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“Reconcile land system changes
with planetary health”

Rethinking land allocation in northern bangladesh: balancing nutrition and environmental health

SADIKA HAQUE¹, MD. NAZMUL HOQUE², MD. MEHEDI HASAN³, KULSUM AKTER⁴

¹*Bangladesh Agricultural University, Agricultural Economics, Bangladesh*

²*Bangladesh Agricultural University, Administration,*

³*Bangladesh Agricultural University, Interdisciplinary Institute for Food Security, Bangladesh*

⁴*Bangladesh Agricultural University, Department of Agricultural Economics, Bangladesh*

Abstract

Agriculture is the primary sector of Bangladesh, while its northern region is a major contributor to national food production. The region is traditionally dominated by high-yield cereals such as rice, and cash crops like potato, tobacco, and maize. Rice is considered a means of food security in Bangladesh. However, this productivity-oriented land use policy neglects the nutritional and environmental concerns. The study quantified multiple health and environmental impacts of food systems, following the multi-criteria assessment model by Clark et al. (2020). It explores how rethinking land allocation in northern Bangladesh can enhance human nutrition and reduce ecological harm. To apply the mentioned model for evaluating the current land use, a composite index of environmental burdens (water use and biodiversity loss) and human health indicators (including under-nutrition, dietary diversity, and non-communicable disease risks) was used. Data on land allocation, nutritional profiles, and environmental footprints of major crops grown in the five districts of Rangpur division were collected while conducting 36 KIIs, including Agricultural Officers, soil scientists, local elderly, and health professionals. Findings indicated that current land allocation heavily produces water-intensive cereals, contributes to environmental stress, especially groundwater depletion, and fails to provide the micronutrient diversity required for a healthy life. Conversely, underutilised crops such as pulses, oilseeds, wider varieties of fruits, vegetables, and endangered species of minor cereals like millet, Barley, Oat, and Sorghum may offer a more balanced nutritional profile while exerting lower environmental impacts per kilocalorie produced. Yet these crops receive minimal institutional support. The research indicates that a change in 20 % of agricultural land allocation to nutrient-dense low-input crops could significantly improve dietary adequacy and enhance resilience to climate variability. Moreover, an agroecologically suitable land policy may increase system efficiency and sustainability. The study suggests a paradigm shift in agricultural policy: from maximising caloric output to optimising the intersection of nutrition and environmental health. To introduce sustainable land management for Bangladesh, the Ministry of Agriculture needs to formulate policy that considers the lens to support nutritious and ecologically sound crops, invest in agro-ecological extension services, and integrate nutrition-sensitive planning into macro- and micro-level land use strategies.

Keywords: Agroecologically suitable land policy, environmental burdens, health and environmental impact, land allocation, underutilised crops

Contact Address: Sadika Haque, Bangladesh Agricultural University, Agricultural Economics, Bangladesh agricultural university, 2202 Mymensingh, Bangladesh, e-mail: sadikahaque@bau.edu.bd