



Tropentag, September 16-18, 2026, hybrid conference

“Towards multi-functional agro-ecosystems
promoting climate resilient futures”

Do national diet indicators capture rural realities? evidence from smallholder farm households in south asia

RAVI NANDI¹, TAMARA JACKSON², MUSTAFA KAMAL³, ARIFA JANNAT⁴, ARUNAVA GHOSH⁵,
KALYAN KANTI DAS⁶

¹*International Maize and Wheat Improvement Center (CIMMYT), Sustainable Agrifood Systems (SAS), Bangladesh*

²*The Adelaide University, School of Agriculture, Food and Wine,*

³*International Maize and Wheat Improvement Center (CIMMYT), Sustainable Agrifood Systems (SAS),*

⁴*Bangladesh Agricultural University, Agricultural Economics, Bangladesh*

⁵*Uttar Banga Krishi Viswavidyalaya, Social Science, India*

⁶*Uttar Banga Krishi Viswavidyalaya, Agricultural Economics, India*

Abstract

Reliable evidence on what rural population eat is essential for designing effective nutrition-sensitive food system policies, yet most dietary monitoring in South Asia relies on nationally representative data that can obscure important subnational differences. Nationally representative dietary data are central to nutrition policy in South Asia, yet their capacity to capture subnational dietary realities among rural smallholder populations remains poorly understood. This study assessed dietary patterns and diet quality among 1,757 smallholder farm households in the Eastern Gangetic Plains (EGP), spanning Cooch Behar district (India), Koshi Province (Nepal), and Rangpur Division (Bangladesh). The Diet Quality Questionnaire (DQQ) was administered to generate a suite of validated indicators such as, Minimum Dietary Diversity for Women (MDD-W), Food Group Diversity Score (FGDS), NCD-Protect, NCD-Risk, Global Dietary Recommendations (GDR) score, and the All-5 indicator along with the subnational results were benchmarked against nationally representative DQQ estimates to evaluate the performance of nationally adapted sentinel food lists. Significant geographic and gender-based disparities in diet quality were observed. Koshi and Cooch Behar exhibited higher dietary diversity, stronger protective food consumption, and better adherence to dietary guidelines, while Rangpur, particularly among women, displayed severe dietary inadequacies, including critically low fruit, vegetable, and pulse intake. Benchmarking against national estimates revealed systematic misclassification: national sentinel food lists overstated diet quality in Bangladesh and understated it in India and Nepal, with the largest discrepancies in indicators linked to micronutrient adequacy. These findings demonstrate that nationally calibrated dietary monitoring cannot reliably capture subnational dietary vulnerability in heterogeneous rural contexts. Effective nutrition-sensitive policy in South Asia requires subnational dietary surveillance, gender-disaggregated monitoring, and locally adapted sentinel food lists to address persistent inequities in dietary diversity and food access.

Keywords: Diet quality, dietary assessment, Smallholder farm households, South Asia, Women Dietary Diversity

Contact Address: Ravi Nandi, International Maize and Wheat Improvement Center (CIMMYT), Sustainable Agrifood Systems (SAS), Road 53, 1212 Dhaka, Bangladesh, e-mail: r.nandi@cgiar.org