

## **Repeated Regular Sample Survey-based Monitoring for Food Security and Child Nutrition**

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Rapid, frequent, local monitoring of food security and child nutrition is a requirement for good food aid allocation in a changing environment. Resources are however an issue, so that efficient survey designs that will also provide sound subpopulation estimates can have considerable benefit. The UN World Food Programme (WFP) in Nepal has been monitoring food security since 2002. WFP field surveillance capacity consists of a database management system (e-WIN) and integrated electronic data collection via satellite for field surveillance staff. The system allows rural, field-based household food security monitoring and analysis in near real-time. The annual sample is approximately 4,000 households, all of which are essentially rural. Data collected includes food security, market situation, water and sanitation, migration patterns, and child nutrition. This household survey is one of the core components of the Nepal Food Security Monitoring System (Nepal Khadhya Surakshya Anugaman Pranali: NeKSAP), which is currently being institutionalized into the Nepal government monitoring system. The data collected has also been used for non-food security purposes such as nutrition (Helen Keller International - HKI, Nepal Ministry of Health and Population), education (Research Input and Development Action - RIDA, UNICEF, Nepal Ministry of Education), and child protection (UNICEF). The survey design has evolved in line with changing information requirements. In 2010, probability sampling was introduced to achieve better representation of seasonality and geographical area, subject to the continuing limitation of the survey to essentially rural areas, but in 2010 and 2011 no estimates of accuracy were calculated. The further, major revision of the sample design in 2011 involved a complete redesign of the sample to improve estimates of quarterly and annual change, and to provide measures of accuracy (i.e. standard errors). Increased accuracy was achieved by use of rotation sampling, which divided the sample into four nationally-based subgroups in each quarter, resampling after initial selection in the following quarter, the following year and the following year plus one quarter. In each quarter, one new rotation group is introduced and one dropped, so that the four rotation groups sampled in each quarter have been in the sample 1, 2, 3 and 4 times respectively. This type of household survey design, which WFP intends extending to and implementing in other countries in which it provides food aid, will be used to illustrate the methodology and various practical aspects of using rotation sampling for repeated regular monitoring of food security and child nutrition.

**Key Words:** Correlation patterns, repeated sample surveys, rotation sampling, survey design.