



# Practitioner's Guide:

## Nutrition Baseline Survey



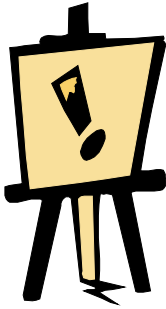
Deutsche Gesellschaft für  
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Bundesministerium für  
wirtschaftliche Zusammenarbeit  
und Entwicklung

### Nutrition Baseline Survey

#### Brief Description



The Nutrition Baseline Survey is a standardised methodology providing objective data that can be used to assess, monitor and evaluate the nutritional and/or poverty situation of a population. The objective of many nutrition or poverty related development projects is to improve the nutritional status and the overall living conditions of marginalized populations. To achieve this objective, it is necessary to determine the nature, magnitude and causes of malnutrition and to define risk groups for adequate interventions.

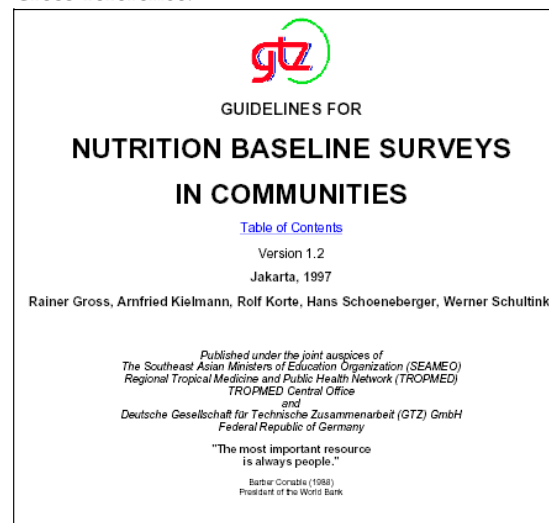
The Nutrition Baseline Survey combines internationally used techniques and procedures, which have been tested in various projects, collecting data directly from the people in the communities. Two main methods are designed for data collection:

- ▶ A standardised questionnaire which includes standardized socio-economic and health related questions, and
- ▶ Anthropometric measurements, which include weight and physical measurement of children and adults in order to calculate anthropometric indices for nutritional classification.

On the basis of adequate and simple statistical tests and standardised procedures of analysis, these methods allow the description of nutritional problems within a population (e.g. chronic and acute malnutrition) and the determinants of the identified problems. Finally, the methodology provides a comparable data base for monitoring and evaluation purposes during project implementation.

Implementing a Nutrition Baseline Survey takes several weeks or months and requires specific skills to design and apply the questionnaire as well as to analyse the collected data.

#### Cross-reference:



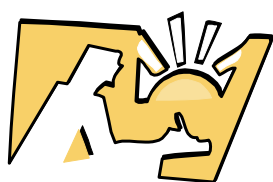
### Nutrition Baseline Survey

#### Proposed Main Users

- ▶ Technical project staff with knowledge in nutrition or public health.
- ▶ Experienced community and Public Health Nutrition Specialists who plan and implement nutritional interventions.



#### Purpose of the Method



It is intended that the data collected during the Nutrition Baseline Survey be used for:

- ▶ Appraisal purposes - the causal relationship for a nutritional problem can be analysed by simple methods and tests,
- ▶ Planning purposes - the identified causal factor for malnutrition helps to determine adequate and problem-oriented activities, indicators and interventions, and
- ▶ Monitoring and evaluation purposes - objective data helps to compare the situation at the beginning of an intervention with the situation at later times

Furthermore, a Nutrition Baseline Survey enables the comparison of data and project results from different surveys (i.e. other institutions), projects and countries.

Despite its mainly statistical character, the Nutrition Baseline Survey is not only pure research. One principle of the Survey accepted in the context of development projects is that there is **NO SURVEY WITHOUT SERVICE**. This refers to the responsibility of a project to intervene even if unexpected problems have been identified within the survey region.

Note: Nutrition is a complex subject and needs the combination of different quantitative and qualitative methodologies. It is crucial to obtain nutritional, socio-economic and cultural information available in the local setting, and to analyse secondary literature and observational issues, during the preparation phase of the survey, in order to interpret the situation in a holistic manner. An understanding of the perceptions and needs of the population is necessary as well.

### Nutrition Baseline Survey

#### Advantages



- ▶ Provides objective, measurable and representative data for problem analysis, planning and evaluation purposes,
- ▶ Facilitates the comparison of situations at the beginning and the end of a project cycle for impact assessment,
- ▶ Helps to determine causes or determinants of the nutritional problem,
- ▶ Enables the construction of statistical relationships between factors and the nutritional status for intervention planning,
- ▶ Can compare its results with other standardized surveys because of the internationally accepted indices, cut-off points and measurement standards,
- ▶ Provides information for indicators (Planning matrix),
- ▶ Contribute to quality management issues,
- ▶ Gives justification for interventions and activities in certain populations and the surveyed region,
- ▶ Provides valid results, which can be used for resource allocation and policy making.

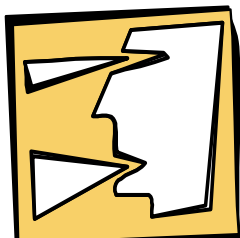
#### Limitations



- ▶ Is expensive in terms of time, money and human resources,
- ▶ Needs specific skills and training to guarantee an adequate application, implementation and interpretation of the data,
- ▶ Is not participatory or flexible because of the standardisation that is necessary for the purposes of comparison,
- ▶ Cannot sufficiently assess cultural aspects, nutritional habits and customs as this type of information is difficult to obtain during a standardised survey,
- ▶ Highlights the situation of the surveyed population at the moment, but cannot assess processes or social relations within the community,
- ▶ Must rely on the answers of the surveyed people, which should be compared with observations to guarantee the reliability of the data. If questions are not well formulated, there is a risk of collecting superficial answers, which do not reflect the real situation,
- ▶ Has a risk of producing large data banks without a justifiable analysis.

### Nutrition Baseline Survey

#### Principles & General Procedures



#### A Nutrition Baseline Survey is undertaken in five main steps:

**Step 1: Collection of available information on the nutritional situation of the population and other demographic, socio-economic, ecological and cultural data in the survey region**

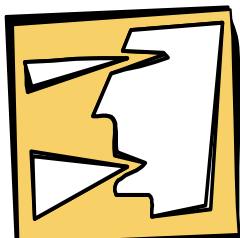
- ▶ Revise the scientific literature, such as:
  - a) Medical / nutrition data banks, journals etc.,
  - b) Published data from national or international institutions. For specific country profiles see: [www.unicef.org](http://www.unicef.org); [www.who.org](http://www.who.org), [www.worldbank.org](http://www.worldbank.org), [www.fao.org](http://www.fao.org),
  - c) Ministries in the country,
  - d) Homepages of GTZ projects (e.g. [Ifsp-srilanka.net](http://Ifsp-srilanka.net)).
- ▶ Obtain nutritional information directly in the local setting through observational techniques or group discussions.

#### **Step 2: Planning and preparation of the Survey**

- ▶ Discuss general considerations on survey design, surveyed groups and objectives.
  - a) A simple cross-sectional design is often used for Nutrition Baseline Surveys.
  - b) The specific objectives of your particular survey should be determined and depend on the project's assumptions.
- ▶ Organize your survey Team.
- ▶ Conducting a Nutrition Baseline Survey is not a one-person job. Generally, the survey team consists of:
  - a) A survey coordinator, task: for the general responsibility of the design, methodology, training and application/ analysis of the survey,
  - b) Members of the project, for the design of the survey's objectives and contents,
  - c) A statistician or data analyst, for data entry and statistical analysis of the obtained data,
  - d) Surveyors, who are in direct contact with the surveyed population, for the systematic collection of data during the survey,
  - e) Supervisors, for the support of the surveyors in the field to guarantee the quality of the survey (each supervisor has 2-5 teams), and
  - f) Some advisors, for appropriate consultation, e.g. community leaders, extension workers from the ministries, community health workers.

### Nutrition Baseline Survey

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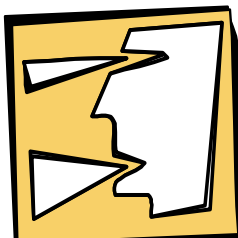
- ▶ Train the survey team.
  - a) Integrate the persons who will be responsible for nutrition and public health during later project implementation. This assures a good field entrance and establishes a continuity of the relationship with the community.
  - b) When all survey steps are prepared, train the whole survey team for a few days in the methodology, questionnaires and communication techniques to be applied in the field.
- ▶ Design the sampling procedures.
  - a) Sampling is the procedure of selecting a representative part of the population. The results obtained from the persons in the sample reflect the characteristics of the entire population being studied.
  - b) Generally, a simple random sampling or a two-stage-cluster sampling is used for Nutrition Baseline Surveys.
  - c) The sample size is a compromise between the ideal size to be statistically representative and the realistic size based on the given resources in terms of money and time.
- ▶ Design the questionnaires.

Each survey needs its own particular questionnaire. There are three different types of questionnaires to be distinguished:

- a) Socio-economic household data questionnaire  
(Possible areas or variables are occupation, formal education, family income, housing conditions, basic infrastructure or dietary pattern and food habits on family level such as number of meals, frequency of intake of particular food items.)
  - b) Individual data questionnaire  
(Possible areas or variables are type of weaning food, breastfeeding practices, anthropometric measurements (weight, height, sex, age etc.), episodes of infectious diseases.)
  - c) Community-specific data sheet containing information on health services, types of schools, electricity supply, climate, food shortages and agricultural production, community-based organisation etc. at village or district level.
- ▶ Pre-test the questionnaires.
    - a) A pre-test should be carried out in the field. Each location has its culturally determined language and forms of communication. Formulate the right questions and pre-formulate the specific answer categories.
    - b) A pre-test in a small sample (around 20 –30 households) is sufficient to adjust the questionnaire adequately and to avoid systematic errors.
    - c) After the revision of questions and length according to the pre-test results, the questionnaire can be finalized, pre-numbered and printed for distribution.

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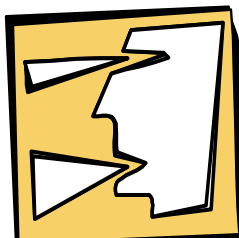
- ▶ Check if the following resources needed to conduct a Nutrition Baseline Survey are available:
  - a) Personnel - Survey coordinator, supervisor, surveyors, driver, persons for data entry.
  - b) Means of transportatio - cars, public transport.
  - c) Equipment and supplies (for interviews: maps, materials such as pens and pencils, reproduced questionnaires; for anthropometric measurements: weighing scales, anthropometer, measuring tapes, MUAC (=Mid-upper-arm-circumference tapes); for data processing: computer, software programmes, diskettes, paper).

#### Step 3: Implementation of the Survey

- ▶ Introduction of the survey in the communities
  - a) Before starting the field work, the survey coordinator and the supervisors should visit the survey region and meet with the local government officers and the community leaders to introduce the survey team and to explain the survey's objectives.
  - b) It is recommended to prepare a simple written statement for the interviewers, to show to the local authorities or anyone interested, about the purposes of the survey and where it takes place.
- ▶ Application of the questionnaire
  - a) The success of the survey questionnaire rests in the hands of the interviewers. They should be able to speak the local language, to ask questions in an organised way, to record and measure adequately and be unbiased in asking (sensitive) questions.
  - b) The surveyors should use certain communication techniques to establish a relationship of trust during the interviews, encouraging the respondent to talk freely and openly on the survey topic.
  - c) A surveyor can complete a maximum of 5-6 interviews per day, including measurements of weight and height and the time spent to locate the households. It is recommended that a team of two surveyors visit a household to support each other.
  - d) Each applied questionnaire requires a careful review after the interview to check its completion and accurate codification. Questions and mistakes in the editing or recording should be discussed with the supervisor in the field at the end of the day. Each supervisor is responsible for approximately 4-5 surveyor teams and manages the data control together with the survey coordinator.
  - e) The questionnaires should be kept clean and dry for data entry and processing in the office.

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#### Principles & General Procedures



- ▶ Anthropometric measurements
  - a) Body measurements of children and/or adults (Anthropometry) are international standard practices for assessing the nutritional situation within a population. If precise information about the weight or height is available and the age of the person is known, nutritional indices can be calculated to establish categories of malnutrition for each sex group.
  - b) How to measure and weigh children (see: United Nations, 1986.)
  - c) The most common types of indicators of malnutrition (see: WHO, 1995.\*)
- ▶ Observation of the household conditions
  - a) During the whole survey, the surveyors should observe the living and housing conditions of the interviewed families, in order to cross check what they see and what the respondents say.
  - b) Interviewers should be sensitive and aware of anything during the visits of the households for further data interpretation.

#### Step 4: Data processing and analysis

Specific software-programs have been developed to process nutritional and anthropometric data easily. An example can be found at: [www.cdc.gov/Epi-Info](http://www.cdc.gov/Epi-Info); [www.nutrisurvey.de](http://www.nutrisurvey.de)

Apart from the software selected for data processing, the analysis of the data should be done in different stages:

#### ▶ Data entry

The questions have numerical codes or categories and can be easily entered into the standardised data entry section of EPI-Info. The pre-coded questionnaires can be translated into data entry files, which include all variables of the questions, as well as the anthropometrical information. The household number should be on each questionnaire so that the individual files (of the children) can be merged with the corresponding household file.

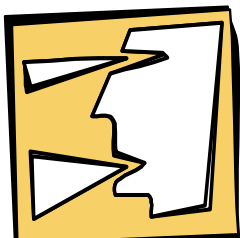
#### ▶ Validity and plausibility checks

Inconsistencies in the data within the questionnaire, unreasonable and impossible entries can be avoided using the EPI-Info plausibility check. Normal ranges can be established (e.g. the amount of food physiologically tolerable, the age range of the measured children between 0 and 5 years) to reduce erroneous data during data entry. Another plausibility procedure is to cross check the data from the household and individual questionnaire, e.g. the age of a child must be the same in the individual and household register form.



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#### ▶ Anthropometric calculation

Anthropometric indices are calculated automatically by entering the sex, age, weight and height of the child. To determine the nutritional status of children under 5 years, the following indices are internationally practiced:

- a) Weight-for-Age (W/A)
- b) Height-for-Age (H/A)
- c) Weight-for-Height (W/H)

The EPI-Info Program calculates the percentages of the population with anthropometric index below  $-2$  z-scores and above  $+2$  z-scores of the NCHS reference population. These cut-off points classify malnourished, normal and overnourished population groups. (see: WHO, 1995.)

#### ▶ Clustering for descriptive analysis

In order to interpret the nutritional status (W/H, W/A, H/A) which is the dependent variable for any statistical test, specific clusters or groups should be classified by logical or statistical relationships.

The following examples show some useful relationships:

- a) Comparison of the nutritional status of children exclusively breastfed with those who got only bottle feeding.
- b) Comparison of the nutritional status of children, which show a balanced food intake, or an adequate composition of the weaning food.
- c) Comparison of the nutritional status of the children with good drinking water facilities at the household level.
- d) Comparison of the nutritional status of the children whose mothers have good nutritional knowledge and practices.

Formulate the hypothesis on the basis of the list of questions and variables which could influence on the nutritional status. Describe any variable for the corresponding population group by age, sex, region, ethnic origin etc.

#### ▶ Detailed in-depth analysis of causes and determinants of malnutrition

Use an advanced statistic software program (e.g. SPSS) in order to determine the causes of malnutrition.

#### **Step 5: Dissemination of the results and preparation for translation into action**

- Provide the necessary information on the nutritional situation of the target population of the project before critical discussions and decisions concerning project interventions have been made.
- The final report should also be easy to read, well-structured and understandable in order to be a usable working instrument during project implementation.

### Nutrition Baseline Survey

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