



Agargaon Administrative Area, E-4/B  
Dhaka 1207, Bangladesh

Common services activities, Technological and Environmental  
interventions requirement for Vegetables Sub-sector” under Package no  
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## Executive Summary

Bangladesh is very rich in diversity of vegetable crops. About 150 different types of vegetables are growing in Bangladesh where potato, tomato, brinjal, cabbage, cauliflower, cucurbits, beans etc. are the major vegetables in terms of production and area coverage (BBS, 2018). The production of these vegetables varies across the vegetables growing areas in the country. Jashore, Bogura, Narshingdi, Cumilla are few major vegetable growing hubs in the country due the soil condition and growing environment. The vegetables in these areas are also very good in quality in terms of nutrition. Therefore, vegetables from these areas could be branded and sold to the premium markets resulting a very good price for the farmers.

This research has been conducted using quantitative and qualitative research techniques namely Survey questionnaire, Focus Group Discussion (FGD) and Key Informant Interview (KII). The research has covered major vegetables such as brinjal, cucumber, tomato, bean, sunflower and peanut. However, during the data collection process information on other vegetables have also been collected to the extent possible. The study has collected information from both the growers and traders separately. For specific information and in-depth ideas some KIIs of relevant persons have been done. For survey, FGD and KIIs, pre-structured questionnaires have been used to collect information to address all the objectives. The research designed to support PKSF for better policy formulation for further development of the sector under different objectives:

MEs are well aware of the environmental effect of pesticides. About 81.81% respondents are aware of potential environmental hazards of using pesticides. Our consultations reveal that use of biopesticides, pheromone trap and land cleaning may be adopted to overcome the effects. An encouraging level of awareness about side effects of waste management is also observed (88.46%). Awareness building on harvesting, cleaning and grading, use of organic coating materials may help to overcome any side effects associated to this.

Five non-revenue generating physical activities (NRGPA), viz. collection yard, marketplace development, waste management system, transportation services and shallow/deep tube well, reported by the farmers interviewed. Though all the crop production systems and MEs require the five NRGPA at varying level, lacking and/or absence of one or more indicate that much can be done to make the business successful. Traders involved with the selected crops have reported to have access to eleven out of twelve most desirable NRGPA. Traders involved with the selected crops have reported to have access to eleven out of twelve most desirable NRGPA. These are sanitation (57.15%), storage (31.25%), waste dumping pit (12.5%), transport services (50%), weighing balance/digital scale installment (25%), drinking water services (6.25%), hotel/accommodation (12.50%), availability of ATM (18.75%), floor development of market shed (25%), shed house for stakeholder (100%) and availability of drainage system (18.75%). None of the traders reported to have access to waste disposal van, which is likely to hamper the market environment.

Existence of revenue generating common services (RGCS) indicate the readiness of a business to be commercially viable in the long-run. However, different crops require different types of RGCS at different levels. In the study areas MEs involved with tomato production have reported to use (or have access to) grading (100%) followed by availability of quality inputs (83.33%), commission agent services (83.33%), establishment of vermicompost plant (33.33%) and packaging (16.67%). For MEs involved with brinjal production the RGCS are availability of quality inputs (83.33%), commercial agent services (66.67%) and application of partial safe food technology (33.33%). Note that the partial safe food technology includes pheromone trap, yellow sticky, vermicompost, washing agent for cleaning. The similar list is reported by the MEs involved with other crops we studied. It is to be noted that sunflower has no established marketing channel. Despite all of these it may be argued that MEs are not using or accessing the necessary RGCS at ideal level for the flourishing of the businesses to the optimal scale.

MEs are not using or accessing the necessary Revenue Generated Common Services (RGCS) at ideal level for the flourishing of the businesses to the optimal scale. Traders reported to have three important RGCS out of total five RGCS, viz. cleaning, grading and packaging, labeling and access to generator. Other two important RGCS like cold chain development and storage facility, which would have high impact on the business performances.

Specific interventions have been identified to introduce eco labeling for some prospective vegetable crops. According to the respondents of questionnaire surveys, KIIs and FGDs government initiatives, quality assurance along the supply chain, use of vermicompost, formation of association, awareness building, market development, initiation of branding and panning for large scale production are the major initiatives that may bring change in the sector. About 60.80% of the respondent identified that there is a possibility of reduction of production if eco labeling is introduced. Branding, access to premium market as well as good price could overcome this lock for eco labeling.

During the study it was explored how access to premium markets for some of the vegetables may be increased. Majority of the respondents (77.78%) suggested market channel development as one of the important initiatives that may be taken to increase access to premium markets. This is followed by development of contract farming, farmers bargaining association, large scale production and branding. Some challenges to access premium market have been identified during the field survey. Maintaining health safety guidelines during production is one of the big challenges to access premium market.

There are several authorities that regulate different aspects of MEs including issuance of business license, certificates for import and export, quality certification and trademark issuance etc. All of these activities are operated by different government agencies viz. City Corporations, Municipalities & Union Parishads, National Board of Revenue (NBR), Seed certification agency (SCA), Phytosanitary certificate from DAE, RJSC (Registrar of Joint Stock Companies), etc.

There is evidence that all most all the MEs are currently using modern machineries for their production activities. The machineries include power tiller, sprayer, shallow and deep tubewell. Different yield rate is observed for different crops. For example, per hectare yield for tomato is found to be 30.45 tons. These are 39.91 t/ha, 3.19 t/ha, 18.83 t/ha, 3.21 t/ha and 1.97 t/ha for brinjal, bean, cucumber, peanut and sunflower respectively. Most of the MEs use HYV seed, hormone, organic fertilizer and a range of insect management technologies (IPM, pesticides etc.). After intensive field visit, KIIs and FGDs the team recommends that all the MEs should practice/use pheromone trap, yellow stick trap (in extreme pest attack), bio pesticide and organic fertilizer for their production. Thus, the production system will be environment and ecology friendly and business will have higher value in the premium market. So, traceability system should be developed where contact farming is necessary. It will help to ensure the quality of the product and sustainability of export system as well.

MEs are well aware of the environmental effect of pesticides. About 81.81% respondents reported that they know about potential environmental hazards of using pesticides. Our consultations reveal that use of biopesticides, pheromone trap and land cleaning may be adopted to overcome the effects. There is no awareness about potential side effects about the use of hormones. Creating awareness about appropriate dosage is the only option to minimize the side effects. Awareness of environmental effects of different postharvest processes have also been explored. About 81.25% of the respondents are not aware of any side effects of handling chemicals without protection. An encouraging level of awareness about side effects of waste management is observed among the respondents (88.46%). Building awareness on harvesting time, grading of produces, use of proper dose of ripening agents may help revert the situation.

To improve the business performance of the cluster of MEs a set of recommendations have been formulated. The important ones are making the good inputs available (mentioned by 52.3%), introduction of good agriculture practice (GAP) (51.61%), regular and time GO/NGO support (32.25%) etc. Similarly, some recommendations have been listed for traders for the improvement of their businesses. About 68.42% referred to the GO/NGO support, while 58.82% suggested to create easy access to institutional credit for the development of the businesses. Other important recommendations include development of contract farming (44.44%), improvement of market infrastructure (35.29%) and improvement of storage facilities (30.77%) etc.

Considering the responses from micro-enterprises (farmers and traders), Focus Group Discussion (FGD), and Key Informant Interview (KII), the following recommendations are suggested by the research team for developing the Non-Revenue Generating Common Services (NRGCS), Non-Revenue Generating Physical Activities (NRGPA) and Revenue Generating Common Services (RGCS) for vegetables microenterprises.

***Non-Revenue Generating Common Services:***

- Need to develop farmer's and trader's association
- Strengthen monitoring and regulation services
- Design framework for easy access to institutional credit
- Provide training on crop management, quality and safety of the product and to awareness
- Introduce machineries to overcome labor crisis

***Revenue Generating Physical Activities:***

- Develop sanitation and drinking water facilities
- Improve transport services
- Develop common irrigation facility
- Arrange proper waste management system in the market area
- Improve storage facility at market level
- Available of soil testing kit at farmers level

***RGCS:***

- Ensure good quality of input (seeds/seedling, fertilizer, pesticide, etc.)
- Follow complete/partial Good Agricultural Practices (GAP)
- Facilitate vermicompost and biopesticide availability
- Build shed house at field level
- Develop contract farming system
- Develop cool marketing channel for vegetables

