inter aide

Food Security Project in Lilongwe East and Zomba South

Livelihood Impact Identification Tool

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Foreword

The evaluation team would like to thank the communities and all respondents who led to the successful design of this monitoring tool. In addition, the team members would like to thank all Inter Aide officers involved in facilitating this exercise.

The team also would like to express its gratitude to data collectors and data entry clerks. Special thanks are due to the members of the evaluation team from Inter Aide: Henry Ganizani, Nicolas Grondard, Fabrice Vandeputte, Aubrey Mhanda, Thierry Vincent. Ilan Tojerow, Researcher with the Université Libre de Bruxelles, who provided valuable assistance in building the quantitative model.

Other team members included Limbani Kaluwa and Uriel Levy.

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Table of Contents

Tables

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Programme presentation

Inter Aide Food Security Project in Lilongwe East and Zomba South for the period 2002-2006 has been formulated after a first project cycle limited to Lilongwe east (Traditional Authorities of Chitekwele and the Eastern part of TA Mazengera) between 1997 and 2002.

This second project encompasses several features which differentiate from the previous one:
- Extension planned to the whole Mazengera TA and Kalumbu TA, and in Zomba district
- Integration of a nutrition component
- Emphasis on capacity-building for farmers groups organizations

In the district of Lilongwe, the area of intervention measures **1,038 square kilometres**, and comprises the TA of Chitekwele, Mazengera, and Kalumbu. **Operationally, this area is divided into two zones** (because of disjointed implementation) having approximately the same superficies: **Chitekwele-Mazengera, known as "Chitekwele", and Mazengera Kalumbu, known as "Mazengera".** It has a population of 145,000 persons with an average density of 140 inhabitants per square kilometre – or 238 inhabitants per square km of arable land.

In the district of Zomba (and Mulanje), the intervention area was defined after the identification survey done in 2003**.** It covers an area of 650 square kilometres including with two "Traditional Authorities": TA Chikowi-Mbiza and the North of TA Juma for a total of approximately 130,000 inhabitants, with an average density of 200 inhabitants per square kilometre. The area targeted encompasses 90,000 inhabitants, for a density of 300 h/km².

The overall goal of the Project is the **reduction of poverty** and the **economic growth** through improved food security at household level on sustainable and adapted bases by increasing food availability, food access and food utilization in targeted areas.

The following project objectives were defined:

1. Smallholder agricultural productivity is increased and crop production is diversified
2. The soil fertility is improved or restored with a sustainable use of natural resources and the promotion of better land husbandry practices
3. Additional income generation at household level through small animal husbandry and horticultural and gardening activities
4. The vulnerability of poorest households is reduced
5. The capacity of the local farmer organization/groups (involved in reinforcing food security) is strengthened

Three main approaches are being used to reach the project's objectives. The first one is to provide **motivated farmers** with the knowledge and the means to improve the net value of their agricultural activity. The second one is to concentrate on **deprived families** (acute malnutrition being used as a proxy for poverty) to improve the nutritional status of their children and help them with a close follow up to strengthen and diversify their agricultural production. The third one is to empower **local organizations, women groups and committees** whose activity may help sustain the progress momentum reached with the two main target groups.

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Following the same exercise done in Zomba in 2003, an agro economic diagnosis was undertaken between March and August 2004 in Lilongwe to approach qualitatively the current problems faced by farmers.

Since the beginning of the project, the following changes were adopted:
- In Lilongwe, the approach by VDC (Village Development Committees) by which all activities are integrated for a small group of population
- Systematisation of the contents of training for farmers focusing on critical issues
- Development of activities in *dimba* considered as a key element to raise income of farmers
- Fostering economic analysis for activities generating revenues
- New strategy to support over time the already trained VDCs
- Development of strategies linking agricultural and nutrition oriented activities.
- Many technical adjustments in each field activity

In the absence of existing support for an easy assessment of the poverty level in the Malawian context (the LAST monitoring tool developed by Concern Universal was assessed but found inadequate to be used by the project), it was decided to hire external expertise to help for the design of a new monitoring tool, and produce baseline data to assess at a further stage the extent to which the project would have an impact on beneficiaries regarding food security and poverty.

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Research Methodology and Activities

Research Objective

The research objective is to develop a quantitative tool for monitoring and evaluating Inter Aide Food Security Project in Lilongwe East and Zomba South (budget line B7-2010 Food Security and Food Aid budget line). The tool ought to reflect the beneficiaries' living standards and food security levels with the following requirements included:

- A focus on assets tracking at household level to determine programmes' impact. Assets can be defined as human capital, social capital, and physical assets owned by the household. For the purpose of the study, the generic term of assets will be used.
- Sensitivity to the rural Malawian setting, specifically to programme catchments area
- Standardization to the largest possible extent.
- The data would be collected in the form of individual interviews with closed-ended questions. It was agreed that individual questionnaires should be administered in approximately ten minutes, which implied a limited number of variables.
- Adaptation to all skills of data collectors
- The data is to be analysed with a poverty index calculated from the set of relevant variables (scoring model).

Methodological approach

In order to measure poverty alleviation impact, a common understanding of the nature of poverty needs to be defined and accepted. A consensus around the definition of poverty as a state of privation from basic needs is easy to reach; it is however more difficult to agree on what are basic needs in the Malawian context in general, and in the context of the programmes' rural catchments areas more specifically. Minimum requirements will certainly address the topics of adequate food, shelter and clothing. The researcher is confronted to more challenging decisions regarding inclusion of additional topics, and when attempting to define the range of categories within each variable.

Poverty needs to be understood within a given economic and social context. In other words it is sensitive to the prevailing culture, and to individual choices and preferences. It is critical to understand the ways in which people are poor/rich, and the motives behind such an assessment in order to include the local reality. Consequently, a large part of the research was dedicated to designing the questionnaire. The team researched the perception of poverty in rural Malawi by using established participatory methodologies (see section 'Questionnaire design').

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Survey sampling

The universe of the sample was defined as the population of the catchments areas rather than beneficiaries only. The survey sampling utilised clusters, based on the following assumptions:

1- Programmes' impact is likely to be lesser for newly created than for older Village Development Committees (VDCs). The sample was weighted to include a representative mix of newer and older VDCs.
2- The distance between the village and the nearest main tarmac road could have a significant impact on villagers' poverty levels.
3- Livelihoods and poverty levels highly depend on social, economical and geographical environment, and therefore an adequate was observed across districts and TAs.

We used a double-stage sampling method. Within each cluster random sampling took place. The most efficient two-stage sample design is one in which primary sampling units are selected with probability proportional to size at the first stage of sample selection and a fixed number of sub-population numbers (25 households) is chosen from each sampling unit at the second stage.

Villages were assigned a probability of being picked directly proportional to their population. It compensated for the fact that an individual living in a large village will be less likely to be selected than an individual living in a small village. The Malawi National Census of 1998 provides the number of individuals living in each village, which allowed village population weighing. A list of villages was then randomly selected.

The end result is a self-weighted sample, whereby every person in the universe described by the districts has the same overall probability of being accepted in the final sample. In addition to being relatively efficient in terms of sampling precision, this design eliminates the need to weight the data during analysis.

For operational reasons, interviews did not take place in TA Chitekwele. In some instances, the data collection team could not localize selected villages due to name duplications, or maps imprecision. Practical challenges had been expected and the list of sampled villages offered alternative locations.

The sample size was calculated to ensure a confidence level of 99%. According to the statistical software Epi-Info[1], the sample size ought to be greater than 294 within the four planned TA clusters. Thus, the minimum sample size is 1,176 (294 times 4).

[1] Based on an expected frequency of 50% and a variation of 15% for worst acceptable value.

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Research activities and questionnaire design

Table 1: Research activity and objectives

Phase / Activity	Research objective
1. Secondary Research	Tool architecture
2. Detailed wealth assessment	Variables / indication on values and weights
3. Group discussions (1)	Definition of variable weights
4. Group discussions (2)	Fine tuning values / internal weights
5. Translation / Field test	Questions wording
6. Focus Group Discussions	Result analysis: explaining statistical relations

The first phase consisted in researching methodologies for monitoring and evaluating agricultural programmes in Malawi and elsewhere. The team reviewed existing tools and documents made public by NGO and donor agencies. The research indicated that assets tracking tools are built on four parameters:

- **Variables:** variables capture the whole scope of assets -- *e.g. food availability is one variable.*

- **Variable coefficient:** any given variable is associated with a weight, that will be used to compose the livelihood score (poverty index). The higher the coefficient, the higher does the variable contribute to the total score -- *e.g. food availability composes 12% of the total livelihood score.*

- **Variable values:** These are the exhaustive set of values that each variable can accept -- *e.g. food availability is first expressed in number of months that the household harvest will last, and then collapsed into 4 categories (1-3months; 4-6 months; 7-9 months; 10-12 months).*

- **Values' coefficient (or internal coefficient):** variable values are associated with a numerical value between 0 and 1, which will be assigned to the variable for the given record -- *e.g. 4-6 months of food availability gives a score of 1/3.*

The second phase involved the targeted communities to establish the set of variables relevant to the Malawian rural setting. To define variables and values, we selected a tool developed by the microfinance research institution Micro Save Africa under the name of 'detailed wealth ranking assessment'. It uses the values and opinions and knowledge of the villagers themselves: our own values, opinions and prejudices are not involved at all in explaining why the poor are poor indeed. While ranking villagers according to wealth (and assets), respondents would enumerate the reasons and criteria behind their decisions. A detailed description of the exercise is proposed in the Annexes. Fifteen such exercises have been completed in both districts covered by the project. Differences among districts were noted, and referred principally to local agricultural practices (such as the type of cash crop commonly produced).

During face to face interviews, villagers were asked to rank two cards bearing names of fellow villagers by poverty levels. Successive rounds are added until 10 cards are piled and ranked. Rather than granting importance to the actual ranking the focus is shed on the motives leading to assessment of poverty and wealth. The decision criteria enunciated by respondents is documented on separate cards. By the end of the exercise, the 8 respondents have spontaneously proposed up to a couple dozen criteria that are potential

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indicators for poverty in their socio-economical context. The team conducted 15 such exercises in Lilongwe and Zomba districts.

No significant divergence across Traditional Authorities (TAs) were noted regarding broad variables categories used, however difference emerged among individual variable values based on geographical and agricultural patterns (for instance, cash crops were widely accepted as an important factor, yet could differ from one TA to the next). Selected variables are clarified in section "Tool variables".

The objective for the next research phase was to set adequate weights to the selected variables. The rich set of data collected by detailed wealth ranking was summarized and the relative frequency with which the poverty variables were mentioned was used as a first indication of the variable weight in the total poverty score. Consequently over 10 group discussions were held with villagers to validate and adjust these first indicators. The selected variables were written on cards and presented to respondents, who then proceeded to rank them according to perceived importance. During the same group discussions, respondents were solicited for additional input. For each variable, they were asked to describe potential values and the values relative weights

The questionnaire was translated from English to Chichewa before being translated back into English by a third person. The questionnaire was field-tested and amended for wording.

Finally, four focus group discussions took place with program beneficiaries (two groups of women, two groups of men) to assist with the analysis of the collected baseline data and to test preliminary findings. This activity was not originally scheduled.

Table 2 summarizes the variables selected for inclusion in the tool with their coefficient and internal weights.

Variable	Coefficient (%, rounded)	Internal values	Notes
Food availability	12	0 ; 1/3 ; 2/3 ; 1	Per 3 month category
Housing type	11	0 ; 1/3 ; 2/3	+- 1/3 for roof and state
Fertiliser availability	11	0 ; 1/3 ; 2/3 ; 1	
Livestock ownership	9	First level: 1 ; 10 ; 30 ; 90	Then per quartile: 0; 1/3 ; 2/3 ; 1
Business ownership	9	0 ; ¼ ; ½ ; ¾	¼ for capital
Food diversity	8	0 ; ½ ; 1	
Clothing categories	8	0 ; 1/3 ; 2/3 ; 1	
Household items	7	1; 2; 5; 5; 12; 30; 30	Then per quartile: 0; 1/3 ; 2/3 ; 1
Ganyu	7	0 ; ¼ ; ½ ; ¾ ; 1	
Children schooling	6	0 ; ½ ;1	
Winter cropping	5	0 ; 1/3 ; 2/3 ; 1	
Transportation mean	4	0 ; 1/3 ; 2/3 ; 1	
Cash crop ratio	3	0 ; ¼ ; ½ ; ¾ ; 1	Per 12.5% covered
Total	**100%**		

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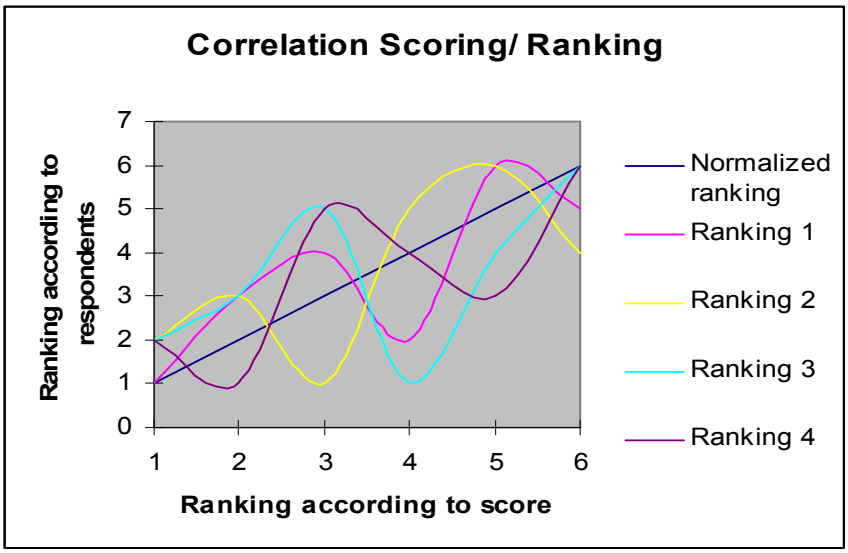
Scoring model and reliability

A limited number of wealth ranking combined with questionnaire delivery were administered in order to correlate the poverty score to villagers' own opinions. The value of the correlation coefficient was 67, which indicates a medium to strong correlation. It should be noted however, that due to the limited number of exercises held (four, with six participants each) this result does not offer statistical evidence.

Graph 1: Correlation between scoring model and normalized ranking. N=4



Additional research activities

- A Consent form was written and read to all interviewees. It explained the purpose of the study (see Annex).
- The data collection Team received two day training. Training included research principles (do's and don'ts), exposure to questionnaire specificities and practical exercises with both fellow trainees and villagers (see Annex)
- Statistical analyses were performed with SPSS 11.0 for Windows.

Monitoring and Evaluation: Recommendations

- Inter Aide could improve its M&E system by introducing ongoing monitoring efforts, for instance with the systematic completion of the questionnaire by each member joining a VDC
- Large scale quantitative surveys are valuable instruments to infer trends and comparison by beneficiary status. We therefore recommend conducting a new round towards the end of the programme's lifespan. The sampling methodology should be identical to the present one, with random selection of interview sites (rather than revisiting previously selected sites). The data collection would ideally occur during the same period of July-August in order to ensure comparability of data. The cost/benefit ratio of the exercise could be improved by adhering to the planned sample size of 1,200 interviews.
- Quantitative surveys are nonetheless limited in scope. They hardly provide insight pertaining to the daily life of beneficiaries. For instance, they are not adapted to the comprehension of intra-household dynamics and roles, which are key factors in villagers' strategies. Such factors would surely prove instrumental for the tuning and improvement of the programme. We would therefore suggest conducting qualitative research in the form of livelihood analysis by a trained person.

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Tool Variables

The final questionnaire (English version) is proposed in Annex.

1. Food availability

Food availability, expressed in numbers of months that the harvest last, was the single variable most used to appraise poverty. The variable is systematically included in livelihoods assessments in Malawi under similar formulation.

The survey shows that a majority of households (56%) lack staple food for 5 months or more, which correspond to the length of the 'hunger season'.

How many months does your harvest last? (Between 1 and 12)

2. Housing type

Surprisingly the housing type was found to be the second most widespread variable used. Villagers insisted on the maintenance level and the presence of iron sheet roof as important factors.

What is your house made of?
Poles mud
Compact mud OR Sun dried brick
Burn brick
□ *Run down / not maintained*
□ *Iron sheet roof OR Cement floor*

3. Fertiliser availability

Fertiliser availability was the second most commonly cited variable. In rural Malawi, simple subsistence and length of the terrible 'hunger season' is often perceived as directly proportional to availability of fertiliser. Improved agricultural practices are certainly important, but fertiliser remains nonetheless crucial. The Team felt necessary to include an element of quality of use, which granted/subtracted respondents additional points.

How much fertiliser do you apply on your plot?
None
Applies on small part of the plot
Applies on large part of the plot
Applies on the whole plot
Does not apply it the way he/she would need to □

4. Livestock ownership

Livestock ownership was the fourth most commonly used variable. Each livestock category was associated with a coefficient, roughly representing its market value. A total livestock score was calculated by multiplying the number of adult livestock with their coefficient. Livestock scores when their classified by quartiles to be included in the poverty index.

What type of livestock does your household keep? How many for each category?
Chicken
Goat
Pig
Cattle

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5. Business ownership

Income generating activities was commonly referred to as a wealth factor. Respondents would however make clear distinctions between a business that runs all year round, and seasonal economic activities. The types of business considered as major income earning often involved capital investment (typically in stock), while petty trade and craftsmanship were barely seen as coping mechanisms. The tool caters for this distinction by introducing a capital requirement element.

What type of business do you run?
No business
Sometimes / seasonal
All year round
Supports the household
□Capital required
□No capital required

6. Food diversity

Nutrition diversification was often referred to as a health factor ("they are healthy, they eat beans and eggs"). The indicator might introduce seasonality bias, and necessitates the conduct of follow-up surveys during the same period of the year (July-August).

For the purpose of the tool, the three food categories are considered part of a spectrum; should the household consume meat, the poverty index assumes that beans and *nsima* are also available.

What type of food was served at home over the past week?
Nsima / vegetables
Beans / groundnuts/ peas
Meat/ fish /eggs

7. Clothing categories

Respondents were particularly sensitive to wives and children clothing quality. The number of change sets was found an appropriate indicator of overall clothing quality, concept otherwise elusive to define.

What type of clothing does your household have?
Only one set of clothes
One change
Several changes
New clothes / season

8. Household items possession

Women referred to household items significantly more than men did.

Each household item category was associated with a coefficient, roughly representing its market value. Household items score was calculated by adding the values of each category owned. This score was then classified by quartiles to be included in the poverty index.

What type of items do you have at home? How much of each kind?
Clay pots
Mat
Iron/plastic pots
Blanket
Radio
Sitting
Mattress

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9. Ganyu

Ganyu commonly translates as 'piece work', the practice by which a farmer works on someone else's parcel for meagre salary or food. Ganyu is a common coping mechanism in rural Malawi. It is also part of a vicious circle: when a farmer is not capable of cultivating his own field (lack of agricultural inputs for instance), he might find employment elsewhere. Ganyu being poorly remunerated, the farmer is unlikely to earn sufficient income to cultivate his field next year and in most cases is unable to feed his family throughout the year. The ability for one to cultivate his own field was mentioned by respondents.

Regarding ganyu, do you…?
Rely on ganyu only
Cultivate own field and rely on ganyu
Cultivate own field and/or occasional ganyu
Employ ganyu from times to times
Employ ganyu every year

10. Children schooling

The variable was widely used by respondents. Not being able to send one's child to primary school is a definite sign of poverty. It occurs when the household cannot afford mandatory uniforms, or cannot spare the child's help for agricultural works. Being able to send one's child to secondary school is a clear sign of wealth, as secondary school expenses are high and teenagers an important part of the local workforce.

How many of your children aged 5-12 (over 12) go to primary (secondary) school?
None
Some
All
No children that age, Missing value

11. Winter cropping

What type of crops do you grow during the winter?
Nothing
Rape, mustard, tomato, …
Beans, cabbage, maize, peas, Irish potatoes
Sugar cane
□ *At least 2 cycles/ year*

Respondents quoted the ownership of dambos as a wealth factor. It is nevertheless frequent for households to possess a dambo, without taking advantage of it because of lack of agricultural inputs, knowledge or workforce. This phenomenon outlines the practical differences between asset ownership and assets use. By referring to winter cropping produce, the questionnaire focuses on the use of dambo and field quality rather than the field size.

12. Transportation means

Transportation means are valuable to allow work in distant fields, for status and social reasons, and to offer access to local markets. It was not as commonly cited as most selected variables.

What type of transport do you own?
None
Bicycle
Ox cart
Engine

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13. Cash crop ratio

Based on respondents' answers, the Team wanted to include a measure of the total cultivable surface. Yet, we observed remarkable disparities between actual size, and owner's answers. The ratio between cash crops and maize cultivation serves as a good proxy. Indeed, the owner of a large field can feed its family with staple while dedicating a higher proportion to cash crops.

During the field test, this variable was intensively researched and alternative formulations tested to ensure reliable answers and data collectors' comprehension.

What is the ratio between your cash crop and maize? %_____ Maize %_____Cash crop

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