) and food
D	Costs are quite difficult
M	Costs can be managed

Regarding remaining abbreviations see p. 10.

Only one type object stands out rather clearly, viz. the Group IV one, who has particularly low values. The type object concerned happens to be a woman but so is the un-classified object ID No. 56.

In an effort to focus the comparison between the type objects of the 11 groups I selected four of them, viz. those from Groups I, III (N = 2), IV (N = 3), and VII (N = 4), and put their profiles on top of each other (see Diagram No. 8 - excluded here). What then turns out is that Group III (N = 2 - Participants Depth survey) has rather high values comparatively except for in connection with income as was pointed out on p. 78.

One aspect which should be kept in mind when looking at the variable SCHOOL/AMOUNT & ATTITUDE in all profile diagrams is that the object concerned might have either no children, which can be checked under the variable NR CH, or child/-ren but not of school age.

In connection with all profile diagrams the following should be kept in mind regarding the FOOD/AMOUNT & ATTITUDE variable. Group II and Group IV type objects said they did not know (DK) the amount of their food expenditures (FOOD AM = 0) but did express an attitude. Group VII type object and ID No. 46 here gave the amount of 1,5/-, which has been classified as a NS answer. At "costs" = 0 or no answer, no attitude was registered in primary data. With attitude registered and costs at DK or NS, the attitude has, however, been included here.

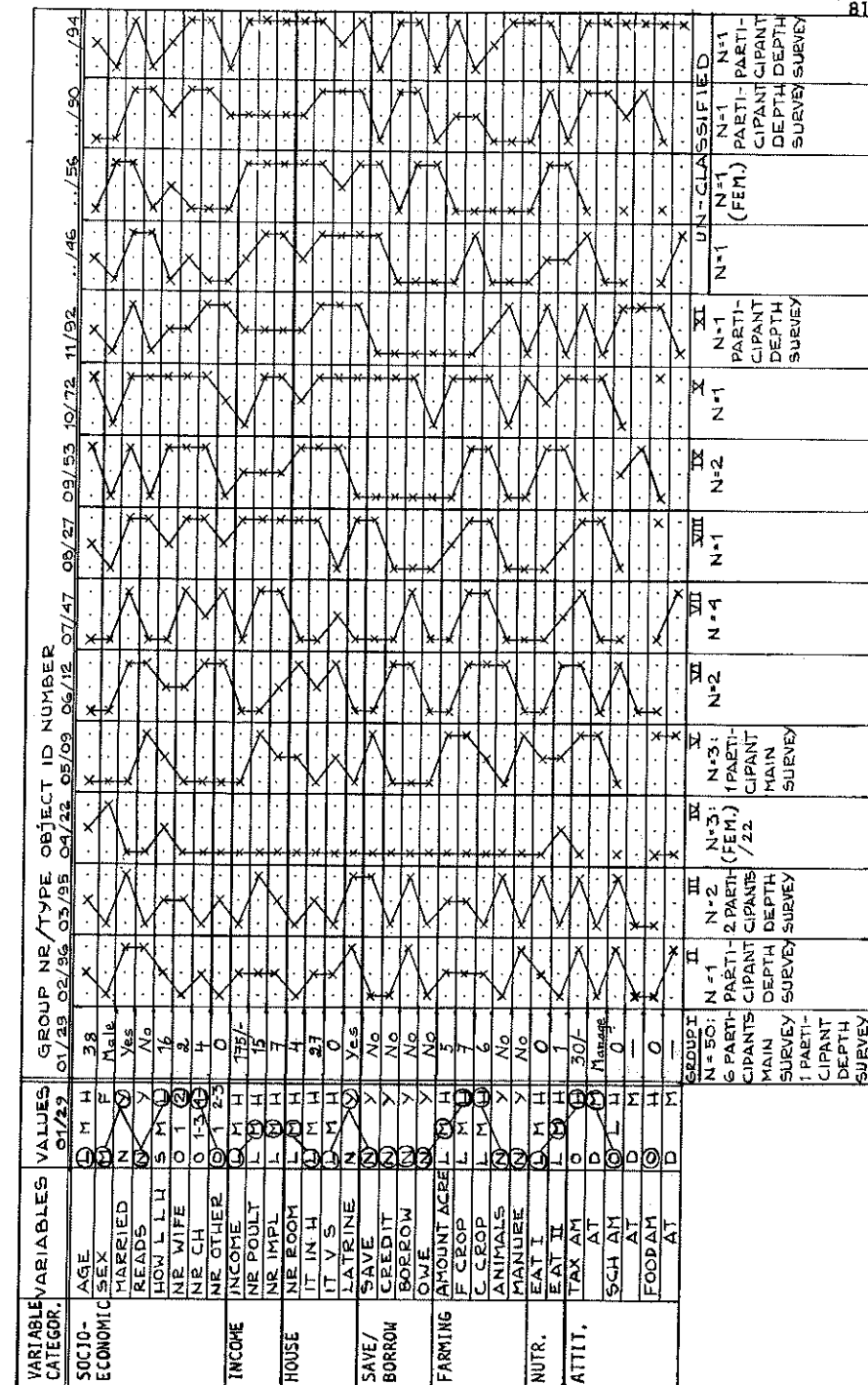
In connection with the profile diagrams (11 type objects plus four un-classified objects) the following should be kept in mind regarding the TAX/AMOUNT & ATTITUDE variable. Group VIII type object pays 120/- (he pays his brother's taxes too). ID No. 94 pays 445/-. These two objects are exceptional in this connection. Since the majority pays <30/-, the variable values were scaled: 0 or HIGH, i.e. one does in most cases pay either no taxes or approx. 30/-.

VII:2:3 Clusters of individuals - a comparison between Group I type object and the total amount of women in the sample, using 36 variables/1968 and 27 variables in a cross tabulation/1965-1968.

As stated earlier there are only seven female heads of household interviewed in the Main survey sample, in 1965 as well as in 1968, and there are no female respondents in the Depth survey sample 1968. Seeing the focused average performance of the majority of survey respondents as represented by the Group I type object ("01/29"), I decided to check the performance - certain aspects - of the female respondents as compared to the "01/29" performance. This I did partly through looking at some of the 1968 variables. I also carried out a cross-tabulation on some of the 1965-68 variables in this connection as part of a continued analysis regarding possible changes between i.a. the two points of time.

CLASSIFICATION PROGRAM 60+14 MATERIAL 1968

DIAGRAM NO. 7



Three out of the seven women belong to Group I (43%), one is the Group IV type object (N = 3), one belongs to Group VII (N = 4), one to Group IX (N = 2), and one is unclassified. None of these groups, except for no. 1, hold any participants.

The 36 variables used for the 1968 analysis cover socio-economic data, farming, income, and health and thus include course variables. Some more emphasis has been put on health and nutrition variables than in the analysis as presented in sections VII:2:1 and VII:2:2 above.

In order to check whether the female respondents were equivalent to the valley sample as such, I compared the seven women with the group of "Other Farmers" 1968 (60) according to criteria like age, income, reads, writes, uses manure.

The female average age turned out to be 54.7 as compared with 48.2 (60). Regarding income past year only four respondents had answered, with values ranging from 75 - 900/-. Regarding the group of 60, 55% had 1 - 400/-, and 26.7% more than 400/-.

Regarding the variables reads, writes, and uses manure there was no information from the seven females. Out of the group of 60 approx. 30% did read and write and approx. 13% used manure.

When to start with I looked at possible differences in 1968 between "01/29" and the females (see Table No. 24 - excluded here), there was a trend saying that the females had higher values in connection with amount of things sold/income past year; they had higher food and labour expenditure frequency; they used more water in the household per day; they had higher values in connection with health and nutrition variables regarding adults as well as children; and they had higher scores seeing the variables It house and It v serv.

When checking possible differences between Group I females, and Non-Group I females, the trend said that the Group I females have less poultry, use less water per day, and have lower values in connection with health and nutrition variables - adults/children.

In connection with the 1965-68 cross-tabulation the 27 variables used cover the future, farming, income, health and nutrition, thus covering course variables, and variables no.s 95 - 97 from the (F I -68) questionnaire, where the respondents are asked to discuss possible changes - if any, positive/negative, between 1965 and 1968 in connection with their shamba work, village life and living conditions in general.

Also in this analysis I checked the equivalency between females and males by checking up the females' values from 1965 regarding age, income, reads, writes, and have used manure as compared with the values of all respondents in 1965 (N = 67). It turned out that very few females stated their age in 1965. Again there were only four females, who had answered regarding income with values ranging from 45-300/-. Regarding the whole group of 67 the income range was between 1 - >1000/-, with 73.1% having 1 - 400/-, and 4.4% more than 400/-.

As for the other three variables there was no information from the females. Out of the total group of 67, 23.9% did read, and 2.9% had used manure.

When to start with I looked at possible differences between "01/29" and the females in 1965 (see Table No. 25 - excluded here), there was a trend saying that regarding the future of daughters, the females with daughters

Regarding income, however, the females had lower values than "01/29", and "01/29" had higher values in connection with amount of things sold/income past year.

In connection with the variable latrine, only two females stated they have one, which also goes for "01/29".

When checking possible differences between Group I females, and Non-Group I females, the trend said regarding the, in connection with this survey work, rather sad course variable as to whether respondents use or have used manure in their fields, that the Group I females seemed to know what manure is, as compared to the Non-Group I females although neither group had used it, which was the case also regarding "01/29".

When checking possible changes in answers between 1965 and 1968, one finds that "01/29" mostly remained at status quo, went back regarding nutrition/children, and income but moved forwards regarding the keeping of poultry. Regarding latrine he still had one. A couple of the females moved forwards regarding the latter variable, and among the females there was also a positive trend in connection with nutrition and health. Some females increased their income, and went from no to yes regarding being able to save, and regarding borrowing money.

Regarding what causes malaria five of the females in 1965 answered mosquitos, which is to be compared with the answer of "01/29", who stated: "Europeans". It is difficult to evaluate such answers to what is a knowledge-variable. How does one here compare health matters awareness with what could be political/ideological awareness?

Further complicating the issue is the fact that, in 1968, when again asked about what causes malaria, "01/29" answered "bad air being inhaled, and mosquitos". Among the women four answered DK, one gave no answer at all, one insisted on mosquitos, and one put the blame on pneumonia and ghosts. Thus one can only conclude that rather blurred concepts are prevailing in the Mpiji river valley as to just who or what does in fact cause malaria.

Regarding (F I -68) variables no.s 95-97 and their effort to summarize any changes that might have taken place in the valley over the three year period between 1965 and 1968, not much information came out. "01/29" saw no changes at all, whereas five females did: three in a negative direction, one in negative and positive, and one in a positive direction. Negative changes were poor health, failing or stolen crops, and difficulties in extending acreage. Positive ones were more crops, good health, and no quarrels.

VII: 3 FTC impact

Since six of the seven Main survey Participants all fell within Group I, I decided to, if possible, analyse a comparison regarding performance in connection with course variables between the Group I type object and Participants in Group I. Were the Participants in Group I because of having participated in a course or because of other factors? In this comparison I also included two other Group I objects including one female (in all nine Group I objects), Group III type object (N = 2) - a Depth survey Participant, Group V type object (N = 3) - a Main survey Participant, and Group VII type object (N = 4), and thus a total of 12 objects, whereof seven Participants Main survey and one Participant Depth survey. I checked these objects in connection with 31 variables, which were as fully linked up as possible with the training offered at the FTC course.

What one can draw from this analysis instrument is the following:

Six objects kept poultry at both points of time

five Group I objects whereof one female and four Participants

Group V type object/Main survey Participant;

One object kept poultry in 1965 but not in 1968

Group I Main survey Participant;

Four objects kept no poultry in 1965 but did in 1968

Group I type object

one Group I object

one Group I Main survey Participant

Group VII type object.

Regarding the variable "are you able to save money", six objects answered no at both points of time

Group I type object

Group I object female

three Group I Main survey Participants

Group VII type object;

One object answered yes at both points of time

Group I Main survey Participant;

Four objects were not able to save money in 1965 but were able in 1968

one Group I object

three Group I Main survey Participants.

Regarding four very central course training variables in connection with this 1965 - 1968 analysis see Table No. 27 p.85 for the distribution of observations.

As one can see there was only one Participant, who did not carry out a certain practice (use manure) in 1965, who did do so in 1968. The sample is of course very small in this performance comparison. However, eight out of the total 14 Participants 1968 are included (57%) but only four "Other Farmers". However, the Group I type object carries a lot of weight, which can be regarded as a compensating factor seeing the small number of "Other Farmers" represented. The Group I type object has 29 neighbors in his cluster as compared to a range from 0-3 for the other type objects (N = 11).

My conclusion is a. that the Group I characteristics do not make it a "course variable cluster"/high values, and b. that the "course variable performance" of the Main survey Participants most probably does not differentiate this group in a significant way from the "Other Farmers" in the valley.

VII:4 Clusters - variables

The following diagram and charts give an idea of to what extent the different variables concerned are correlated with each other. Through gradu-

TABLE NO. 27

DO YOU USE

INSECTICIDES				MANURE				SOIL CONSERVATION				PROPER SPACING			
"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"
1 (Group I object)	—	1 (Group V type object)	—	1 (Group V type object)	—	1 (Group I object)	—	1 (Group III type object; Depth survey)	—	1 (Group I) 1 (Group III type object; Depth survey)	—	1 (Group I type object)	—	1 (Group I object)	—
1	—	1	—	1	—	1	—	1	—	1	—	1	—	1	—
—	—	1 (Group V type object)	—	1 (Group I)	—	1 (Group V type object)	—	1 (Group III type object; Depth survey)	—	1 (Group I) 1 (Group III type object; Depth survey)	—	1 (Group I type object)	—	1 (Group I object)	—
—	—	2	—	2	—	2	—	1	—	7	—	3	—	3	—
—	—	2	—	2	—	2	—	1	—	5	—	5	—	5	—

(N=12: 7 "partici-
pants
to be"
8 Partici-
pants
4 "Other
Farmers")

= variable
not included

= change in
posit.
direction
1965-1968

In connection with these four crucial course training variables the maximum amount of possible Participant (8) yes-answers in 1968 would have been 32. There were 10 such participant-answers (31.3%). Out of these 10 Participant-answers 8 stated advice from Kibana regarding the use of these four practices (25%).

For each individual an index value per food category group was calculated with each kind of food given one point if included in daily intake of food. Index values thus range from 0 - 4.

As can be seen in the diagram there are distinct differences between Participants and "Other Farmers" in connection with Eat I and Eat II respectively. Index values for the food categories are:

	Index Eat I	Index Eat II
Participants	1.86	0.93
"Other Farmers"	0.88	2.13

with a correlation Participants/Eat I at $r = + 0.32$, $p = 0.005$, and Participants/Eat II at $r = - 0.41$, $p = 0.001$. There is also a correlation between the variable Sex and the two food categories with $r_I = + 0.21$, and $r_{II} = + 0.31$ indicating that women eat more of both categories than men. However, the fact that women have stated more kinds of food than men doesn't have to mean that they eat larger quantities. There is also a positive correlation between variable Items in household (amount) and Eat I, $r = + 0.36$ and Manure (uses)/Eat I, $r = + 0.36$. When setting out on this FTC impact registering, results like Diagram No. 4 in connection with the weighty course training variable Eat I is what one was expecting or at least hoping for. This outcome is, however, scarce and even this diagram should be looked at with reservations. In connection with Eat II Depth survey Participants are not included, and thus the Participant marks should probably be doubled, which dulls the picture. Regarding Eat I, however, only the figures for head of household are included in connection with Depth survey Participants. In connection with "Other Farmers" and Main survey Participants/Eat I and Eat II the aggregate figures for: head of household, babies, both - have been used. This probably means that the Eat I Participant marks should be increased, thus providing an even brighter picture.

Regarding variable no. 94 Check whether the following items are in the household and record the number of each (see Diagram No. 5 - excluded here).

In connection with this "ownership" variable the Depth survey Participants don't show up the way one could expect. Instead the Participant sample has lower figures in connection with $> 1/3$ of the 14 items involved.

VI: 8 Main survey plus Depth survey/Participants 1965 - 1968

- 60 = "Other Farmers" 1965
- 7 = "Participants to be" 1965
- 67 = All farmers 1965

- 60 = "Other Farmers" 1968
- 7 = Participants 1968
- 67 = All farmers Main survey 1968
- 7 = Participants Depth survey 1968

- 60 = "Other Farmers" 1968
- 14 = Participants Main and Depth surveys 1968
- 74 = 60 "Other Farmers" plus

14 Participants Main and Depth surveys 1968

the time factor or the FTC development input factor. The survey up till now is to quite an extent of an experimental character, and the data, stemming from unexperienced samples when it comes to interview-exposure, should probably be regarded as rather soft. With the development input not being explicitly structured for the evaluation of its impact, and with the survey machinery being geared towards measuring socio-economic benefits of development inputs partly via what is so far generally regarded as immeasurable variables way beyond those of cost-benefit and GNP per capita calculation procedures, it is probably wise not to apply too sophisticated analysis methods/categorical conclusions.

Seeing the rather meagre evaluative results of this impact study at this stage I decided to look at the material also from another angle seeing:

the so far rather pronounced lack of information all aspects about the grass root conditions of a rural population in socio-economic settings like the Tanzanian one,

the difficulty in getting at such data, and the substantial resources of different kinds, needed for such information gathering, having been put in,

and the, apparent, sturdiness of this particular rural survey sample when it comes to living up to construction criteria as according to the rules

and then chose to analyse the 1968 data ($N = 60 + 14$) via a classification program, which would provide additional insight into what this valley population looks like:

what are the characteristics of the inhabitants,

how are different socio-economic factors related to each other,

of what socio-economic components are these grass root societies made up, would by such classifying means the Participants possibly be singled out at all, if so - how, etc.

This approach will be dealt with in Chapter VII.

Table No. 12 (excluded here) gives an overall summary view of all the valley samples in connection with some socio-economic variables plus migration, course variables, economic affairs, attitudes, and hygiene.

Table No. 13 p. 58 on variable no. 65 demonstrates the sample groups' levels of income.

An index summary points out the being better off characteristics of the Depth survey Participant sample. It is not in connection with this survey possible to differentiate the impact, caused by a higher income from the one, caused by e.g. an agricultural/multi-purpose rural training course, upon the respondents' performance - farming techniques, and all round. Being better off did not, however, show up in all the parts of the analysis results, where one would expect a strong positive correlation. Thus one can at least conclude that being better off is not an overshadowing development agent impact wise. Generally speaking it has a singling out effect, however, which is e.g. shown through the classification program on the 60 + 14 material 1968 discussed below, where the Depth survey Participants stayed away from the main cluster ($N = 50$).

INCOME PAST YEAR	MAIN SURVEY 1965				MAIN SURVEY 1968				DEPTH SURVEY 1968				MAIN+DEPTH SURVEY 1968			
	"PARTIC- TO BE" (7)	"OTHER FARMERS" (60)	%	No.	TOTAL %	PARTI- CIPANTS (7)	%	No.	"OTHER FARMERS" (60)	%	No.	TOTAL %	PARTI- CIPANTS (7)	%	"OTHER FARMERS" (60)	%
How much cash did your family earn during the past year?																
Shs																
0	0.0	25.0	15		22.4	0.0		0.0	10.0	6		9.0	0.0		10.0	0.0
1-400	100.0	70.0	42		73.1	28.6	2	28.6	55.0	33		52.2	28.0		55.0	50.0
401-1000	0.0	3.4	2		2.9	42.9	3	42.9	15.0	9		17.9	57.2		15.0	21.8
1001-	0.0	1.7	1		1.5	0.0		0.0	11.7	7		10.4	14.3		11.7	10.8
Don't know	0.0	0.0			0.0	28.6	2	28.6	8.4	5		10.4	0.0		8.4	9.5
NS	100.0	7	60													

Income index:

Index

0 Shs	Main survey	1965	"Participants to be"	1,00
1-400	"	"	"Other Farmers"	0,82
401-1000	"	"	Participants	1,43
1001-	Depth survey	1968	"Other Farmers"	1,24
			Participants	1,86

Two Main survey 1968 Participants gave no information but did in 1965 belong to the 51-100 Shs income group and thus are given the same value in 1968, i.e. index value = 1. Five Main survey 1968 "Other Farmers" don't know their income and thus are likewise given the index values 0 (3 respondents) and 1 (2 respondents).

Income intervals chosen from this basis:

MAIN-DEPTH SURVEY 1968														
	PARTICIPANTS AND "OTHER FARMERS"				PARTICIPANTS				PARTICIPANTS AND "OTHER FARMERS"					
	(7)	%	(60)	No.	(14)	%	(60)	%	(74)	%	No.			
Nothing	0.0		25.0	15	22.4	0.0	10.0	6	9.0	0.0	10.0	8.1	6	
1- 100	57.1	4	30.0	18	32.8	14.3	1	21.6	13	20.9	14.3	1	14.3	
101- 200	14.3	1	21.6	13	20.9	14.3	1	13.3	8	13.4	14.3	1	14.3	
201- 300	28.6	2	16.7	10	17.9	0.0		11.7	7	10.4	0.0		0.0	
301- 400	0.0		1.7	1	1.5	0.0		8.3	5	7.5	0.0		0.0	
401- 500	0.0		0.0		0.0	28.6	2	1.7	1	4.5	0.0		14.3	
501-1000	0.0		3.4	2	2.9	14.3	1	13.3	8	13.4	57.2	4	35.7	
1000-	0.0		1.7	1	1.5	0.0		11.7	7	10.4	14.3	1	7.1	
Don't know	0.0		0.0		0.0	28.6	2	8.4	5	10.4	0.0		14.3	

Reasons for difficulties in selling are throughout stated as transport, and no demand, (and payment delayed). The increase in income between 1965 and 1968 is proportional in connection with the Main survey samples (60 + 7). The fact that an increase can be registered could be an indicator of rather truthful answers, in connection with this "normally" delicate variable, i.e. seeing the three year elapsing, and the continuously increasing contact with money/involvement in economic affairs as illustrated i.e. in the next Table No. 14 p. 60.

In this table one can see between the two points of time regarding

saving

that "Other Farmers" have increased - significant difference, $p = 0.02$. Regarding Participants there is a trend towards increasing, $p = 0.25$. The Depth survey Participants in 1968 are lower here than the other samples.

Buying on credit

There is an increase for "Other Farmers", $p = 0.10$. Depth survey Participants are higher in 1968 than the others.

Borrowing

Substantial increase for "Other Farmers" with p at 0.001. Regarding Participants there is a trend in the same direction, $p = 0.25$.

Owing money at present

More "Other Farmers" owe money, $p = 0.02$ whereas "Participants" remain at status quo.

Owing how much

There is an increase in amount for both samples.

Noticeable is the fact that the Depth survey Participant sample comparatively has rather low values in connection with these variables.

Regarding the Table on Health No. 15 p. 61 a slight increase 1965 - 1968 can be noticed for "Other Farmers" and the boiling of water before drinking it. Table No. 16 p. 62 Distance to water supply, amount of water used, and kind of supply shows that an increasing majority of the Main survey samples between 1965 - 1968 gives a distance of 101-1200 yards, and the majority a consumption in 1968 up till 7 debes with 3 of the Depth survey Participants stating 8 debes and more ($N = 7$).

With distance related to amount in Table No. 17 p. 63 it turns out in connection with "Other Farmers" 1968 that the further away - up till 800 yards - the bigger the amount of debes, whereas regarding the Main survey Participants amount decreases as distance increases.

Table No. 18 p. 64 shows that collecting water is basically a job for women. Tables No.:s 19 - 21 pp. 65 - 67 show what happens when the rains fail, and the respondents' view on why they fail, and what one can do to help make it rain - if anything.

	MAIN SURVEY 1965			MAIN SURVEY 1968			DEPTH SURVEY 1968		MAIN-DEPTH SURVEY 1968		
	"PARTIC. TO BE" (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTI- CIPANTS (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTICIPANTS (7) %	PARTI- CIPANTS (7+7=14) %	"OTHER FARMERS" (60) %	TOTAL %	
are you able to save money	14.3	16.7	16.4	57.1	36.7	38.8	14.3	35.7	36.7	36.5	
do you ever buy things on credit	14.3	6.7	7.5	14.3	20.0	19.4	42.9	28.6	20.0	21.6	
do you ever borrow money	14.3	15.0	14.9	57.1	45.0	46.3	57.1	57.1	45.0	47.3	
do you owe any money at present	14.3	5.0	6.0	14.3	20.0	19.4	14.3	14.3	20.0	18.9	
yes - how much do you owe	0.0	1.7	1.4	0.0	3.3	2.8	14.3	7.1	3.3	4.1	
11-20	14.3	0.0	1.4	0.0	5.0	4.2	0.0	0.0	5.0	4.1	
21-30	0.0	3.3	2.8	0.0	1.7	1.4	0.0	0.0	1.7	1.4	
31-	0.0	0.0	0.0	4.3	10.0	9.0	0.0	7.1	10.0	9.5	
doesn't owe any	85.7	95.0	94.0	85.7	80.0	80.6	85.7	85.7	80.0	81.1	

TABLE NO. 14

TABLE NO. 15

	MAIN SURVEY 1965			MAIN SURVEY 1968			DEPTH SURVEY 1968		MAIN+DEPTH SURVEY 1968		
	"PARTIC. TO BE" (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTI- CIPANTS (7) %	"OTHER FARMERS" (60) %	TOTAL %	PARTICIPANTS (7) %	PARTI- CIPANTS (7+7=14) %	"OTHER FARMERS" (60) %	TOTAL %	
do you take anything other than water to prevent malaria	0.0	10.0	9.0	0.0	8.3	7.5	28.4	14.3	8.3	9.5	
do you do anything other than boil your water before you drink it	14.3	6.7	7.5	14.3	10.0	10.4	0.0	7.1	10.0	9.5	

(Base - 65)

Q 69. Which member of your family normally brings the water for the household

MAIN SURVEY 1965

	"PARTICIPANTS TO BE" (7)	"OTHER FARMERS" (60)
Head of household - female		6
Head of household - male	2	6
Wife/wives	5	45
Children		1
Wife/wives and children		1
Wife/wives and mother-in-law		1
	7	60

(Depth -68)

DEPTH SURVEY 1968

Q 134.

	PARTIC.	"OTHER FARMERS" /NEIGHBORS	"OTHER FARMERS"	TOTAL
How many times have the rains failed since you came to this area?	Bunju	Bunju	Kibesa	
Once	1	2	3	6
Twice	-	-	1	1
Three times	2	1	-	3
Several	-	1	-	1
Rarely	-	-	1	1
Not stated	2	1	-	3
None	-	-	5	5
Don't know	2	2	2	6
	7	7	12	26

Q 135.

When the rains fail - how do you feed your family?	Bunju	Bunju	Kibesa	TOTAL
Local cassava	3	1	2	6
Fishing	2	2	-	4
Selling coconuts	-	1	-	1
Selling other things: poles, charcoal; business/duka	1	1	1	3
Buys food. Imported maizeflour	2	2	2	6
Temporary employment	-	2	5	7
Help from relatives	-	-	1	1
No answer	2	-	4	6

(Base -65)

TABLE NO. 20

Q 76 Why do the rains sometimes fail?

MAIN SURVEY 1965				
	Bagamoyo	Mzizima	Kisarawe	Total
God's order/God's will/This is God's concern	7	8	20	35
God causes the rains to fail because he is angry with us for forgetting his existence and living in sin	3	4	3	10
Because the rainy season is not yet due/because of long sunny period/seasonal changes ..	2	-	3	5
Because people commit sins ..	-	1	1	2
Because people have stopped believing in old ghosts and spirits	-	-	2	2
Because of the rotation of the earth	1	1	-	2
Other	1	-	-	1
Don't know/Not stated	5	8	10	23
Total	19	22	39	80
Base	19	22	39	80

TABLE NO. 21

Q 77 Can man do anything to help make it rain? If so, what?

MAIN SURVEY 1965				
	Bagamoyo	Mzizima	Kisarawe	Total
Yes	5	5	15	25
No	14	17	24	55
Total	19	22	39	80
Base	19	22	39	80
<u>If so, what/if no, who can?</u>				
He can pray to God	6	3	12	21
Only God can make it rain ..	2	5	5	12
He can take a cow or goat to his spirit/ask his spirit to make it rain	1	2	3	6
He can go to churches or Mosques to pray/can sing religious hymns and beat drums to God	-	1	3	4
The Sheikhs can pray to God for three or four days continuously	2	-	1	3
Other	1	1	-	2
Don't know/Not stated	2	2	1	5
Nobody can make it rain ..	5	8	14	27
Total	19	22	39	80
Base	19	22	39	80

The information provided in connection with these "water tables" comes from different samples and points of time due to in what questionnaires the variables concerned are included. Although this prevents all covering comparisons, these tables still give a rather good insight regarding the very crucial water variable.

Even though time goes by, very little developmental impact will result from general development agents - with or without specific inputs being introduced concentrating upon certain problem areas, unless satisfactory domestic, irrigation, etc. water supplies are secured.

VI: 9 Interview with jumbes (local leaders)/1968

As another means of getting to know this rural area I put a set of questions to some jumbes in the three districts. Like - what were the needs of their area, possible solutions, some questions on Ujamaa, and I also included questions on the definition of a) village borders, and b) how to define the word village.

The latter questions were there seeing the difficulties encountered in 1965 when the survey area was defined, and the sample was constructed via a rather difficult, complicated, and at times highly confusing process.

(The jumble interview schedule and answers are excluded here).

VI:10 Interview with enumerators/1965

During and after the fieldwork I put a set of questions to the enumerators to gain an impression of their opinions about the atmosphere in which the survey was received and more generally to obtain background information on certain material and on different aspects of the questionnaire. (Enumerator schedule included in Appendix No. II, Section Z together with the official letters of introduction of the Main survey - February 1965 and December 1967).

I asked about the types of rumours that circulated in the coastal districts about the survey - particularly among those interviewed and among the "jumbes" (local leaders). There were positive and negative rumours. The negative ones were that the Government was doing this survey in order to find out how many shambas existed along the Mpiji River in order to take them over. Reluctance to answering questions about shambas were therefore prevalent until this rumour had been scotched and the position fully explained to the people. The second serious rumour was found among people living far from the main road and therefore not used to seeing strangers and particularly Europeans: on the medical questions some were under the impression they would be killed or taken to hospital in order to have their blood drawn. Another rumour was that some people thought the team wanted to buy their shambas, and that we had come to find out about their possessions. A negative rumour among some of the jumbes was that no immediate results could be seen from the survey, and they felt they had wasted their time and the respondents' time.

There were, however, more positive rumours than negative ones. Naturally the inhabitants' expectations were raised as they thought in the future they would be provided with water, fertilizers, health facilities etc. Generally speaking the jumbes felt they could expect results to arise from the survey. The majority felt certain of this and often encouraged

extremely happy that someone was taking an interest in them. The length of the questionnaire is indicative of this as the respondent spent around two hours patiently answering what must have been extremely personal questions. A few people understood the purpose of the survey and that it was being conducted for the Centre at Kibaha. Obviously the jumbes knew that the survey was conducted for Kibaha. This indicates that the channel of communication down to jumble level is good. Moreover many jumbes saw the connection between the Kibaha Centre and the Government five-year development plan.

Other impressions from the enumerators were that respondents may exaggerate the distance to the nearest dispensary, school or well hoping that a new one might be established nearer to their home, or that lamps, chairs, etc., are said to be unavailable or broken in order that someone might buy them new ones.

The general impression of the enumerators, however, was that the respondents told the truth as best as they were able without hiding anything and that there were no deliberately misleading answers or reluctance to give information. Sometimes respondents asked the enumerators questions. In one case questions were asked about methods of birth control.

Basically I believe the answers give a true picture of the living conditions in the Mpiji Valley. (The enumerators were well experienced in connection with rural survey work and had completed Form VI or came from the university (1965). In connection with the Follow-up (1968) all were university students, whereof some from the Coast Region).

The local leaders (jumbes) at different levels were very cooperative throughout this survey - Main and Depth, 1964-65 and 1967-68.

This goes for all the different steps involved in order to bring about the survey. They took part in the exacting census work during the latter part of 1964 and onwards, and in so doing became more and more involved seeing the problems encountered when trying to sort out: village- and district-boundaries criteria for who was to be characterized as an inhabitant of the survey area and who was not misunderstandings, and the rest.

They also followed us from village to village under thundering sun and pouring rain to: inform the village leaders about the survey, and at times convince them to accept the survey idea and the survey team help find the respondents clear up question marks of different kinds, etc., and they often made long extra walks to villages X or Y in order to make sure that the respondents concerned would be waiting for us in connection with the following day's interview work.

They guided us along dwindling, sometimes invisible foot-paths for, at times, endless miles they knew the short cuts they produced huge umbrellas out of nowhere when we had to leave the sheltering forest and cross the plains they helped carry the continuously hopelessly over-loaded bag with questionnaires they gave us bananas to eat and fixed coconut milk to drink when we were dying from thirst.

What is being said here also goes for the village leaders, and for the villagers themselves.

Everyone involved was being very friendly and helpful, and even the 1967-68 Follow up survey was carried out in a warm atmosphere of welcome back.

The only negative reception I can remember came from lions, who would be roaring a bit up the river. This was frightening as such, and also frustrating since it prevented the leaders from instructing anyone in that village to walk off to the next village with a message saying that the survey team would be coming the following day and hoped to find the respondents concerned in that village waiting for the interviewers according to earlier agreement.

Knowing that there would be very little we could do - at least in the short run - for these people made us feel rather bad at times. For example one did feel all along the valley a lingering hope that the survey might result in more water through making the Mpiji river into more of a flowing stream from what was (is) a rather dried out 63 mile long ditch. Although increasingly learning/having to find solutions to problems of rather tangible dimensions, this particular problem remained an overwhelming one.

Representing these helpful leaders here is Mr. Suna, Assistant Division Executive Officer/Bunju, to whose office along the Dar-es-Salaam-Bagamoyo road we paid innumerable visits to check up on sample lists, etc. It is situated at c:a 24 miles from Dar right at the take off to Kibesa village, Mzimba district.

The second photo shows Mr. Suna together with some of the enumerators taking a rest in Kibesa village during the Depth survey 1968.



CHAPTER VII

Classification program on the 60 + 14 material 1968

VII:1 Introduction

What one has so far been able to conclude is that participating in an agricultural training course does not necessarily change the all round performance of such participants in a clearly noticeable way when comparing with the performance of non-participating but otherwise equivalent individuals.

In an effort to further map the characteristics of the Mpiji Valley sample I decided to analyse the data by means of a classification program worked out at the Survey Research Institute of the National Central Bureau of Statistics (Stockholm).

VII:2 Clusters - individuals

This classification program produces a cluster analysis which helps when it comes to compressing the data material. The program groups together individuals who are similar in connection with the variables involved, and one obtains a profiled view of what the sample members "look like", a focused distribution of their characteristics.

The method can be described as an effort to find natural groups of individuals.

The program works according to the "fixed neighborhood classification rule" which minimizes a "goodness of fit" criterion. (For a more detailed description of the method see Fukunaga, Keinosuke: Introduction to Statistical Pattern Recognition. Academic Press, 1972).

The following is a summary description of how the program works.

To express the distance between objects i and j a function $d_{ij} = 1000(1 - s_{ij})$ is used, where s_{ij} (similarity coefficient) is the simple matching coefficient defined as the portion of characteristics, out of all observed characteristics, bearing resemblance between the objects.

Polychotome variables are dealt with through registering similarity/dissimilarity and weighting at a-1 in connection with similarity with "a" being the amount of possible alternatives of a specific variable.

The clustering algorithm only observes distances $\leq R$, radius in a hypersphere around each object. Objects separated from a certain object by a distance $\leq R$ are called this object's neighbors. If there are no neighbors the object cannot be dealt with and is left outside the process.

One does oneself decide the value of R , which then influences the clustering. Small R values will produce many clusters and vice versa.

The algorithm works from the prerequisite of a preliminary classification. To obtain this one successively makes the objects, which have most neighbors, form clusters together with these neighbors. This continues until all objects have reached a preliminary classification.

The clustering procedure will then be carried out through iterated re-classifications. For each iteration the objects are classified to the cluster, to which presently most of the neighbors belong. This continues

The program was used on a sample group consisting of the seven Participants and 60 "Other Farmers" from the Main survey 1968 plus the seven Participants from the Depth survey 1968 (7 + 60 + 7, N = 74). Since this analysis was carried out in an effort to compress the material, 39 variables out of a possible 118 variables, which appear in the (FI - 68) questionnaire as well as in the (Depth - 68) one, were selected for the program. Thus, the variables chosen are a summary, no. 1, of the variables used for the comparison between 60 "Other Farmers" and 14 Participants Main and Depth surveys 1968 (see Variable list No. 2 Ch. VI - excluded) covering:

socio-economic aspects
migration
farming all aspects including techniques
income
possessions
economic affairs
expenditures and attitudes towards the same, and
nutritional and sanitary aspects.

As step no. one I then obtained a list of correlation coefficients as a means to help in the process of further decreasing the number of variables included for the classification program proper. The program - from purely practical reasons - handles not more than 20 variables.

Figures were produced giving the average (N = 74) in connection with each variable's being strongly or weakly related to each of the rest of the variables. Rather than going by the r-values I decided to make the final selection of variables by means of "intuition". Again the twenty variables thus chosen make up a summary, no. 11, of the original questionnaires. These variables fall under the same headings as those in summary no. I. Attention was paid to the fact that I wanted to continue concentrating upon variables dealing with the farmers' training course contents (course variables) as well as variables covering modernization, and then upon such variables which could well be used for a possible future analysis checking on changes between course participants and others as well as between Point of time 2 and Point of time 1, and a possible future Time 3/2/1, etc. This would help regarding the construction of different types of indices, scaling, etc. in connection with a possible Follow up survey no. II.

The next step in the data processing provided the distribution of distance. This would help to decide the "border value", i.e. the value of the R, radius in a hypersphere around each individual, the value of which then influences the clustering. The value range goes from 0 - 1000, and I decided that the 200 value (where 10 objects stayed unclassified) should be tried. In so doing I did in the classification process obtain 16 clusters or groups with 10 individuals or objects not being classified at all. There was one major group made up of 38 objects i.e. just above 50% of the total 74. Out of these 38 five were Main survey Participants. Nine of the remaining groups held one object only, two held two, three held three, and one held four. (What one tries to obtain is a distribution, which does not include too many clusters (reasons of interpretation), nor is one interested in too many un-classified objects).

This clustering was considered as being too diversified seeing that I was looking for a concentrated view over the distribution of the characteristics of the objects. Thus, the R value was raised to 215, and then

VII:2:1 Clusters of individuals - the construction of frequency tables covering 20 variables

The 74 objects now instead fell into 11 different groups except for four objects who were not classified at all (two Depth survey Participants and two Main survey "Other Farmers"). The majority fell into one group -

- Group I covering 50 objects out of the total 74. This group held six of the Main Survey's Participants and one Depth survey Participant
- Group II had one object - a Main survey Participant
- Group III two, where of one a Depth survey Participant
- Group IV three objects
- Group V three objects, with one being a Main survey Participant
- Group VI two objects
- Group VII four objects
- Group VIII one object
- Group IX two objects
- Group X one object
- Group XI one object - a Depth survey Participant

If one does not count the seven Depth survey Participants, who were better off than the remaining 67 farmers, the objects thus divided themselves into eight different groups.

50 objects or 68% of the total 74 all fell in the same group, Group I. This outcome does reflect what is a rather equivalent river valley population in connection with certain background variables. Group I is characterized as follows in the frequency tables showing the distribution of observations per group (see Table No. 22 p.74).

N=50 (6 Main survey Participants; 1 Depth survey Participant)

NR OF WIVES	NR OF CHILDREN	NR OF OTHER PERSONS IN HOUSEHOLD	READS	HOW LONG HAVE YOU LIVED HERE	AMOUNT OF FOOD CROPS	AMOUNT OF CASH CROPS	ANIMALS
%	%	%		%	%	%	%
0	1	0	35 No	1-4	1	0	16 8
1	2	1	15 Yes	5-10	2	1	84 42
2	3	2	11	11- (years)	4	2	Yes
3	4	3			8	4	No
4	5	2			16	8	
5	6				24	2	
6	7				16	3	
7	8				8	4	
8	11				14	9	
2	4	0	No	16	10	5	
				2	4	6	
				4	2	3	
				2	1	7	
				1	10	6	
					7	1	
					9		
					10		
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Item	amount	observations	score
Tables	0	37	1
	1	21	3
	2 - 3	6	4
	4 - 6	3	4
Chairs	0	28	1
	1	18	2
	2 - 3	17	3
	4	4	4
Cupboard	0	59	2
	1	7	4
	4 - 6	1	4
Clock	0	63	2
	1	4	4
Handmill	0	57	2
	1	8	3
	2 - 3	2	4
Knives, forks, spoons	0	13	1
	1	6	2
	2 - 3	28	2
	4 - 6	17	3
	7 - 10	3	4
Plates, cups	0	14	1
	1	2	2
	2 - 3	12	2
	4 - 6	17	3
	7 - 10	12	3
	11 - 15	6	4
	16 - 20	3	4
Wrist watch	0	58	2
	1	9	4

The thirteen different items have been summed up into a total score value, which has been transformed into a 4 step scale according to the following:

Item in household	Total score value	Variable value
	21 - 24	0
	25 - 28	1
	29 - 32	2
	33 - 48	3
Minimum score = 21 0 items		
Maximum score = 52		

Items/conditions (Q 95)

The score values for those items above, which have been classified as

(cont.)

Total score value	Variable value
0	0
1 - 4	1
5 - 10	2
11 - 14	3
15 - 24	4

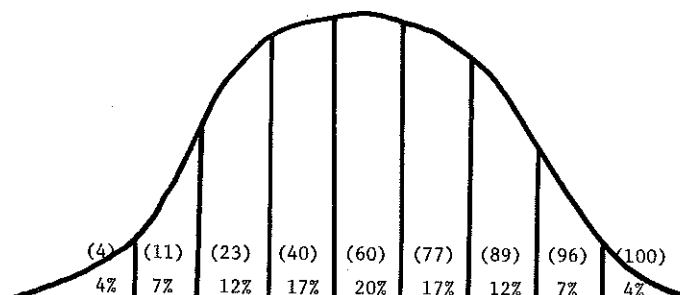
Re: the calculation of score values see the following pages

Calculation of score values (Q 94)

When it comes to establishing an aggregate measure of "the level of living" of a household, one is confronted with certain problems. In this particular case one has access to information of different kinds like whether there is a bicycle or not in the household, whether there are any lamps, any stoves of different kinds, clocks, knives, plates, etc., and if so, how many of each. How can one establish a measure that takes into consideration such diversified information? How to, e.g., compare/evaluate the information saying that in one household there is one bicycle but only one plate, whereas in another household there is quite a number of plates but no bicycle? These examples can be multiplied.

What is needed is a measure, which in an adequate way can give things their "proper" value. One needs a measure, which considers on one side how common it is that there are different items in the households concerned and on the other side their extent. A measure which considers the fact that it is probably supposed to be of greater value to own a bicycle than to own a plate.

The method I have used in an effort to solve this problem is to transfer the results from each separate variable, i.e. whether there is, e.g., a bicycle or not, into a scale, which will provide a normal distribution. I have then used the so called stamine scale (standard nine). This scale consists of nine steps and has been obtained through dividing a normal distribution into nine parts.



Through the nine percentage figures above a raw score distribution can be transferred into normal distribution scores. If one has a distribution holding a great amount of different values, the different values can be summed up into classes holding the respective percentage figures according to the stanine scale. In this case this exercise was made difficult since the variables concerned in certain cases only were dichotome - like, e.g., to have a bicycle or not to have one. I solved this by making "the most central" value within each class the guiding point. In connection with e.g. bicycle ownership 61 persons out of 67, or 91%, state that there is no bicycle in their household. Six persons, or 9%, state that they own a bicycle. I have then said that the stanine value of 4 stands for no (0) bicycle in a household. This is due to the fact that through accumulative counting of the percentage figures of the stanine-distribution, see the figures within parenthesis in the normal curve above, one will find that the "middle value" 46% out of the 91%, who do not own a bicycle, corresponds most closely with the stanine value of 4. The corresponding "middle value" out of those who own a bicycle, the 9% at "the top" of the curve, likewise obtains the value of 8 in the stanine scale.

In this way all the variables regarding items in the household have been gone through and the primary values have been transformed into stanine values. It then became possible to sum up the different scores for one person and get a total score value in connection with the aggregated variable which had now been obtained.

To avoid having to deal with too big figures in connection with the aggregated variables I made the stanine values vary between 0,5 - 4,5 instead of 1 - 9.

50 objects out of the total 74 all fell into Group I (68%). 43 "Other Farmers" out of the total 60 belong to Group I (72%). 49 respondents out of 60 "Other Farmers" plus seven Main survey Participants (67) belong to Group I (73%). 68% of the sample (50/74) belong to Group I whereas only 50% of all Participants (7/14) are included. This might be so by accident or due to the course or due to the fact that the seven Depth survey Participants have a higher income than the other Participants (one Depth survey Participant belongs to Group I with an income during the past year of 550/-Shs. Average for Group I \approx 320/-Shs. The only object in Group II (Depth survey Participant) has 3-800/-Shs. The two objects in Group III (Depth survey Participants) have 1-300/-Shs).

One Main survey Participant, six Depth survey Participants, and 17 "Other Farmers" do not belong to the Group I majority.

As can be seen the type object of Group I, i.e. the object which has the largest amount of neighbors within that cluster, has got his primary data values registered separately so as to make it easier to get as much information out of the table as possible (no. 22 p.74). (This type object, a male, comes from Mabwe village in Mzizima District). The 50 objects in Group I resemble each other in connection with the 20 (37) variables involved.

The majority of the river valley sample concerned (N = 74) could be characterized by this frequency table. I will leave to the reader to register this rather well focused description of the majority of the sample. Noticeable is the fact that six out of seven Main survey Participants belong to this Group. This could possibly be interpreted so as to say that course participation has not had any particular effect upon living con-

At random I selected another frequency table, viz. the one showing Group III (N = 2/Depth survey Participants). (See Table No. 23 - excluded here).

VII:2:2 Clusters of individuals - the construction of type object profiles of variable values plus the profiles of four un-classified objects

Rather than dig into all eleven clusters/tables I decided to look at all eleven type objects plus the four un-classified objects (= 15). This was done through drawing up profiles for all 15 objects (see Variable list No. 4: -values; scaling - partly included, see p.75).

Two of the variables included in the frequency table p.74 are excluded in the profiles, viz. TOOL/AMOUNT (Shs.) & ATTITUDE (towards this expenditure) and POULT L/O (local poultry or local and other). Instead I have added 12 variables, viz.:

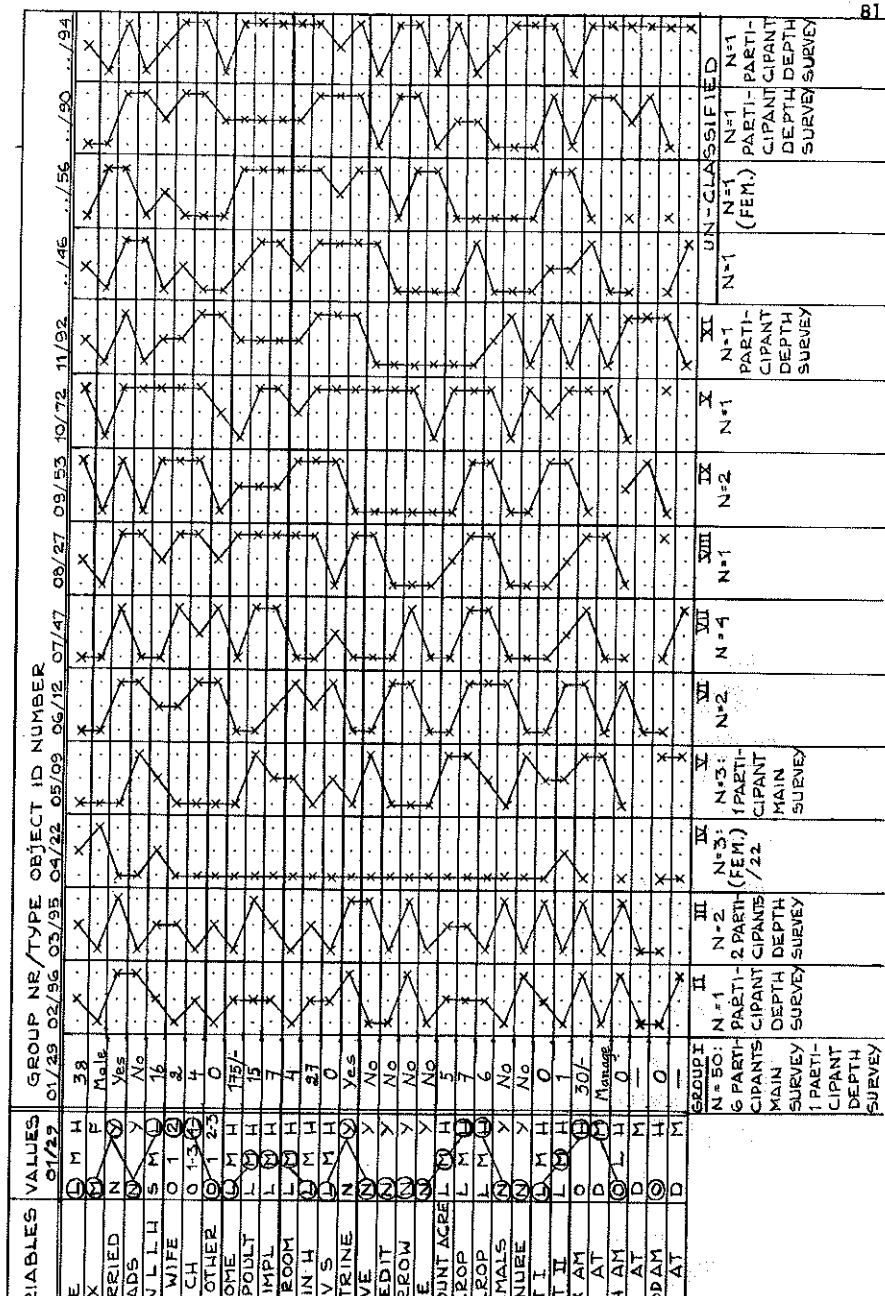
SEX
MARITAL S
NR POULTRY
NR ROOMS
IT IN H
IT V SERV
BORROW
OWE
AMOUNT ACRE
EAT II (less good)
TAX/AMOUNT & ATTITUDE
FOOD/AMOUNT & ATTITUDE

To facilitate the reading of the profiles I categorized the variables as follows:

SOCIO-ECONOMIC
INCOME
HOUSE
SAVE/BORROW
FARMING
NUTRITION
ATTITUDES

The additional variables as compared to the frequency tables are there to give some more information about the objects in connection with course variables, and to provide some more openings for checking the change, in connection with measurable variables, over time and in relation to the course factor.

The fact that NR POULTRY is included under the heading INCOME is due to the fact that there is a strong positive correlation between the two variables income and no. of poultry ($r = + 0,55/p. = 0,10$).



Three out of the seven women belong to Group I (43%), one is the Group IV type object (N = 3), one belongs to Group VII (N = 4), one to Group IX (N = 2), and one is unclassified. None of these groups, except for no. 1, hold any participants.

The 36 variables used for the 1968 analysis cover socio-economic data, farming, income, and health and thus include course variables. Some more emphasis has been put on health and nutrition variables than in the analysis as presented in sections VII:2:1 and VII:2:2 above.

In order to check whether the female respondents were equivalent to the valley sample as such, I compared the seven women with the group of "Other Farmers" 1968 (60) according to criteria like age, income, reads, writes, uses manure.

The female average age turned out to be 54.7 as compared with 48.2 (60). Regarding income past year only four respondents had answered, with values ranging from 75 - 900/-. Regarding the group of 60, 55% had 1 - 400/-, and 26.7% more than 400/-.

Regarding the variables reads, writes, and uses manure there was no information from the seven females. Out of the group of 60 approx. 30% did read and write and approx. 13% used manure.

When to start with I looked at possible differences in 1968 between "01/29" and the females (see Table No. 24 - excluded here), there was a trend saying that the females had higher values in connection with amount of things sold/income past year; they had higher food and labour expenditure frequency; they used more water in the household per day; they had higher values in connection with health and nutrition variables regarding adults as well as children; and they had higher scores seeing the variables It house and It v serv.

When checking possible differences between Group I females, and Non-Group I females, the trend said that the Group I females have less poultry, use less water per day, and have lower values in connection with health and nutrition variables - adults/children.

In connection with the 1965-68 cross-tabulation the 27 variables used cover the future, farming, income, health and nutrition, thus covering course variables, and variables no.s 95 - 97 from the (F I -68) questionnaire, where the respondents are asked to discuss possible changes - if any, positive/negative, between 1965 and 1968 in connection with their shamba work, village life and living conditions in general.

Also in this analysis I checked the equivalency between females and males by checking up the females' values from 1965 regarding age, income, reads, writes, and have used manure as compared with the values of all respondents in 1965 (N = 67). It turned out that very few females stated their age in 1965. Again there were only four females, who had answered regarding income with values ranging from 45-300/-. Regarding the whole group of 67 the income range was between 1 - > 1000/-, with 73.1% having 1 - 400/-, and 4.4% more than 400/-.

As for the other three variables there was no information from the females. Out of the total group of 67, 23.9% did read, and 2.9% had used manure.

When to start with I looked at possible differences between "01/29" and the females in 1965 (see Table No. 25 - excluded here), there was a trend saying that regarding the future of daughters, the females with daughters wanted them to marry, while "01/29" wanted his one daughter to become a nurse.

The females had more poultry.

Regarding income, however, the females had lower values than "01/29", and "01/29" had higher values in connection with amount of things sold/income past year.

In connection with the variable latrine, only two females stated they have one, which also goes for "01/29".

When checking possible differences between Group I females, and Non-Group I females, the trend said regarding the, in connection with this survey work, rather sad course variable as to whether respondents use or have used manure in their fields, that the Group I females seemed to know what manure is, as compared to the Non-Group I females although neither group had used it, which was the case also regarding "01/29".

When checking possible changes in answers between 1965 and 1968, one finds that "01/29" mostly remained at status quo, went back regarding nutrition/children, and income but moved forwards regarding the keeping of poultry. Regarding latrine he still had one. A couple of the females moved forwards regarding the latter variable, and among the females there was also a positive trend in connection with nutrition and health. Some females increased their income, and went from no to yes regarding being able to save, and regarding borrowing money.

Regarding what causes malaria five of the females in 1965 answered mosquitos, which is to be compared with the answer of "01/29", who stated: "Europeans". It is difficult to evaluate such answers to what is a knowledge-variable. How does one here compare health matters awareness with what could be political/ideological awareness?

Further complicating the issue is the fact that, in 1968, when again asked about what causes malaria, "01/29" answered "bad air being inhaled, and mosquitos". Among the women four answered DK, one gave no answer at all, one insisted on mosquitos, and one put the blame on pneumonia and ghosts. Thus one can only conclude that rather blurred concepts are prevailing in the Mpiji river valley as to just who or what does in fact cause malaria.

Regarding (F I -68) variables no.s 95-97 and their effort to summarize any changes that might have taken place in the valley over the three year period between 1965 and 1968, not much information came out. "01/29" saw no changes at all, whereas five females did: three in a negative direction, one in negative and positive, and one in a positive direction. Negative changes were poor health, failing or stolen crops, and difficulties in extending acreage. Positive ones were more crops, good health, and no quarrels.

VII: 3 FTC impact

Since six of the seven Main survey Participants all fell within Group I, I decided to, if possible, analyse a comparison regarding performance in connection with course variables between the Group I type object and Participants in Group I. Were the Participants in Group I because of having participated in a course or because of other factors? In this comparison I also included two other Group I objects including one female (in all nine Group I objects), Group III type object (N = 2) - a Depth survey Participant, Group V type object (N = 3) - a Main survey Participant, and Group VII type object (N = 4), and thus a total of 12 objects, whereof seven Participants Main survey and one Participant Depth survey. I checked these objects in connection with 31 variables, which were as fully linked up as possible with the training offered at the FTC course. While setting out on this analysis I decided to include also the corresponding variables from 1965 so as to, again, try to pinpoint any possible changes over time among the inhabitants in the valley. (See Table No. 26 - excluded here).

What one can draw from this analysis instrument is the following:

Six objects kept poultry at both points of time

five Group I objects whereof one female and four Participants

Group V type object/Main survey Participant;

One object kept poultry in 1965 but not in 1968

Group I Main survey Participant;

Four objects kept no poultry in 1965 but did in 1968

Group I type object

one Group I object

one Group I Main survey Participant

Group VII type object.

Regarding the variable "are you able to save money",

six objects answered no at both points of time

Group I type object

Group I object female

three Group I Main survey Participants

Group VII type object;

One object answered yes at both points of time

Group I Main survey Participant;

Four objects were not able to save money in 1965 but were able in 1968

one Group I object

three Group I Main survey Participants.

Regarding four very central course training variables in connection with this 1965 - 1968 analysis see Table No. 27 p.85 for the distribution of observations.

As one can see there was only one Participant, who did not carry out a certain practice (use manure) in 1965, who did do so in 1968. The sample is of course very small in this performance comparison. However, eight out of the total 14 Participants 1968 are included (57%) but only four "Other Farmers". However, the Group I type object carries a lot of weight, which can be regarded as a compensating factor seeing the small number of "Other Farmers" represented. The Group I type object has 29 neighbors in his cluster as compared to a range from 0-3 for the other type objects (N = 11).

My conclusion is a. that the Group I characteristics do not make it a "course variable cluster"/high values, and b. that the "course variable performance" of the Main survey Participants most probably does not differentiate this group in a significant way from the "Other Farmers" in the valley.

VII:4 Clusters - variables

The following diagram and charts give an idea of to what extent the different variables concerned are correlated with each other. Through gradually lowering the p value I tried to give as clear a view as possible of the existing correlations between the survey variables and thus to sort out the somewhat scattered impression provided by a correlation matrix (see Diagram No. 9 p.86). This way a picture was obtained which summa-

TABLE NO. 27

INSECTICIDES		MANURE		SOIL CONSERVATION		PROPER SPACING		(N=12: 7 "Partici- pants to be"/ 8 Partici- pants 4 "Other Farmers")
"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	"PARTICI- PANTS TO BE"	"OTHER FARMERS"	
1 (Group I object)	—	1 (Group V type object)	—					
1	—	1	—					
PARTI- CIPANTS	"OTHER FARMERS"	PARTI- CIPANTS	"OTHER FARMERS"	PARTI- CIPANTS	"OTHER FARMERS"	PARTI- CIPANTS	"OTHER FARMERS"	
—	—	1 (Group V type object)	—	1 (Group III type object; Depth survey)	—	6 (Group I) 1 (Group III type object; Depth survey)	1 (Group I type object) 1 (Group I object; Depth survey) VII type object)	
—	—	1 (Group I)	—	—	—	—	—	
—	—	2	—	1	—	7	3	
—	—	2	—	1	—	5	—	
								<div> <div></div> <div>= variable not included</div> </div> <div> <div></div> <div>= change in posit. direction 1965-1968</div> </div>

Advice
from
Kibaha

In connection with these four crucial course training variables the maximum amount of possible Participant (8) yes-answers in 1968 would have been 32. There were 10 such Participant-answers (31.3%). Out of these 10 Participant-answers 8 stated advice from Kibaha regarding the use of these four practices (25%).

$r = +0.19 \text{ or } > p = 0.10$

	1	2	3	4	5	6	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	33	34	35	36	37	38	39																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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alized/focused the interrelation patterns of the variables:

while checking whether the correlation coefficients differed in a significant way from 0,000 I decided to find out what the r-values would be regarding significant differences also at the 0,01 and 0,001 level respectively. The tables used to find out what the r-values would be in connection with a material of this size ($N = 74$) are "Documenta Geigy, Scientific Tables", Basle, 1962. I then found that the critical correlation values are $\pm 0,30$ at the 0,01 level of significance and $\pm 0,37$ at the 0,001 level.

(See Charts No. 6 and No. 7 pp. 88-89). Through this crystallization into clusters of strongly related variables the number of variables was reduced from 29 (Diagram No. 9) to 15 (Chart No. 7).

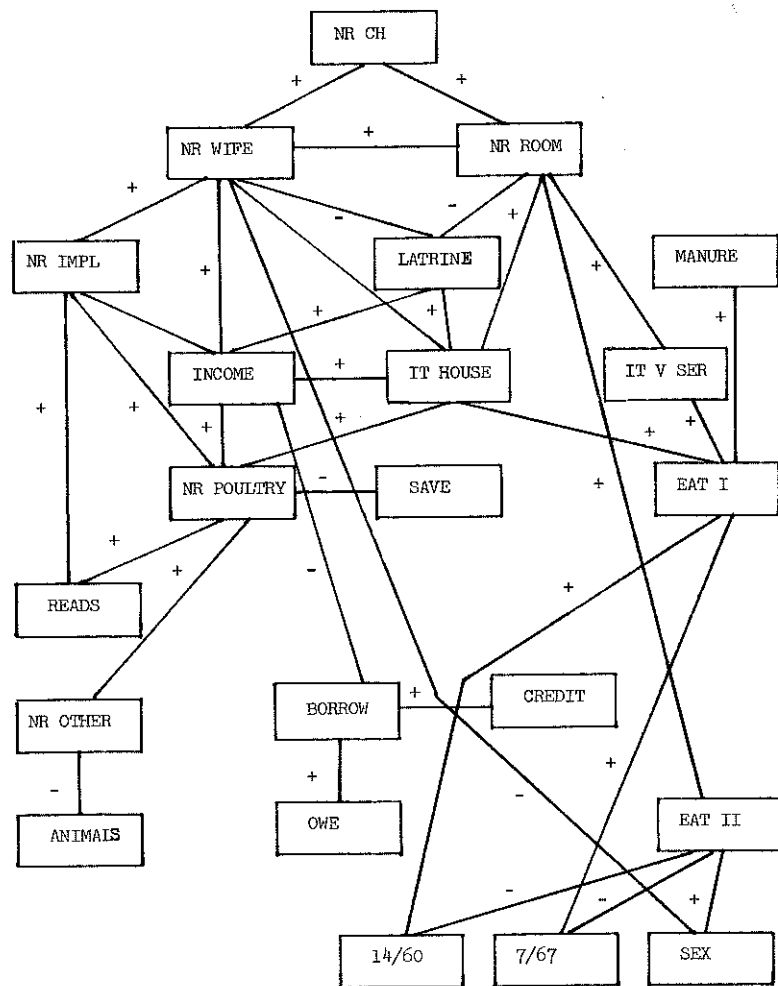
VII:5 Suggestions for further analysis within the classification program framework

Through the classification program an analysis instrument has been provided, which can serve as a framework in connection with possible future Follow up surveys/data processing. When the Participant sample will have increased, and one obtains experiment- and control samples of a more comparable size, more sophisticated analysis instruments will become more meaningful and more fruitful.

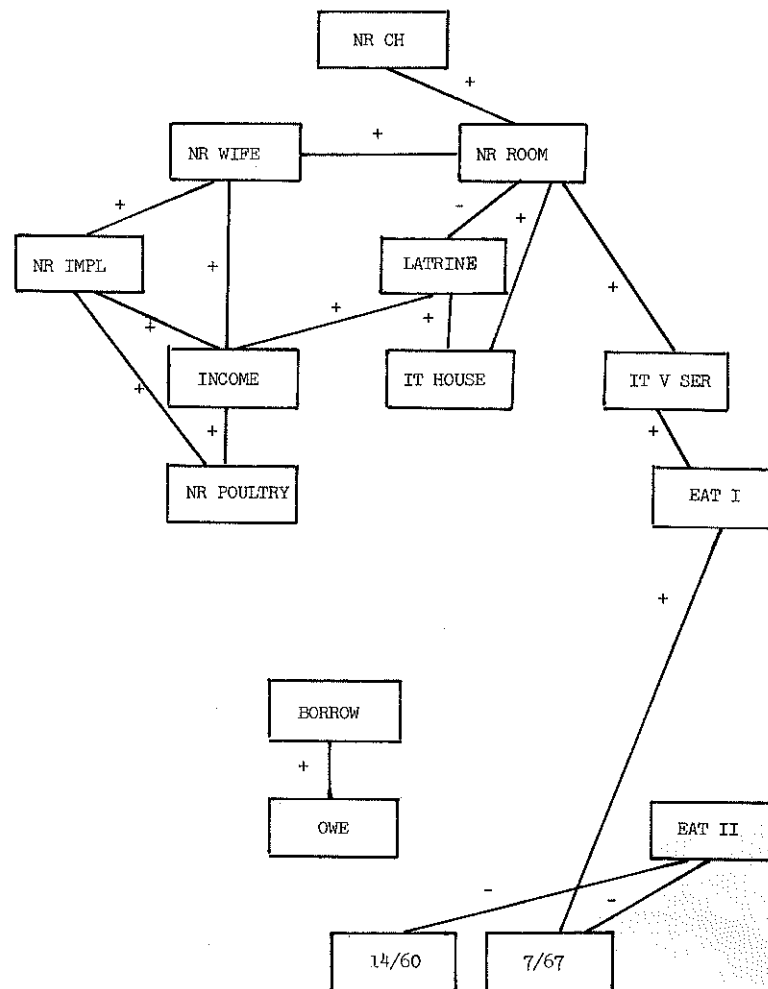
One will then be able to construct indices of different kinds - Farming excellence, Health excellence, Achievement motivation, Ownership, House standard, Knowledge, Modernization, etc. - and rank the objects according to, e.g., Poor, Average, and Good performance.

This focusing of the material will facilitate comparisons over time, comparisons between Participants and "Other Farmers", etc. Seeing to what extent the classification program helps compress the data material, continued work in order to gather information from socio-economic settings of the kind here described will become less burdensome. The carrying out of research in rural areas in order to find out more about the techniques of socio-economic development is and will always be a rather elaborate undertaking. For this reason the analysis instrument provided by classification programs of this nature, seeing the testing of its possibilities, which has now been carried out, will prove to be an asset in the continued work.

CORRELATION CHART / CLASSIFICATION PROGRAM 60 + 14 material 1968

 $r = \pm 0,30$ or $> / p = 0,01$ 

CORRELATION CHART / CLASSIFICATION PROGRAM 60 + 14 material 1968

 $r = \pm 0,37$ or $> / p = 0,001$ 

Layout and summary of the Depth survey 1968

VIII: 1 Introduction

After having administered the Follow-up I questionnaire in the field it became rather clear that one would not be able to single out any particular impact from the Kibaha FTC course while comparing the answers between Participants and "Other Farmers". Although variables No. 95-97 had been added to the questionnaire in an effort to obtain at least the respondents' summarized view of any possible traces of change in their villages, farming, and life conditions between 1965 - 1968 - positive or/and negative, the questionnaire did not manage to clearly register much change-information if any - of whatever origin.

In an effort to further look at the question of possible changes, and then regarding improved farming techniques in particular, I decided to use still another technique and thus set out to do a depth survey through a very concentrated questionnaire, i.e. very tangibly linked up with the training offered at the course. I decided to pick a sample where as many respondents as possible would have taken part in the course. For comparison I would use two kinds of control groups - one which would have been in contact with the Depth survey Participants, like e.g. neighbors in the same village, and one where one could feel rather certain that the respondents probably would not have been influenced either by these Participants or by other ones, like e.g. people living in a transport-wise cut off village.

As has been stated earlier the Main survey questionnaire was at the outset in 1965 rather wide-ranging and not explicitly structured to form a base for evaluation. It was restructured in connection with the 1968 Follow-up questionnaire. It would take time - like until a second Follow-up - before this restructuring would come into full effect, however.

In the meantime I thus decided to set up an explicitly evaluation structured questionnaire. For financial reasons the total sample involved would have to be rather small, and the Depth survey did indeed amount to a small scale study, and should be regarded as an experiment in evaluative questionnaire-structuring.

VIII: 2 Definition of survey population, sample method and construction including control samples

The Depth survey was carried out in Bunju village and Kibesa village in Mzimba District (see Map No. 2 p. 91).

Bunju village was chosen since it held more FTC course participants than any of the other villages in the Mpiji sample. Kibesa was chosen since nobody in that village had taken a course at the Kibaha FTC.

I put questions to three different categories of farmers:

1. Bunju FTC Participants (= Depth survey Participants):

7 farmers in Bunju who had been to the Kibaha FTC for a course (7 = total number of FTC course Participants in Bunju). Out of these 7, one was on the list of names for Bunju village in connection with the Main survey but he did not belong to those interviewed. The remaining six farmers lived within one mile of either side of the Mpiji River but their shamba(s) was on the other side of the 2 x 1 mile sample area limit.

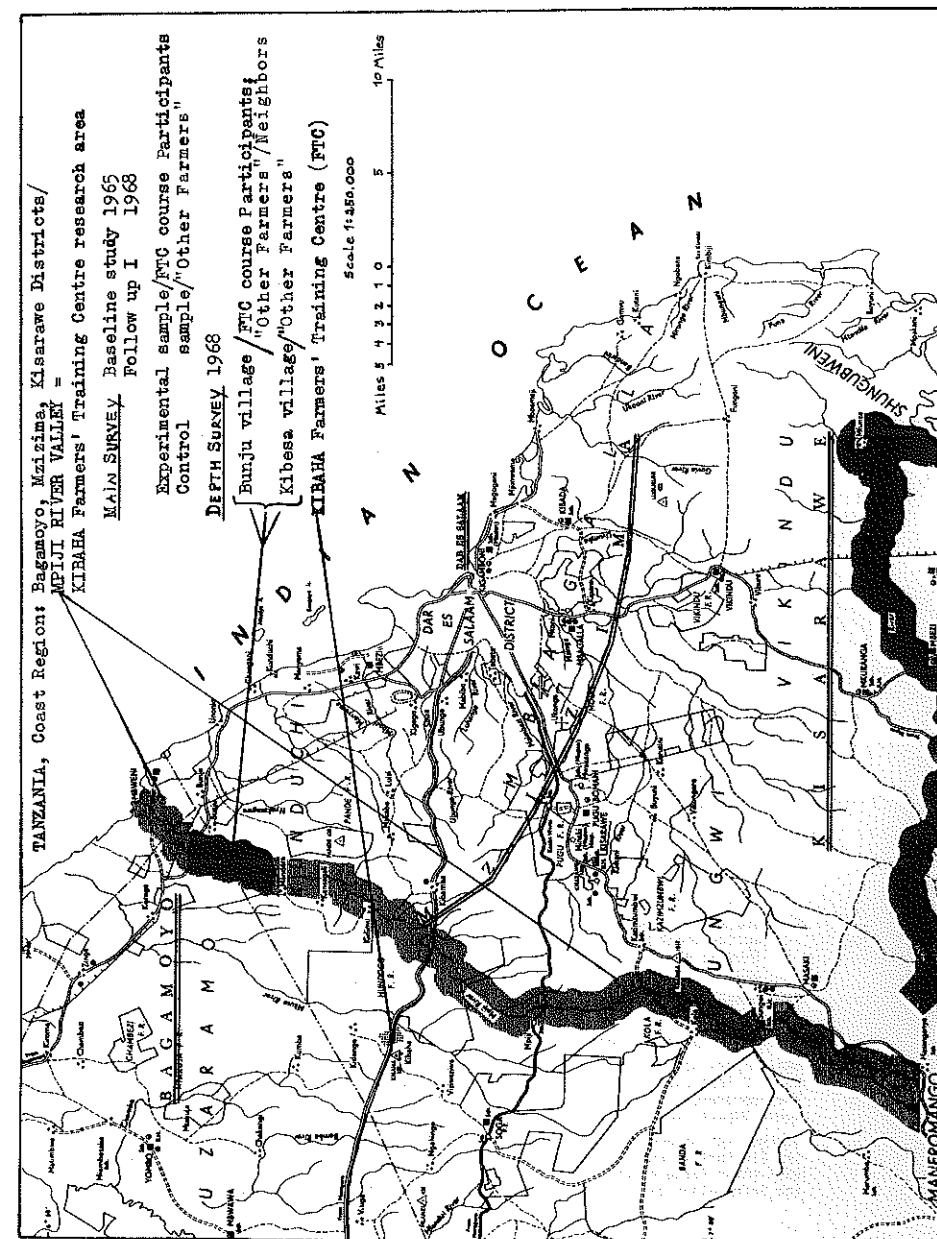
2. Bunju "Other Farmers"/Neighbors:

7 farmers in Bunju who had not been to the Kibaha FTC for a course - but who lived in the same village area as those farmers who had been to the FTC (any multiplying effects through "innovators", i.e. those farmers who have been to the FTC, in connection with the neighbor relationship?). Out of these 7, two were on the list of names for Bunju village in connection with the Main survey but they did not belong to those interviewed. The remaining five farmers lived within one mile of either side of the Mpiji River but their shamba(s) was on the other side of the 2 x 1 mile sample area limit.

These 7 respondents were picked in a haphazard manner. At a funeral in the village where everybody was present, a village leader approached 7 non-FTC Participants/"respondents to be", and they all agreed to co-operate in connection with the Depth survey.

3. Kibesa:

12 farmers in Kibesa. In this village nobody had been to the FTC for a course. 12 = total number of heads of household in Kibesa. All 12 were on the list of names for Kibesa village in connection with the Main survey, and two out of them had been interviewed.



Thus this Depth survey covered a total of 26 farmers.

In connection with category No. 2 the number of 7 was chosen so as to make a comparison with the number of respondents in category No. 1 as easy as possible.

In connection with category No. 3 Kibesa village was chosen since:

- Parallel with the non-Participants reason, was the reason that it was regarded as a useful thing to be able to survey one village in total, and the small total amount of heads of household in Kibesa facilitated such an undertaking.
- Kibesa matched closely in size/number of respondents the two Bunju samples (reasons of comparison).
- Kibesa was closer to Bunju in distance than any other village with the characteristics listed here (reasons of expenses) while still being sufficiently out of reach in connection with possible Bunju innovators' influence.

VIII: 3 Construction of questionnaires

This experimental intensive study was discussed with the Tanzanian authorities concerned within the fields to be covered by different variable categories, and the "respondents to be" including the local leaders were given an introduction of the survey purpose and lay-out before the samples were made final.

Tanzania Government supported my suggestion that while parallelly checking any possible Kibaha FTC impact in connection with the Depth survey, one would put questions within fields, which had not really been covered earlier through rural surveys of this kind, ("experimental variables") like:

- What was the opinion among the Depth survey respondents regarding the Ujamaa-system (Ujamaa vijijini). The Ujamaa policy means among other things that the farmers in an area get together to cultivate one big village shamba on a communal basis, at the same time as they would also have their individual shamba. The community farm would be run on the principal of equality, where the members would share the joint produce according to the work they each have done.

The Ujamaa villages are to develop into multi-purpose co-operative societies. The benefits of the large scale shamba would among other things be that one could then gradually afford to use modern farming techniques and implements which could gradually raise the yields and the income to the benefit of all farmers involved.

Through the Ujamaa system it will be easier to provide the vast and wide-spread rural population in Tanzania with different kinds of service, infrastructure, etc.

- What was the opinion in the Depth survey sample about the Arusha declaration? (In February 1967 TANU's Executive Committee adopted the Arusha declaration as the party's policy. The two basic principles behind it are that the means of production should be owned by the people (this point was also earlier part of the party's program), and that the country should to the greatest extent possible be self-reliant. The Arusha declaration is a statement of principles rather than a political action program. It expresses the Tanzanian ideology of concentrating upon the people rather than upon industry, of relying upon one's own work rather than upon foreign assistance, and more upon agriculture than upon industry. In connection with this policy, nationalizations were undertaken within banking, insurance, the mill industry, exporting/importing, etc.).
- What was the opinion in the Depth survey sample of birth control practices?
- What did the respondents do during periods of drought?
- How did the respondents characterize farmers who were better off than the respondents themselves?
- Would the respondents prefer going to a Farmers' Training Centre for a course in agricultural techniques rather than have agricultural extension officers (Bwana Shamba) come to the respondents' shamba and give advice/answer questions on the spot?

The questionnaires put to the three different categories of respondents are not parallel:

Questions regarding comments on the course naturally only went to the Bunju FTC sample;

one section of questions dealt with whether the respondent had been in contact with any FTC Participant, and, if so, whether this contact had had any effects regarding the improvement of his shamba work. This sector, dealing with any possible innovation agent impact, went to Bunju "Other Farmers"/Neighbors and to Kibesa;

another set of questions went to the Bunju FTC sample and intended to find out whether the FTC Participants did discuss aspects of the training received during the course with other farmers after having taken part in the course. If so, did people follow up the information given regarding possible ways of improving their agricultural perfor-

mance. Again - any innovation agent impact?

For the distribution of observations see the Depth survey frequency tables in Appendix No. III, Depth survey 1968, with concentration upon course variables, and the experimental variables mentioned under VIII:3 a. - f. (The full text of the Depth survey questionnaire 1968 can be found in Appendix No. II Section I).

A land-use map was being used in connection with the Kibesa sample in an effort to get an idea of how the land was being utilized. As stated in Chapter VI I was of the opinion that it would be useful to try to get as full and concentrated a picture as possible of a village or two, rather than getting a more wide-ranging and less fully covering idea of the socio-economic setting in a range of villages. This effort to obtain a land-use mapping of Kibesa village was an experiment along the lines on how to structure a concentrated village information gathering instrument like e.g. a questionnaire - what would the problems look like, what factors would one have to take into consideration in connection with the preparing and planning of a survey of that nature.

This land-use mapping did not really help to give as full a picture as possible of the socio-economic life of one of the sample villages concerned. It did, however, to some extent help to bring about an impression of a somewhat deeper knowledge of the survey village concerned and its inhabitants, and this village thus became more tangible - all round - than the other villages in the valley. This effort of some emphasis on one village will be further discussed in this chapter, section 5 and in Appendix No. III a.

VIII: 4 Comments on tables and interpretation of results

When looking at the degree of equivalence between the three samples concerned in connection with the back-ground variables similarly used in Chapter VII one finds that:

age	"Bunju" (= the Bunju "Other Farmers"/Neighbors sample) is younger and "Kibesa" older than "Bunju FTC".
income	5 Bunju FTC had more than 500/- as compared with 1 Bunju. 5 Bunju had less than 300/-, 7 Kibesa had less than 100/- (Bunju and Bunju FTC 1 each with 3 answering DK or nothing).
past year	
poultry	7 Bunju FTC had poultry, 4 Bunju had, and 10 Kibesa. Amount was mainly < 6 with some trend for Bunju FTC regarding > 6, and only Bunju FTC had other than local hens (partly upon advice from Kibaha).
read and or write	There are 7 yes-answers for Bunju FTC, 7 for Bunju and 8 for Kibesa.
uses manure - yes	Bunju FTC 3, Bunju 2, Kibesa 1.

One soon realizes that Bunju FTC was better off altogether than the other two samples.

Regarding variables asking Bunju FTC on their opinion about the course it turned out that all 7 were in favour. Regarding pros and cons in connection with different parts of the curricula see Section 9, Q 38 in Appendix No. III. 5 found that the course should be longer (Q 39).

When looking at answers in connection with some of the course variables, one finds that Bunju FTC did give the Kibaha FTC or Health Centre as an answer as to who gives/gave advice regarding i.a. the variable on the cultivation of crops of different kinds.

Yes-answers regarding the following course variables (Q.s 68-77) looked like this:

	B FTC	Bunju	Kibesa
a. Use soil conservation	3	-	1
b. " insecticides	1	-	-
c. " manure	3	2	1
d. Extend acreage	6	4	6
e. Store crops in dry place	7	7	12
f. Space properly	6	5	5
g. Plant new trees	-	-	-
h. Boil drinking water	-	-	-
i. Take medicine regularly to prevent malaria	1	4	1
j. Eat nutritious, vitamin- and protein-rich food daily	7	4	9

When i.a. Bunju FTC was asked as to from where or how the idea came to use these practices, the Kibaha FTC was stated as follows in connection with Bunju FTC's yes-answers from above:

Variable	Yes-answers	Kibaha FTC advice
a.	3	3
b.	1	1
c.	3	3
d.	6	4
e.	7	-
f.	6	6
i.	1	1
j.	7	6

The figures showing Kibaha FTC impact should not be given too much weight. Much of the time the source of advice is a combination of Kibaha FTC, tradition e.a.

When in connection with course variables a. - j. as above, those in the Bunju FTC sample, who stated they do not use the practice concerned, were asked why not, since "as you remember, when you were at Kibaha they told you all about the benefits of this practice - so what are your main reasons for not following that advice", a common answer-combination was this one:

"Kibaha means theory; they used no hoe there; to practise this needs money i.a. to hire labour; it needs energetic people, intensive work, and proper tools".

Other answers here were:

"Does not find it necessary"

"Have forgotten the Kibaha advice"

"I am too old"

"Not used to these new methods"

The reasons why no respondent (N = 26) is planting any new forest trees and not boiling drinking water are the following:

not planting trees

lack of land
" money
" time
" labour
" seeds

there is enough for fire wood;

it is useless; brings no income; I have more important things to plant; it is a waste of effort

not boiling water

lack of money
" time
" storage

wife does not take it seriously;

the water is clean

When looking at the answers in connection with the above mentioned "experimental variables", it turned out that regarding

Ujamaa:	B FTC	Bunju	Kibesa
had heard about it	6	5	6
had a partly correct definition of its meaning	3	2	3
were in favour of it	3	4	9
were in favour of moving to a communal village	1		

The "in favour of the Ujamaa policy" yes-answers are not clear cut. Many of them consist of "yes, but ...", "yes, if ..."

The no-answers here tend to concentrate on aspects like:

"People aren't co-operative; people are lazy; all sorts of tricky reasons will be used to avoid working; the process will break down soon".

The next to largest group of no-answers point out:

"Want to remain independent and decide myself".

It is difficult to see any particular trend in the answers regarding attitudes towards Ujamaa. Answers are very wide ranging. (See Appendix III, Section 18). A safe conclusion is that most respondents who state they are in favour - 16/62% (N = 26), in parts are negative. The answers should be read, however. They provide a lot of all round information.

Regarding the Arusha declaration, and whether it is good to become self-reliant, the two most common answers among those who support it are:

"Because one does not lower the standards of the person one depends upon"; "Less vulnerability because of depending on others".

Regarding birth control and respondents who have children, 9 (N = 19) state that they know what people do for birth control. 1 B FTC and 1 Kibesa (N = 26) find it a good idea. The reasons for not liking the practice are wide-spread (see Appendix III, Section 21).

Regarding failing rains and how to feed one's family suggestions like fishing; selling poles, charcoal; buying food, and temporary employment are stated.

Regarding whether the respondents know of any farmer in the area who is better off than other people and, if so, why he is considered to be so

7 (N = 26) say they know of such farmers (B FTC 4, B 2, Kibesa 1 - amount of stated characteristics B FTC 15, B 7, Kibesa 2). Characteristics are stated as:

much land	4 (N = 7)
many wives	-
many daughters	-
cash crops	5
business concern	4
working capital	5
fishing equipment	-
house in Dar es Salaam	-

Regarding the variable "taking a course or have an agricultural extension officer come to the spot" those in favour of a course and then at the Kibaha FTC are:

B FTC	6
Bunju	3
Kibesa	4
	13 (50%)

- most answers as to why in favour of a course fall under: "Because I'll see them doing, see worked out models, and I'll learn by doing - it is not only advice, short talks and mere words".

Most answers from those being against a course (50%) fall under: "Because the course is in a different place from where application has to take place.

I want practical training in my own farm and my personal problems discussed".

A trend in the answers from those being against a course is that:

crops will be destroyed because of lack of care in that period;

he has no children with whom to leave his wife;

it will take him away from family contact.

Regarding the variable: innovation agent impact/has any FTC Participant informed you (Q:s 17-31) about the Kibaha FTC and the practices, which the FTC advises farmers to use? -

there has been some contact of this kind as far as the Bunju sample is concerned but there were no such answers regarding Kibesa.

In connection with the same variable: innovation agent impact/have you informed others about the FTC course (Q:s 78-89) -

all 7 Bunju FTC claim they have done so, and that some people followed the advice thus given. Reasons for people not following such advice fell under the following five categories:

they are reluctant - tools and equipment require time, energy, courage and money;

with 50% of the answers belonging to the first category.

Regarding Q 120 on what the respondents would do if left with some extra money -

When asked about activities during off season periods (Q 117) -

As a conclusion in connection with the Depth survey material one can say that the Kibaha FTC factor is noticeable in the tables. On the other hand the questionnaire was worked out so as to bring about this effect. One can however notice the presence of this factor also beyond "meaningless" variables, like: have you been to the Kibaha FTC. In other words there is some FTC impact at hand, although the fact is still there as to the course being too short, etc.

The Depth survey tables should, however, be read through one by one. One important contribution of this effort to focus upon agricultural techniques is that the information obtained does give quite an introduction to the rural development mechanisms problem area and to the socio-economic situation prevailing at grass root level. The fact that one of the sample categories, Bunju FTC, consists of better off/contrasting respondents amounts to be a helpful instrument when it comes to trying to study/clarity one's rather blurred concepts of what does the average rural area look like, and what are its problems.

Thus, I find the Depth survey worth the effort. The respondents seem open-minded and apparently stimulated by the interview-situation, and the tables provide interesting and valuable reading for anybody with an interest in the rural development problem area.

As stated earlier in this chapter I tried to put some extra emphasis upon Kibesa in connection with a wish to register more closely the rural life situation - all aspects - through studying in greater detail one village or two. The result, as presented in Appendix No. III a., is by no means satisfactory since the survey technique used for financial reasons had to be somewhat superficial. Thus no elaborate analysis can be made in connection with these data.

For the same reason as the one brought up regarding the Depth survey, however, I find this village survey worthwhile and valuable. The data do provide grass root level based information, which, while remembering its limiting factors - lack of depth and continuity nevertheless is difficult to get at. The data give a picture of some aspects of life at grass root level. Through rather elaborate efforts from all parties involved one has obtained what is a somewhat superficial idea of life conditions, but even so this insight is more pinned down than the much of the time generally prevailing generalizations based on what are often even vague facts "facts".

For the planning and implementation of development in rural areas of this nature/ socio-economic level, any information beyond merely blurred generalizations ought to fill an important function.

For this reason I find the Kibesa village survey meaningful and am including it in this paper on rural development. See Map No. 3 p. 96 a. and Map No. 5 p. 96 b.

The Kibesa village survey as presented in Appendix No. III a. consists of two questionnaires per respondent (N = 12), both of which are extracts from the Depth survey questionnaire. Part I gives a concentrated picture of the respondent through socio-economic data, some farming variables (course variables), and a land-use map.

Part II provides a wider range regarding farming variables, and then also includes variables regarding sources of information and advice, the Ujamaa policy, attitudes, aspirations, self-help schemes, the future, the Arusha declaration, and birth control.

Reading through the Part I questionnaires per respondent gives some idea of what Kibesa, and its inhabitants look like. Reading through also Part II gives quite some idea of what this rural sample looks like.

This kind of background information is helpful when it comes to dealing with the evaluation of any possible impact from development inputs, like e.g. a FTC course. It is also helpful when it comes to the continued planning of how to introduce what inputs - in what order, etc. - i.e. how to set development going.

Suggestions for further analysis of the Kibaha FTC impact study material
at the present stage of data collection

Although the two samples in the Main survey - 7/60 - are not easily comparable seeing the small experiment group, one could set up an index for the two groups classifying them into e.g. poor, average, good farmers/per-formers in relation to i.a. course variables, sets of variables/indices. This process would assist in connection with working out such an analysis after a Follow up no. II and an adjusted sample situation.

$$\frac{x_{T_2} - x_{T_1}}{x_{T_1}} = > 1$$

$$C_{T_2} - C_{T_1}$$

C = control group (Other Farmers)

$T_2 =$ e.g. 1968

T₁ = e.g. 1965

1965	1965
"Experiment group to be"	Control group

A schematic diagram of a square lattice. The top boundary is labeled d_3 and has a dashed line with an upward arrow. The right boundary is labeled d_5 and has a dashed line with a rightward arrow. The bottom boundary is labeled d_4 and has a solid line with a downward arrow. The left boundary is labeled d_1 and has a solid line with a leftward arrow. The interior of the square is filled with a grid of dots representing lattice sites.

1968	1968
Experiment group	Control group

where d_1 = difference because of Time and Course input

d_2 = difference because of Time

d_3 = difference between experiment and control groups re: equivalency in connection with certain background variables

d_4 = difference between experiment and control groups ($d_3 = 0$)

d_5 = difference between d_1 and d_2

Were the two samples to be of the same size, one can here argue that the thus possibly obtained indicator of course-impact is misleading because of the interaction effect of the interview-situation. Interviewed "Participants to be" might obtain higher values on "course variables" as Participants at Time₂ than not formerly interviewed Participants would at Time₂, but then this factor will be there in connection with the impact of the time input upon the performance also of "Other Farmers". Being able to measure against a baseline should compensate for this drawback, although it might suggest one's concluding a, say, presence of course impact rather than an exact indication of the extent of such impact.

This before-after method is probably to prefer to side wise-measuring (a sample similar to the pre-course sample is being interviewed parallelly with the now course participant sample), and to tracing-back measuring (respondents are asked to state pre-course performance in connection with course variables).

Through aggregated sets of course variables one would in connection with this hypothesis test establish e.g. Farming excellence, Health excellence, Achievement Motivation excellence, etc. indices with score values ranging say from 0 - 5 with 0 - 1 = (P)oor, 2 - 3 = (A)verage, and 3 - 5 = (G)ood. This analysis might produce a Poor, Average, Good Modernization index with

P at	A at	G at	
60%	30%	10%	for both groups at Time ₁
45%	40%	15%	for the control group at Time ₂ , and
40%	43%	17%	for the experiment group at Time ₂ .

IX: 2 Anthropological framework

To an unsatisfactory extent has the present bulk of data been analysed against the anthropological setting of the rural society concerned. More information could then have been obtained - directly as well as indirectly.

What interaction is there between the analysed mainly socio-economic variables and e.g. patterns/customs of

tribe	ownership
clan	rites
family	taboos/re: food, e.a.
hierarchy	attitudes
authority	aspirations
"communications"	view of life, etc.
heritage	

Showing the interaction between more socio-economic data and here listed variable categories would have produced a more integrated picture of the valley population as part of a societal environment.

These latter variable categories have been analysed i.a. in Dr. Marja-Liisa Swantz' book on "Ritual and symbol in transitional Zaramo society", Uppsala, 1970 using data i.a. from the coastal population in Tanzania including e.g. the inhabitants in Bunju village.

Also the definition of terms/concepts like e.g. "village" could well have been elaborated/more of an effort to elaborate could have been made - it is doubtful whether one would succeed since the location of boundaries - areal, administrative - in many parts of the country still probably was known only to an approximate extent in what, at present, is a society under continuous transition.

Had the 1967-68 survey work been carried out according to the plan of following closely - course aspects and others - a couple of village areas for c:a 8 months, more complete information of the following kinds could have been collected:

yield per acre
number of acres } per se and related to:
income per acre }
distance/transport conditions from homesteads to a road linked up with a market place
labour input
average working day for men and women
man-hours per acre and year
labour input/labour distribution men/women/children -

in connection with this last aspect it would probably be worthwhile to focus on how much of the farming work and what work is being carried out by women. It might well be that FTC participants should mainly be made up of women instead of men in case the former turn out to be the ones who carry out the bulk of the farming work. It might well be that local customs, tradition and sexual discrimination, on behalf of a developing country society as well as on donor countries - engaging men at policy and field level, direct education, training and socio-economic modernization towards men within the agricultural sector. With women often being the productive factor within this sector, however, development inputs will not get the impact they should as they will not manage to bring males fully into agricultural production nor support/improve the productive forces proper, since these latter ones - females - are not being brought into contact with modernized techniques.

Some of above suggested lines for continued analysis of this rural study material could have been carried out via already collected data (covering all villages in the valley). This additional work could not, however, be done within the framework of the so far produced survey reports seeing factors such as time and expenses. To include all aspects for such a continued analysis covering the whole valley at the time, non-existing margins for additional variables/enlarged questionnaires would have been needed. However, when considering future Follow ups the fact, that more information can be drawn a) from already existing data as well as b) from rather easily obtained additional ones, will pave the way for a possible continuation of this work on finding/studying the mechanisms behind socio-economic development at grass root level.

IX: 3 Directly and indirectly relevant literature for reasons of comparison

A greater effort to find comparable evaluative surveys in the literature could have been made. I am convinced from experience, however, that one would have difficulties in finding much material of direct relevance, but very little difficulties in finding rural society research data of indirect relevance, which, however, even so could possibly to some extent be taken advantage of to a greater extent for the benefit of an elaborated interpretation of the Mpiji valley data, and for discussing a possibly continued data collecting.

I did find an FTC impact study*) and then on Tanzanian material, although of ex-post character, which is being discussed in Chapter XI (excluded).

*) carried out by Dr. F. Petrini (1970)

CHAPTER XII

Suggested framework for and outline of Follow up surveys, no. II, etc., to come (according to original plan).

XII: 1 Discussion of existing questionnaires and of future ones

In connection with the questionnaires used/to be used some critical comments have been pointed out in Chapter X (excluded). In short - the experimental character of the study means that the process of obtaining the adequate instruments for the information gathering at stake will be of a continuous character although gradually improving with experience.

Before-after questionnaires are constructed in a way which means that for each new point of time, e.g. 1968, 1974, etc. some of the former variables used will be taken out if they proved to be irrelevant or they become irrelevant as time goes by through changes in one way or the other in connection with the factors which one wants to study/measure. At the same time as the questionnaire loses parts of the original variables over time, new variables are added to it with relevance to changes in the development input, which is being studied. This way one keeps a gradually shrinking set of variables which can be followed from Time₁ and all the way onwards. Parallel with this one establishes, in parts, for each point of time a new baseline through the introduction of new variables, against which a follow up can be made at the next point of time. Thus there is a certain flexibility in the information gathering instrument.

The (Base - 65) variables which do not appear in the (FI -68) and (Depth -68) questionnaires, the (FI -68) variables which do not appear in the (Base -65) and (Depth -68) questionnaires, and the (Depth -68) variables which do not appear in the (Base -65) and (FI -68) questionnaires are listed in Appendix No. II Sections K,M and O. A general trend in line with the discussion above is that the (FI -68) questionnaire is more FTC course-centered than the (Base -65) one, and the (Depth -68) questionnaire even more course-centered than the (FI -68) one while also holding "experimental" variables on Ujamaa, the Arusha declaration, birth control, etc.

XII: 2 Sample construction

Seeing that the original sample decreases over time (migration, death) one will have to increase the samples in connection with a coming Follow up. At the same time one would for obvious reasons increase the experiment sample, FTC participants, so as to make the two groups more comparable. The additional control group in connection with a possible Follow up No. II, Time₃, should be as similar as possible to the original control group at Time₃. Another random sample within the survey area should produce such a control group.

If the two control groups at Time₃ are equivalent in connection with certain background variables, one should check whether the original one at Time₃ is more different from the original one at Time₁, than the new control group is. If this is the case, there could have been some panel effect upon the original group as discussed in Chapter IX p.98 i.e. exposure to interviewing might to some extent have influenced its performance. This is still another reason for introducing new respondents, however, who will probably have a neutralizing effect in this connection.

This reasoning is parallel regarding the experiment group.

That is, a possibly measurable degree of course impact at Time₃ could be due to the course input only without any impact showing up from possible interaction caused by the panel effect.

XII: 3 Kibaha Farmers' Training Centre impact study - rolling follow up (micro)

In 1965 and in 1968 I discussed with the Kibaha FTC the possibilities of carrying out evaluative studies of a more continuous character than the Main survey (Baseline plus Follow up Survey no. I) and on a smaller scale. This "micro-surveying" should run in between the Follow ups of the Main survey and be of a supplementary character. In 1968 an outline for such continuous micro-surveying was made, see Appendix No. II Section S, and the questionnaire was fielded a couple of times in 1968 and onwards. I do not know to what extent this undertaking has been put into system after the first stage of experimenting. The Kibaha FTC was in favour of such "in between" information gathering but the problem in connection with undertakings like evaluative studies is lack of staff. I still feel that such a combined approach would be fruitful - the two kinds of data collecting can benefit from each other, and the two of them will contribute to the continuous improvement of the FTC-activities. A report from the fielding of this micro-surveying as of December 1968 follows (excluded here).

If it were to be possible, however, for, in this case, the FTC staff to find time for evaluative follow up of the effects of the training offered at the courses, this would probably be the most efficient way of improving the potential of the development input concerned. Getting in close contact with the farmers and their problems on the spot will help bridge the gap often prevalent between planners/the planned target and the actual outcome of the plans. The lack of resources/staff is however a very legitimate reason in countries like Tanzania for not being able to follow here outlined grass root approach in connection with the integration of evaluative studies into the development process.

In connection with continued Follow up survey work regarding the Kibaha FTC, Main survey and micro-level, and regarding the evaluative survey work at large in connection with Kibaha's local catchment area, I would suggest that one tries to have somebody on the Kibaha staff who can coordinate the research work of different kinds. If there is no coordination there is a risk that the different efforts will take on an ad hoc character, which will greatly decrease their efficiency as measuring instruments. Instead these instruments need to be as efficient as possible if to be able to assist in the process of finding out more about what integrated inputs should be made in order to generate development in a given socio-economic situation.

CHAPTER XIII

Some comments on the - justified - approach of studying/evaluating socio-economic effects of development efforts in rural areas

XIII: 1 Farmers' training methods and other development inputs on the changing rural scene in Tanzania/developing countries - how adequately built in grass root studies can help improve such methods/development processes

Tanzania/peasant based economies have scarce resources parallel with high priority demands from all sectors of society.

Evaluation, as stated earlier, has largely been regarded as a luxury by developing countries and as an irritating issue by donor countries. What could be regarded as a paradox is that the poorer a socio-economic setting, and the more grass-root embracing required by the developmental "shaking up" process, the more relevant does the above mentioned irritating luxury become.

In Tanzania, e.g., with a socialism based political ideology this developmental "shake up" means an effort to raise the living standards of the rural masses, to develop agriculture, to bridge the gap between rural and urban income levels, etc. In line with this approach one is trying to obtain concentrated clusters of farmers which are easier and cheaper to reach than, what was/is, a very scattered distribution of homesteads or small groups of homesteads/ "villages". This means the transition from an agriculture dominated by individually based production to a rural sector based on the principles of co-operation. This policy, Ujamaa vijijini, is i.a. another way of trying to improve the agricultural techniques of farmers.

Instead of, in connection with specific agricultural training, mainly using the FTC-approach, extension officers will now come to the spot/be stationed at, and in so doing will reach more farmers than before at the same time.

One of the problems in connection with the extension officer system so far is the unhappy extension officer/farm family ratio of 1:700. Added should be that extension officers to quite some extent have to try to establish the accepting of new ideas in spite of sometimes being met by socio-cultural inertia caused partly by traditional beliefs, customs and norms of peasant life. The primary concern of subsistence farmers is to ensure that the family has enough to eat from one harvest season to the next. Their agricultural practices are characterized by a low level of capital inputs (high yielding seeds, fertilizers, insecticides, irrigation, etc.), and a correspondingly low level of technology. Given the uncertainty and high element of risk in peasant subsistence production, tradition is often strengthened.

In addition to this there are the problems of the vast size of Tanzania, the poor roads, and the limited number of transport vehicles available.

This situation made Tanzania embark upon a program of training farmers at FTC:s, one to be built in each region.

Without leaving the FTC:s out, (they are being transformed into "multi-purpose Rural Training Centres"), the country is now turning towards the

improvement of agricultural techniques, which is a must if Tanzania wants her development plans to materialize. Tanzania's key asset is the land. After all, it is a peasant-based society with only c:a 4% of the population as wage earners. So unless the farmers feel both responsibility and pride in their work, as the Iringa policy states, Tanzania probably won't have a future. The Iringa paper does in a nutshell show the problems of rural Tanzania/rural economies, and how one can set out to tackle them.

Parallel with the introduction of the Ujamaa and the Iringa policies is the introduction of heavy emphasis upon the provision of water programs, domestic and irrigation, all over the country. Combined with these programs are other infrastructure inputs, a more efficient system of providing grass root level credits combined i.a. with the establishment of a Rural Development Bank, a whole range of adult education programs, the spreading out of a network of small scale industry, and a decentralization of the development planning/implementing process including financing.

What this massive combined effort of inputs aims at is, in short, to get rid of the prevalent opinion that "if there are huge stones lying around in a field, this is so because of God or Allah, and there is nothing man should do about this". This obviously prevents efficient use of that piece of land. Productivity and income in the rural sector are low making up c:a 40% of GNP in spite of 90% of the population being rural based. The Ujamaa and other policies combined with the decentralization of the development process are there to unveil and set the rural sector potential going and thus help to solve the socio-economic problems in rural areas.

Resources to i.a. transform the put-the-blame-on-Allah attitude into modern ways of thinking and thus render the rural sector more efficient, i.e. develop the country, are scarce. This is where evaluative grass root surveys come in in order to help make sure that resources are used in the most adequate way possible. Such survey work will i.a. pave the way for alternative input plans to be worked out leading towards optimum use of resources. The decentralization of development planning towards regional and district levels is there to meet what is a need for more integrated development planning/sectoral coordination as against more disparate ad hoc project level planning.

In connection with the Ujamaa system one should make a systematic effort to study and evaluate the experiences gained - study the results according to farming systems, use of equipment, forms of work organization, distribution of proceeds, systems of land tenure - all related to socio-economic costs. - Should inputs be differently structured, be introduced in a different order, etc.

In connection with the Iringa policy one should construct information gathering instruments/questionnaires, which can check up on whether better inputs are being used, like improved seeds and irrigation, does one use manure for feed-back rather than keep opening up new land, does yield per acre increase, etc./ if no - why not, if yes - what are the results. Is large scale farming being undertaken where practicable, does the credit system function, are feeder roads being constructed, do know-how and tools reach the farmers, is small scale industry following quite as

If no - why not, if yes - what are the socio-economic results.

In connection with the rural water program one should find out what the socio-economic benefits are, and possible drawbacks. Seeing e.g. that the women will now get additional time at their disposal - how is it being used, how could it be used, what socio-economic benefits follow from this release of man-hours. From improved hygiene, etc. What follow-up inputs should follow, and in what order. Should one build a Primary School, which means that the children will no longer help attend to the animals, or should one build a feeder road, or a dispensary? Which order of/combination of inputs will be most adequate seeing scarce resources. To what extent can the positive experiences in one area be drawn upon in other areas.

In this connection I am enclosing in Appendix No II Section A. a paper on why and how to study/evaluate the socio-economic benefits of the rural water program in Tanzania, which I wrote in 1969, after a visit in the field upon the request of the Swedish aid agency, which is financing parts of the water program. The paper brings out the relevance of evaluating the socio-economic impact of developmental inputs while using the before-after method of measuring, and also brings up the importance of studying the supplementary interaction between, in this case, the Ujamaa- and the water program. What do these interaction patterns look like. How do they differ in different areas. How can one help intensify positive, and apparent rings-on-the-water kinds of interaction impact and avoid an opposite process.

I started opinion work along these rural water survey lines in 1967, when Sweden was starting out on financial assistance in connection with Tanzania's rural water program. I thought that a built in socio-economic evaluation system here would provide great opportunities to find out about the structure of development mechanisms for the benefit of development planners/resource distributors.

The building in of a survey machinery as of above through before-after studies eventually was gradually embarked upon in a systematic way via the University of Dar es Salaam, and evaluative socio-economic surveys have been carried out - are being in different parts of Tanzania in connection with the water program, following the growing network of pipelines.

Other aspects to be covered by grass root level studies are the links between central, regional, and district headquarters and the grass root level, and how these links function. If regional differences in this connection - how could one improve this communication situation in areas where links for various reasons are poor.

What side-effects - positive/negative - can be registered in connection with these massive rural development policies/programs. How to quench negative ones and stir the positive ones.

What expectations and/or fears e.g. can be registered within the rural population. What means turn out to be adequate when it comes to taking away fear. What methods seem to be fruitful when it comes to making the people answer up to this many-sided development effort. What incentives could be used. Where do some incentives function and where not - why.

The kind of grass root surveying being discussed here means promoting an interdisciplinary approach in connection with studying rural economies in its focusing on overall structural dimensions - a kind of approach which is overlooked when it comes to the routine collecting of economic data involved in connection with standard cost-benefit analyses.

As discussed in Chapter IX, research workers should to the greatest extent possible have an overall view of the people's social patterns, attitudes, and agricultural practices, and of what the relationship is between these factors and the factors of rural production - all aspects. One must know the anthropological framework of the local society in order to find the basic denominators, from where to assist in a tangible way in transforming a traditional society into one characterized by a self-sustaining process of technological advance. This will help to avoid, to as great an extent as possible, far-reaching and maybe disastrous mistakes at a great loss of time, money and human energy.

XIII: 2 KEC and the development of its local catchment area (10 miles' radius)

A demonstration of the usefulness of grass root studies is provided by e.g. the local catchment area of the Kibaha multi-purpose Rural Training Centre. A continuous flow of data are obtainable directly at the Centre or at its satellite dispensaries, and community development centres, etc. in the local catchment area. The bulk of these "automatic data" come from the Health Training Centre through patients, who come to the Centre or to the Kibaha satellite dispensaries within the 10 mile radius of the Centre. These are data on health, nutrition, hygiene, housing, water consumption, etc., and there are also data on adult education such as literacy courses, etc. carried out on the site of the Centre or in the catchment area. Chart No. 8 gives an idea of the variety of activities going on at/being directed from the Centre (excluded here). Map No. 6 shows the development activities going on in the catchment area 1968 (excluded here).

In 1968 the structuring of this automatic data collection registering was not quite clear. The catchment area does, however, provide an excellent opportunity for registering, through before-after surveying, the impact of the Kibaha Centre development potential. With as well defined an area to work with, the construction of strict samples, including a system of measuring points at different distances from the Kibaha Centre, should not be very complicated. Nor should the construction of control samples have to create any problems. This local catchment area provides a good opportunity when it comes to registering the effects of the Kibaha development efforts upon e.g. the demography of the area, as well as upon socio-economic growth at large. Are the effects as big as expected - if so - how could they be further increased. If no - why not. What multi-plying effects can be noted. What side effects.

It frequently happens that development projects produce unanticipated side effects, desirable and undesirable. Because the effects were unanticipated, base line data may not have been obtained, or may not be already available from existing records, to permit "before and after" comparisons. It may therefore be difficult to demonstrate convincingly that these apparent effects did in fact result from the, here, Kibaha Centre, although it may be desirable to make special efforts to determine their relationship to the centre activities. (Here again the usefulness of comparing the catchment area with a control area comes in, as it may throw light on the possible cause of side effects). If attention is given to prediction of possible side effects, this will: a) permit planning of stand-by measures to be taken should undesirable side effects appear, or permit planning other measures designed to maximize desirable side effects; b) permit plans to be made for the collection of data on these side effects for the guidance of the planning and implementation of activities. These data can be used to modify activities promptly and in this way to maximize the benefits and minimize the harm from unanticipated effects.

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One of the purposes of the Mpiji baseline survey, "planned data collecting", was to provide information for guidance when it comes to realizing what are the exact kinds of data one would like to obtain for an adequate planning of development activities. Thus ensuing supplementary surveys could well be carried out in e.g. the local catchment area and from there possibly be built into the Mpiji Main survey questionnaires whenever relevant. Depth surveys i.a. on aspects of (temporary) immediate relevance to the different Kibaha Centre activities to help in directing the available developmental potential as appropriately as possible could also be carried out. Thus the Mpiji survey could serve as a framework for supplementary and depth surveys to be carried out/and tested in the easily accessible local catchment area.

The research instruments thus available at the Kibaha Education Centre could also be applied in connection with the Ujamaa villages, which have been created in the local catchment area (in all 700 households and 16 villages). The - followed up - information thus obtained can be used for the benefit of these Ujamaa villages, and for the guidance of the Kibaha Centre potential involved in the development of these villages as well as for the Kibaha Centre activities at large.

The experience thus gained from research work carried out at Kibaha, which for still some time to come must be regarded as an experimental undertaking, could provide useful information on method, techniques, etc. for the layout of similar research work in connection with other development inputs in Tanzania. Again - our irritating luxury becomes an indispensable complementary development tool.

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