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The U.S. Government's Global Hunger & Food Security Initiative

NEPAL'S FOOD SAFETY POTENTIAL: RESEARCH EVIDENCE AND POLICY RECOMMENDATIONS FOR ENHANCING PRODUCE SAFETY

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FEED THE FUTURE **INNOVATION LAB FOR FOOD SAFETY**

OVERVIEW

A safer food supply can reduce foodborne illness, improve nutritional outcomes and food security, and create economic opportunity. As Nepal continues to progress in addressing hunger and poverty, food safety is emerging as an important issue. However, there is limited data to inform public policy and prioritize investments to strengthen food safety.

The Feed the Future Innovation Lab for Food Safety project in Nepal has completed assessments of the food safety risk posed by water sources used in consumer households and in agricultural systems by growers and vendors of fresh produce (fruits and vegetables); the food safety-related knowledge and behaviors of vegetable producers and fresh produce consumers; and economic incentives and barriers to food safety practices. In addition, over 200 producers and extension professionals have been trained in food safety practices for produce growing and handling which can reduce the spread of foodborne illness. The findings from this work can position entrepreneurs and policymakers for strategic planning of food safety priorities to support public health, nutrition, food security, and food system transformations.

Based on our research and experience, we suggest a comprehensive policy discussion on multiple aspects of fresh produce safety and strengthening overall food safety in Nepal. Broadly, the suggested recommendations include legislative, educational, and infrastructure-related actions that will unlock the country's food safety potential.

RECOMMENDATIONS

1. Facilitate the use of safe water in fresh produce systems by improving preventative measures, access, support, and awareness among consumers, growers, and vendors.
2. Develop a market for produce labels certifying the use of safe growing practices by harnessing consumer demand, government investment and incentive programs, and a supportive regulatory environment.
3. Support fresh produce growers in adopting good agricultural practices for safer production by increasing training and resources and enhancing the participation of women and youth.
4. Update existing good agricultural practices (GAPs) guidelines and related policies to include guidance on microbial produce safety.
5. Incorporate produce safety into new food safety regulations.
6. Promote coordination and collaboration among different sectors of government and stakeholders to address food safety more effectively.



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CONSUMERS & SAFE FOOD

Nepali consumers want safe produce and are willing to pay an additional expense for products with food safety labeling. In surveys of 604 consumer households representing the five major metropolitan areas of Nepal, more than half of consumers perceived labels indicating “safely produced” or “pesticide residual-free” as moderately to very important when selecting produce to purchase. In addition, they were willing to pay a price premium of more than 30% for salad labeled “pesticide residual-free” or “free from harmful microbial contamination.”

Our results also indicate that young consumers are willing to pay a price premium for safer produce. In an economic choice experiment, 224 youth (aged 20-26) were presented with the choice of purchasing a 0.5 kg cucumber packet from four categories: no food safety label for NRs. 40, “pesticide & chemical residual free” for NRs. 60, “free from contamination of harmful microorganisms (*E. coli*, Coliform)” for NRs. 60, or “pesticide and chemical residual-free and free from contamination of harmful microorganisms (*E. coli*, Coliform)” for NRs. 100. Cucumbers labeled as free from chemical and harmful microbial contaminants were chosen 40% more often than the unlabeled cucumbers despite a price premium. Youth are more likely to choose an option with food safety labeling when they have greater awareness of the importance of food safety or are reminded of it through an informational nudge. Data from the two surveys indicate that consumers could drive demand for safer food, and price premiums could incentivize growers to adopt safer production practices.

PRODUCERS & FOOD SAFETY

Cost can be a barrier to the adoption of food safety practices, but Nepali producers are willing to make the investment. In a survey of 1,052 growers across 10 districts, growers were willing to incur an additional 13% cost to ensure food safety. Access to credit and financial support, food safety awareness and education, market access, land ownership, risk perception and risk mitigation were found to be key considerations to incentivize producers' investment in food safety.

FOOD SAFETY & WATER SOURCES

Impure water containing pathogens can contaminate produce, both on the farm and in the household. To understand the risk to Nepali consumers, water used by consumers to wash fresh produce and water used by growers and vendors was examined. 394 water samples were collected from seven provinces, including consumer households, commercial growers, and vendors. *E. coli*, which is used to indicate the potential presence of pathogenic bacteria, was present in 59% of the samples. In samples of water used by consumers

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The Food Safety Innovation Lab (FSIL) leverages global food safety expertise in locally led projects that address the root causes of foodborne illness. By identifying food safety knowledge gaps and developing data-driven food safety practices and policies, FSIL projects create systemic change that strengthens household and community nutrition, food security, and economic opportunity.



to wash produce, 66% of stored household water and 57% of water sourced from a tap or communal supply had *E. coli* present. For growers and vendors, *E. coli* was present in 55% of sampled water used for irrigating and washing fresh produce, with contamination levels exceeding 80% in Surkhet, Makwanpur, Palpa, and Kaski. The lowest *E. coli* prevalence (19-27%) was found in Chitwan, Banke, Sarlahi, and Morang. Of commercial water sources, rivers, streams, and khola water had higher contamination (88%) compared to hand pumps, wells, and tube sources (29%). Implementation of Nepal Good Agricultural Practices (NepalGAPs) on farms and strategic investments in the water system are urgently needed to reduce the risk of foodborne illness posed by contaminated water.

WOMEN & FOOD SAFETY

Women play crucial roles in Nepal's food system, which makes their inclusion in food safety education and outreach critical to progress. Data from 604 in-person interviews conducted among households from five metropolitan areas showed that female family members are the dominant decision-makers for what fresh produce to buy and where to buy it in 83% of households, and they decide what to prepare, cook, or eat in 73% of households. In addition, for almost 66% of women over the age of 15, agriculture is the primary employment, and since 2001 women's employment in agriculture has risen faster than men's (FAO/World Bank, 2016). Moreover, increased male out-migration has feminized the Nepalese agriculture system (FAO, 2019). Considering the roles women could play in household and on-farm food safety, awareness and training programs on food safety should prioritize women's participation.

FURTHER READING

FAO/World Bank Group (2016). *Feminization of Agriculture in the Context of Rural Transformations: What is the Evidence?* (English). Washington, D.C. <https://doi.org/10.1596/25099>

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