

# ***AN OVERVIEW OF VULNERABILITY ANALYSIS AND MAPPING (VAM)***

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## **The Goals of VAM**

The broad goals of VAM are to:

- Provide the factual basis for WFP country program design, in both the relief and development contexts, to identify, understand, and best address problems of food insecurity and vulnerability in WFP partner countries.
- Provide additional information and analytical support as needed during relief and development program implementation and evaluation phases.

The VAM strategy is a direct extension of the guidance provided in WFP's current Program Design Manual and Enabling Development strategy document .

VAM is expressly an information tool for WFP relief and development program design, management, and evaluation. Working with WFP program staff in each country where it is operational, VAM will produce a range of analytical outputs intended to inform decision-making at key points within the WFP country programming cycle. As a result, the VAM analytical cycle is explicitly linked to the country programming cycle.

### **Box 1—What Is VAM?**

The Vulnerability Analysis and Mapping (VAM) Unit is an internal structure within WFP that provides temporary and long-term technical assistance in food security analysis to decision-makers at WFP Headquarters in Rome and in WFP Regional and Country Offices.

The [VAM network](#) is currently comprised of three full-time international staff members in Rome Headquarters, 12 international VAM Officers, and approximately 20 VAM National Officers and VAM Focal Points. This network currently provides food security analysis coverage for 36 countries.

## **Specific VAM Objectives in Partner Countries**

At the country-level, VAM activities are designed to achieve the following results:

- Develop focused and useful information products specifically linked to WFP program decision-making needs:
  - Define and target the most food insecure and vulnerable groups in an operationally useful fashion.

- Identify key risks and constraints to improved food security, and indigenous capacities to leverage in attempts to address those problems, as a means to frame the goals and objectives of a country program intervention strategy.
  - Inventory and map local resource capabilities (infrastructure, personnel, and government/donor/NGO-supported services) available to complement WFP program operations.
  - Provide an information base for contingency planning and emergency needs assessment activities.
  - Monitor changes in the food security and vulnerability status of target populations on a periodic basis over the course of the country program cycle and assess progress toward key WFP program objectives.
  - Develop other databases and information products necessary to inform decision-making during program implementation and evaluation.
- Transfer skills and develop sustainable capacity for information systems planning and analysis among local partners.
  - Support broader efforts at food security and vulnerability policy and program development at the national level in VAM regions/countries.

## **What is Vulnerability?**

1. The analysis and study of the vulnerability of populations is a core responsibility and function of WFP.
2. Vulnerability is an important concept in food security. It is defined as the probability of an acute decline in food access or consumption levels below minimum survival needs. It is a result of both exposure to risk factors - such as drought, conflict or extreme price fluctuations - and also of underlying socio-economic processes which reduce the capacity of people's ability to cope. Thus, vulnerability can be viewed as follows:

$$\textit{vulnerability} = \textit{exposure to risk} + \textit{inability to cope}$$

3. Fluctuations in food consumption levels usually result from:
  - variations in the home production of food commodities
  - variations in food prices
  - changes in the level of cash incomes from various sources.
4. Natural and man-made hazards, such as drought, floods, insect infestations, civil unrest and conflict can undermine household productive activities, limit access to non-farm sources of income, and disrupt the functioning of food markets.
5. Vulnerability tends to be greater when:
  - the risk of natural or man-made disasters is high;
  - long-term resource management practices and adverse government policies suppress productivity and consumption to chronically low levels;

- poor households typically rely on a single, risky source of consumption or income, or on a range of sources for which are all equally risky.
6. The groups usually considered to be the most food insecure and vulnerable include:
- young children (especially those under 5 years of age)
  - pregnant/lactating women who are living in poverty, with poor access to and utilisation of food
  - female-headed households
  - the elderly
  - the disabled
  - disadvantaged groups with low levels of household labour, limited asset ownership, and insufficient means of support from family members and the community
  - households under the threat of conflict, drought and other risks, particularly poor families which lack a diversified income and asset base.
7. Vulnerability is usually assessed as a probability. The country food needs assessment process concentrates on understanding:
- the geographic scope and intensity of a given situation
  - the ability of different population groups to cope with the effects of such a situation and maintain an adequate level of consumption.
8. In this context, needs assessments must identify the most appropriate assistance to enable affected households to better cope with the implications of structural problems or emergency conditions and eventually, to re-gain some degree of economic viability and self-sufficiency.

## **Ability to Cope**

1. Households are often able to cope to some extent with the effects of a crisis. Typical coping mechanisms include:
- draw-downs on household stocks and assets
  - transfers from family members working in other areas or abroad
  - reduced food consumption
  - increased use of wild foods or consumption of less preferred foods
  - assistance from local community or religious support networks
  - government safety net programs.
2. Coping mechanisms effectively seek to augment the resources (or “income”) available to the household. From this point of view, the variability of food consumption can be considered to be primarily a result of fluctuations in food prices and overall incomes.
3. Households often diversify their consumption and income sources as an important means of minimising the effects of fluctuations on the overall level of resources available to them. Where consumption and incomes are diversified in ways that ensure they are not

likely to be affected by the same risks, the decline of income from any single source is likely to be offset by the relative stability of consumption and income from other sources. As a result, overall vulnerability is minimised.

4. Exposure to multiple risks, or risks of high frequency, duration and intensity, often undermine the capacity of households to cope with future crises. Selling livestock and other productive assets, cutting trees for sale as firewood and charcoal, and other coping measures can eventually erode the long-term productive capacity of households. This limits their future access to resources and incomes and thus their future consumption, as well as reducing their future capacity to cope.
5. If left unchecked, exposure to multiple risks and the lagged effects of recurrent crises can lead households down an ever-deepening spiral of vulnerability. WFP assistance aims to prevent this downward spiral, and reverse it wherever possible.

### **Key Components of the VAM Strategy**

To improve the understanding of household food security dynamics and to assure that such an understanding is integrated effectively into WFP programming decisions, VAM must do the following:

1. A synthesis of the current understanding of food insecurity and vulnerability intended as the basis for the subsequent VAM analytical strategy. The analysis is based on a comprehensive literature review, key informant discussions at the central level and in the field, and a preliminary analysis of secondary data sources.
2. Data collection and management: Assure the regular collection and management of food security data and information required for the accurate analysis of household food security;
3. Analytical frameworks, methodologies, and tools: Design and implement the methodological framework(s) and tools required for the accurate analysis of household food security
4. Human / institutional capacity development: Strengthen and/or create the institutional and human capacities required to sustain such data collection and analysis activities in WFP and host government institutions
5. Integration of VAM analysis into food security programming: Assist WFP, host governments, and stakeholders to better understand and integrate the results and implications of food security analysis in the design and implementation of assistance programmes.

### **Activities that VAM supports:**

ODT/VAM food security analysis varies in detail from country to country, but it is generally comprised of the following key activities:

#### Risk analysis

What could happen, where, to whom?

#### Food economy analysis

Household food production

Household income opportunities

Wealth

Coping mechanisms

#### Vulnerability analysis

Who is chronically food insecure?

Who is vulnerable to food insecurity in the future

Where, why, how many?

#### Early Warning

What can effect household food security?

How can we know when it is coming?

#### Emergency Assessment and targeting

Who is vulnerable as a result of a specific shock

Where, how many are they?

How do we best reach them (program design and targeting)?

#### Contingency Planning

What can we do to prevent food insecurity (prevention)

What can we do to prepare for the inevitable (disaster preparedness)

What can we do to mitigate the impact of a disaster (disaster mitigation)

#### Monitoring and Evaluation

Are we doing what we planned to do? (Monitoring)

Was our plan the right plan? Did we have an impact? (Evaluation)

### **A VAM exercise would typically produce the following products:**

- analytical support to the country office on food security;
- a baseline analysis of structural vulnerability complete with a data base
- historical data sets constructed from, amongst other, information on:
  - socio-economic variables
  - food aid deliveries
  - agricultural land use
  - rainfall
  - soil moisture content
  - market and price movements
  - basic infrastructure and logistical data for preparedness and response purposes
- a Geographic Information System (GIS) for analysing and mapping available data sets
- an assessment of the local capacity to continue the project
- a final composite vulnerability analysis and report.

### **How to Undertake a VAM**

1. There are a range of potential methodologies that could be used to undertake a vulnerability assessment. The actual approach chosen will depend on:
  - the particular country circumstances;
  - why the analysis is needed;
  - the types of data available;
  - the ease with which data can be obtained; and
  - the resources that can be allocated to undertaking the exercise.
2. VAM utilises both primary and secondary data sources. In general, secondary data are used initially. Primary methods, such as rapid assessments, key informant interviews and expert panel workshops, are then used to fill important gaps in the secondary data, or to focus on issues that are key to WFP's activities.

### **A VAM exercise typically follows the following steps:**

#### ***Developing a Methodology***

- Develop a conceptual framework, i.e., identify the main causes of vulnerability to food insecurity in terms of risk versus coping ability, both spatially and by population group, keeping in mind the role of food aid and the concept of food security
- Assess available statistics on poverty and food security for coverage, currency, quality, and administrative unit of aggregation. Assess available population data; develop a methodology to update data
- Decide on the appropriate administrative unit for aggregating data and compiling maps to provide the appropriate level of homogeneity with respect to the variables being analysed

- Develop a geo-referenced database to cover:
  - Sources of risk (i.e. types of food security problems, shocks and disaster events, including severity and frequency, agro-economic factors, flood and drought prone areas, refugee affected areas, food prices, etc.).
  - Socio-economic data, disaggregated by gender where possible or appropriate.
  - Entitlements and coping mechanisms (income sources, distribution and levels of indebtedness both spatially and by social class, food stocks, household assets, infrastructure and service provision, health and nutritional status, claims on government or community support systems, relief aid distribution)
  - Project and logistic information (target populations, ports and air strips, location and capacity of warehouses, road network, including seasonal accessibility, project sites, distribution sites)
- Develop, test and grade indicators of food insecurity. This should include preparing a framework of how the indicators can be used to determine vulnerability and the relationship between indicators for an accurate picture of vulnerability. Organise data sets, geo-code and assign identification numbers to administrative units. Develop a composite vulnerability index if this is considered necessary.

### ***Collecting and Processing Data***

- Review existing material on all relevant areas (poverty, malnutrition, food insecurity, etc.)
- Undertake an initial period of field assessment in order to understand the determinants of food insecurity and the capacity of populations to cope with the effects of disaster
- Review different approaches to vulnerability analysis, early warning and food aid targeting in the region, including the objectives, data collection methods, methodology, and geographic coverage. Consider how to use experience-based methods to reinforce and cross-check the results of data-based methods
- Identify areas where secondary data are insufficient and plan primary data collection exercises through rapid rural appraisal techniques using multi-disciplinary teams and local community knowledge
- Consider sources of data to monitor drought risk, such as satellite imagery to calculate index of vegetation cover, vigour and density and climatological data. Consider other applications of satellite imagery, such as the ecological impact of food insecurity, in order to support contingency planning and logistic needs.
- Assess data collected by WFP for monitoring purposes or reported to WFP by implementing partners which might be relevant for the vulnerability analysis, i.e., operational programme statistics on distribution, commodity tracking and pipeline management, monitoring reports, beneficiary contact monitoring at household level, health and nutritional status, market price information, etc. Organise the data and determine how to analyse and maximise their use both for VAM and for general programme applications
- Together with programme staff, determine the role of WFP food monitors in collecting primary data on household food economy and coping mechanisms, and work with programme officers to modify the monitoring system, including checklists, data collection forms and written guidelines, in order to collect information on household income and assets, health and nutritional status and sources of risk, such as market prices.

- Obtain existing maps, data, co-ordinates and layers from assistance partners, the commercial sector and the government. Conduct GPS field surveys to determine co-ordinates for sites, infrastructure, etc. where not currently available.

### ***Analysis and Map Production***

- Based on inputs from headquarters and cluster offices, prepare a base map of national borders and boundaries. This should be according to the administrative unit selected as the basic mapping unit, and will be used to map all data, including the final composite map of vulnerability
- Determine:
  - main population groups of food insecure
  - causes of their vulnerability
  - location of vulnerable people
  - degree of vulnerability
- Prepare separate maps of each of the selected data-based indicators; weight and overlay the data-based maps to build up a map of aggregate vulnerability. Prepare subjective, experience-based maps for comparison and to complement data-based maps where quality or coverage of data is poor. Weight the composite, data-based map and the aggregate, subjective, experience-based map to produce a composite map of vulnerability
- In collaboration with the programming section, develop options on appropriate responses for vulnerable groups and areas identified in the analysis, and identify where food aid is an appropriate intervention.

### ***Reporting***

- Prepare a final VAM report. The suggested contents are:
  - Objectives of the vulnerability analysis;
  - Data sources and variables;
  - Methodology (selection of indicators, including rationale, data preparation, clustering, and analyses);
  - Results (baseline and current vulnerability, analysis of risk and coping ability, area profiles, preparedness);
  - Interpretation and application of results and discussion of linkages to programming and targeting;
  - Future directions; and
  - Tables and maps.
- Prepare progress reports on the development of the VAM database and on institutionalising a process of vulnerability and food security analysis.
- Send digital data and maps monthly to the VAM Unit in Rome for storage and dissemination.
- Once cleared by the government and the WFP Country Office, all of the important features of the VAM project are posted on the WFP Internet site ([www.wfp.org](http://www.wfp.org) - see “Disaster Mitigation” page) for viewing or downloading.

## **Assistance to Country Offices Undertaking a VAM**

1. The VAM unit in Rome (OD) provides the following assistance to country offices:

### ***From the Disaster Mitigation Facility:***

- Technical support with the fielding of a VAM officer for a period of 12 months. Country and regional level VAM officers are recruited on a fixed term contract at a standard UN P3 or P4 professional level. The contract is subject to an initial performance evaluation after six months of service.
- The provision of standard hard and software packages:
  - Pentium II- 200/300, 32/64 Mb RAM, 10/20X CD-ROM reader, 2-4 Gigabits HDD, 17" super VGA monitor with 2MB of video memory, external "ZIP" / Jaz omega drive.
  - GIS software - MapInfo 4.0, IDRISI, NT workstation, plus all WFP standard software MS office. The statistical software package is not yet standard and most officials have their own preferred package (SPSS, ADATTI etc.)
- The coverage of additional local survey costs, such as enumerators, data entry clerks, travel and DSA for local displacements. (This part will be fully out-sourced to reliable and competent partners such as CARE, SCF/UK, FANHIS, etc.).
- The funding of workshops, dissemination and training activities linked to the VAM exercise.
- The support cost of specific contingency planning and data collection exercises and the GPS- based identification of major logistical and project related locations for use with GIS- specific analytical techniques.

### ***From the WFP programme support budget:***

- A local officer to provide continuity to the exercise once the external technical assistance is phased out.
- The coverage of all communication costs.
- The coverage of office accommodation and recurrent costs.
- The coverage of transportation costs for the exercise.