

PoSHAN Research Brief

Policy and Science for Health, Agriculture and Nutrition

A Collaborative Research Program of the Center for Human Nutrition, Johns Hopkins University; Friedman School of Nutrition Science and Policy at Tufts University; Child Health Division, Ministry of Health and Population, Nepal; Institute of Medicine, Tribhuvan University; and the Nepal Agricultural Research Council

Background. Childhood undernutrition continues to be high in many regions of the world, but especially in South Asia, contributing to the large global burden of infectious morbidity and mortality. In Nepal, the prevalence of stunting among children less than 5 years of age ranges from 37% in the terai to 57% in the mountains.

Improved agriculture can affect processes that lead to food security, adequate dietary intake and nutritional status, and health. Yet, limited empirical evidence exists on the kinds of actions in agriculture that support nutrition and health for poor populations. There is a need to better understand, measure and classify these connected pathways, and address their modifiable components in order to reduce food insecurity and undernutrition in high risk populations and guide programs and policies that seek to improve nutrition through agriculture.

USAID supports a nutrition-focused multi-disciplinary research and training effort to address food insecurity and malnutrition in developing countries known as the *Feed the Future Food Security Innovation Laboratory: Collaborative Research on Nutrition*. Under this program, Tufts and Johns Hopkins University collaborate with Nepali scientists and research organizations on the PoSHAN Study.

The PoSHAN study has two complementary components:

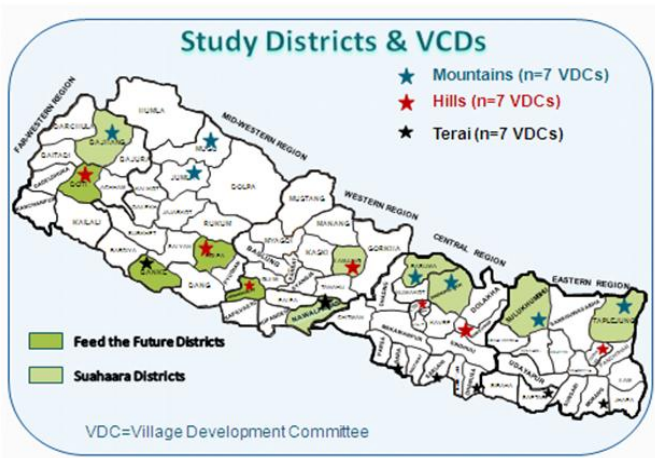
1. *“Process Evaluation”*: This component, designed and guided by Tufts University, seeks to understand multi-sector and multi-level planning and implementation processes, and factors that promote or constrain, the effect of integrated approaches for improving women’s and children’s nutrition.



2. *“Annual National Panel Surveys and Seasonal Follow-up of Sentinel Site Cohorts”*: This component, designed and managed by Johns Hopkins University, establishes annual population-based national, panel surveys in 21 randomly selected wards across the major ecological zones of Nepal (mountains, hills and terai).

Annual National Panel Surveys and Seasonal Follow-up of Sentinel Site Cohorts

Design. The primary design element is three, national, annual, same-season surveys (Spring of 2013, 2014 and 2015) of preschool aged children and mothers in 21 VDCs and 63 communities (wards) located in the mountains, hills and terai of Nepal repeated each year in the same wards. A second design element is an active year-round sentinel follow-up system in one, representative, VDC (and 3 wards) each in the mountain, hill and terai zones to enable in-depth seasonal variation in markets, food security, diet and nutritional status.



Data Collection

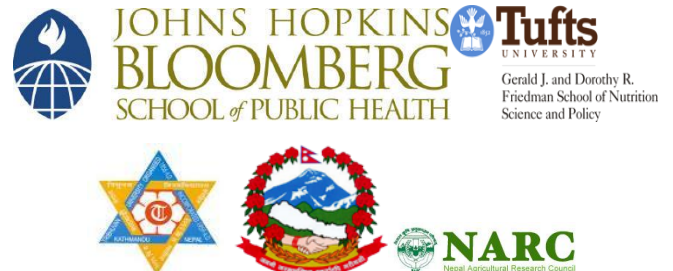
- *Household interview* will collect data on household socioeconomic, food security and dietary characteristics, including education and occupation of parents, asset ownership, income and expenditure, cropping, gardening and animal raising methods, food production and its disposition by type of food, level of perceived food security, participation in agricultural extension, microcredit and other programs, and health care and nutrition services.
- *Women's interview* will obtain information on pregnancy history, pre- and post-natal care, diet via a 7-day food frequency questionnaire, recent morbidity, decision making roles, child care and feeding practices, and leadership roles in the community.
- *Child Assessment* will include a 7-day food frequency questionnaire, receipt of child health and nutrition services (vitamin A, vaccinations, deworming, etc), a 7-day history of morbidity symptoms and a recent child care history.
- *Child and Women Anthropometry and Hemoglobin Assessment* will measure weight, length or height, mid-upper arm circumference and hemoglobin on women and children.
- *Community and Market Assessment* will record physical and health and agricultural service infrastructure in the community, and obtain unit prices for foods and agricultural inputs from local whole- and retail sellers.

Expected Key Results

Annual survey data will characterize maternal (e.g., body mass index, mid-upper arm circumference)

and child (Z-scores for height-for age, weight-for-height, weight-for-age, MUAC; and hemoglobin) nutritional status and dietary intake (e.g., frequencies and diversity), indices of household food insecurity, agricultural productivity, income and expenditures, and participation in agricultural, health and nutrition interventions by agro-ecological zone, and provide rates of change and trend data with the 2nd and 3rd annual surveys. Epidemiological analyses will estimate risks of undernutrition of women and children, and household food security, by levels and diversity of food production, program participation, SES and other potential risk factors. These national and zone-representative findings will provide a basis for initial reports to the Government of Nepal and USAID, and scientific publications addressing linkages between agriculture and nutrition.

Collaborating Partners



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