

**Assessment of Sites' Suitability Using MCE Method and GIS
for Poultry Microenterprises and Value Chain Development:
A Study in Gazipur District, Bangladesh**

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Abstract

Bangladesh's economy is agricultural, with a poor industrial base. Consequently, the incidence of unemployment and poverty is high. There is growing potential for the development of microenterprises (MEs), especially agro-based MEs, created through the extensive collateral-free lending of microcredit/microfinance to small businesses of the poor. This lending is carried out mainly by several microfinance institutes (MFIs)/non-government organizations (NGOs) throughout the country, thus creating employment opportunities for the unskilled poor, who lack the necessary collateral to access loans from formal banking institutions.

In recent years, many commercial poultry MEs have flourished in Bangladesh. These have created employment for a significant number of the poor population, thus playing a significant role in poverty reduction. Gazipur district, where many households—especially of the poor—depend fully on poultry MEs for their earnings, has the highest concentration of poultry MEs/farms in the country, which can exist on small amounts of land. Poor microentrepreneurs have developed poultry MEs extensively, utilizing their inherited homestead land with the help of microfinance. Thus, not all of these MEs are located in suitable places, resulting in poor input supply and marketing facilities for their products in most cases and thus causing higher transport costs and lower profits. On the other hand, the Government, apex funding agencies, NGOs, and donor agencies apply the same policy in providing support services to all these poultry MEs/farmers, irrespective of their location. Thus, the primary objective of this study is to identify the poultry value chain and constraints, mainly those related to the physical and infrastructural environment in Gazipur district, to facilitate institutions to design interventions to help all the microentrepreneurs in those areas with potential or unfavorable areas to increase their profit and be sustainable. Consequently, to help the government, apex funding agencies, donor agencies, and NGOs to select the areas in which to provide more support—financial/technical/infrastructural—instead of following homogeneity in their assistance efforts, this study delineates suitable sites (or sites that lack suitability) for poultry MEs' development, with respect to factors such as flood-free land and infrastructures related to the poultry business-enabling

environment of the value chain in Gazipur district, an area of 1741.53 square kilometers, using a multi-criteria evaluation (MCE) technique within a geographic information system (GIS) context. Microentrepreneurs in highly suitable areas require minimum effort and investment in order to develop poultry microenterprises. If the suitability level is worse, the effort or cost, or both, is too great to be worthwhile for poultry farming. The identification of feasible locations will induce NGOs to provide adequate funding for these MEs for their further expansion, as well as arranging the required infrastructures and support services, such as a flexible lending policy, providing vaccines/medicines, facilitating quality input supply, and marketing, especially for MEs located in vulnerable areas.

The study also verifies the potential of MEs through an analysis of the geographic concentration of poultry MEs/farms and their production competence with respect to sites enjoying different levels of suitability. Hence, the analysis—a combination of field survey data with a site suitability map of ME/farm concentration—potentially enables the Government, apex funding agencies, and donor agencies to reach a greater understanding of the degree of concentration of poor microentrepreneurs/farmers in several areas. This could help these actors to decide where to allocate more funds or where to direct support services. Thus, the study will not only help policy makers to grasp the potential of poultry sub-sector development but also support the verification of suitability levels. Consequently, by providing greater certainty around demand-driven interventions, the study will aid the Government and apex funding agencies/NGOs in arranging preferential and required support services and infrastructure for unsuitable sites, on which relatively numerous farms are developed. Public policy makers might be aware of pockets of needs for infrastructural improvements. However, the study does not only deal with infrastructural facilities; rather, it reveals the favorable and unfavorable environments, derived through a GIS-based analysis of several weighted physical and infrastructural factors. The study reveals that there is a high concentration of poultry MEs/farms at sites that are deemed to be suitable and to contain potential, while there is a considerable concentration in unsuitable areas too. However, these farms/MEs might have limited productivity due to their unsuitable location, as the analysis shows that there is a limited portion of large poultry MEs/farms at

these sites. The study makes recommendations to help vulnerable microentrepreneurs to enjoy better access to facilities and support services, to reduce their production and marketing costs and add more value, and thus to increase their profit. Therefore, the microentrepreneurs would be able to expand their business and create more employment opportunities for the poor, as long as proper initiatives are taken by the Government and apex funding agencies/NGOs. This would create a kind of homogeneous opportunity for all microentrepreneurs in the district to achieve a competitive advantage and thus maintain the sustainable development of the poultry sub-sector.

Keywords: Microenterprise, Microfinance, Poultry value chain development, Enabling environment, Geographic concentration, Homestead land use, Multi-criteria evaluation, Geographic information system, Suitability of sites.

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Abbreviations

ADB	Asian Development Bank
AHP	Analytical Hierarchy Process
ASA	Association for Social Advancement
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
BBS	Bangladesh Bureau of Statistics
BDT	Bangladesh Taka
BRAC	Bangladesh Rural Advancement Committee
CDF	Credit and Development Forum
CEGIS	Center for Environmental and Geographic Information Services
CR	Consistency Ratio
DFID	Department for International Development
DIBD	Danish Industry International Business Development
DLS	Directorate of Livestock Services
DoE	Department of Environment
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GIS	Geographic Information System
ICG	International Consulting Group (ICG)
IFAD	International Fund for Agricultural Development
InM	Institute of Microfinance
LAPO	Lift above Poverty Organization
LGED	Local Government Engineering Department
MCE	Multi-Criteria Evaluation
ME	Microenterprise

MFI	Microfinance Institution
MFTSP	Microfinance and Technical Support Project
NGO	Non-Governmental Organization
PIDM	Participatory Initiatives for Development of the Masses
PKSF	Palli Karma-Sahayak Foundation
PLDP	Participatory Livestock Development Project
PMUK	Padakkhep Manobik Unnayan Kendra
PWD	Public Works Department
SSS	Society for Social Services
TMSS	Thengamara Mohila Sobuj Shongho
USAID	United States Agency for International Development
WLC	Weighted Linear Combination

