STUDY TO DETERMINE COMMON SERVICE ACTIVITIES, TECHNOLOGICAL AND ENVIRONMENTAL INTERVENTION REQUIREMENTS FOR MINI-GARMENTS, LOOMS AND HOSIERY SUB-SECTOR

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Executive Summary

PKSF in collaboration with the World Bank is impleminting a microenterprise development project titled "Sustainable Enterprise Project (SEP)" in order to increase the adoption of environmentally sustainable practices by targeted microenterprises (MEs). The project intervention support microenterprises in agribusiness and manufacturing clusters with a focus on areas that are environmentally stressed and/or vulnerable to climate change and natural disasters. To assist the design, process the study tries to undertake common services analysis, technological intervention and environmental intervention required for mini-garments, hosiery and handloom subsectors mainly in manufacturing clusters.

The study also identifying and describing common services which are required to support the MEs, identifying technological interventions required for this sub-sector, describing the current environmental scenario, identifying the environmental negative externalities as well as possible remedial measures and developing the value chain for the mini-garments, hosiery and handloom subsectors.

Key Findings:

a) The survey results show that around 85 to 97 percent survey entreprises reported that there are somehow various types of pollution is taking place in their factory premises inclusing water air soill, sound, heat and other types of pollutions. But unfortunatety there is no provision of measurement of pollution. It is self measurement and few NGOs are just reaising awaremness for pollution free production. Concerted effors should be take for measurement of poluution first and efforts to combat pollution later.

b) **Dust Creation and Abatement Options**

Dust is created in various production process of mini -garments, hosiery and hand loom enterprises. The survey revelas that dust is inevitable and all the respondents irrespective of enterprises admit the dust and disposal of Volatile Organic Compounds (VOCs) in the factory premises. In all cases, ventilation is absolutely practiced and exhaust fan is used 70.52 percent hosiery, 95 percent mini-garments and 78 percent handloom enterprises. Dust and packaging management is the major concern for all the enterprises although 31.57 percent hosiery, 21.05 percent mini-garments and 34 percent cases are not a concerted effort and practices.

c) All the MEs are generationg solid and waste water (80-90 percent cases). Solid is disposed mostly in buskets. But open and disposal to can and river is a common phenomenon. ETP is not at all used due to high cost of operation, installation and management.

d) **Common Service Facilities:** The field survey revels that around three fourth of micro entrepreneurs expressed their opinion for establishment of new drawing and design centre and almost all the entrepreneurs expressed their need creating packaging facilities. But around 50

percent hosiery and mini-garments entrepreneus opined for machinery supply and maintainance facilities but absolute number of handlooms entreneurs are in need for it. Testing and logistice/couries services also prime need of the entrepreneurs. However, as per opinion of the entrepreneurs, plastic and other pollution reduction facilities should be integral part of common service facilities.

e) **Eco-labeling and certification Practices : M**ost of the hosiery, mini-garments and handloom industries do not know any directions from the government about certification but all of then are Interested to comply government direction to comply for certification, Interested to create branding for your product and interested to undertake activities for branding through ensuring quality production process, Introduce certification through laboratory, conducting through environmental and social compliance audit, creating extensive marketing and other ecol-lebeling facilities in order to access premium markets.

f) **Sustainable production and employment creation:** A significant proportion of the handloom (42.8%) and knit entrepeneurs (32%) demand for credit on easy and lower interest rate. Supply of good quality and standard tread and fabrics, arrange training on particular issues, good transport and market linkage as well as arrangement of technical and specialist services are also needed and mentioned by 24 to 33% entrepreneurs. Although demand for technical and specialist services was on the top of the list and 95% entrepreneurs ask for arranging technical service from the PNGOs. From this statement we can assume that PNGOs have huge demand for credit and technical services in the project areas. Establishment of sustainable market linkage is remained as a key challenge to success. Some other important issues are arrangement of training on particular subject (91.8 percent) supply quality inputs like color and chemicals. packaging materials and accessories at a reasonable price, improve infrastructure and market and transport service, introduce insurance system etc.

Recommendations: mini-garments, hosiery and handloomsubsectors have lots of environtal and technological challenges and prospects as well. In order to overcome the weakness following measures should be taken:

(a) ***Lack of available information*** on environmental and state of the art technology, production and sales of mini-garments, hosiery and handloom in the market is lacking. A system should be developed to collect information on regular basis is absolutely necessary. Due to lack of manpower and resources, Department of Textile and Bangladesh Handloom Board is unable to do this. Cluster based production processing and marketing should be established with the support of concerned departments to collect information and a mechanism for dissemination on regular basis.

(b) ***Localized mini-garments, hosiery and handloom Association:*** Necessary support should be provided to establish localized mini-garments, hosiery and handloom Association to enhance

their capacity in order to collect information, dissemination of information through meeting, seminars etc. Analysis and capacity of the Association should be enhanced in order to contribute effectively in lobbying, negotiating and policy making. The proposed association should be take necessary affiliation from the Ministry of Industries and Ministry of Commerce as industry and trade body and should be given exposure and capacity building support so that that emerge as a regional trade and industry body and interact well with government and regulatory and trade bodies like Ministry of Commerce, Department of Textile, Bangladesh Handloom Board, Department of Environment and Department of Fire Service and Civil Defense, SME Foundation and BSSIC etc.

(c) Number of selected NGOs are providing extension, environment, capacity bulding support to the mini-garments, hosiery and handloom sub-sectors considering the prospects of local economic development. NGOs should understand the economic, financial, environmental viability and sustainability of these interventions. They should intermediate the sub-sectors with the different market segments, regulatory and extension departments based on the financial and economic viability of common service facilities with propoer assessment of technological requirements and environmental considerations.

(d) ***Air, water, soil, sound and heat pollution*** is a major concern for the mini-garments, hosiery and handloom industries. ETP is an expensive solution currently can not afford the mini-garments, hosiery and handloom industries without subsidy. Alternative solutions like fee-based waster wate collection and treatment with locally and indegenious technologies, setting up Common Effluent Treatment Plant (CETP) on co-perative basis. For operation and maintenance of CETP, small scale cluster-based association should be formed as a co- operative society. CETP should be integral part of common service facilities. The expenses for operation and maintenance of CETP will be shared by participating sub-sectors. Waste water management for the cluster of handlooms should be studied continuously to improve performance of the CETP.

(e) **Treatment of wastewater from textile industry applying constructed wetlands:** Artificial or Constructed Wetlands (CWs) have been widely applied for reduction of nutrients and contaminants in wastewater as environment friendly ecosystems and are affordable technology. CWs are engineered wetlands that utilize natural processes involving soil, wetland vegetation and microorganisms to assist the treatment of wastewater (Almeida et al., 2016). Constructed wetland treatment systems use microbes and rooted plants (hydrophytes) to remove contaminants from soil or wastewater (Hussain et al., 2018). It takes advantage of natural wetland processes to remove contaminants, generally avoiding the use of chemical products and the input of high amounts of external energy. CWs require less labor and electricity and have significantly low operational costs as compared to conventional system. As a low cost simple technology, CWs are becoming very popular in wastewater treatment all over the world. The

application of CWS are no longer limited to municipal wastewater, but has expanded to the treatment of heavily polluted industry such as tannery and textile industries (Akratos et al., 2018).

CWs can remove pollutants up to 99 per cent depending on types of contaminants and types of CWs. Recent study (Akratos et al., 2018) has demonstrated that CWs are very effective to remove contaminants (i.e., phenols, Cr(VI), color, etc.) used in chemical and textile industries. The study also found that CWs can tolerate high contaminant loads and toxic chemical substances without reducing the removal ability of CWs.

There are several types of CWs. Based on hydrology, the main types of CWs are surface flow or subsurface flow systems. According to the macrophytes growth, there are emergent, submerged, free floating and floating leaves. Based on direction of flow, CWs can be vertical, horizontal or mixed flow systems. The most widespread CWs are the surface flow and horizontal/vertical subsurface flow types. For improving the performance and the removal of pollutants, a combination of these systems (known as hybrid system) can be used.

In Bangladesh, due to high population growth enormous quantity of wastewater has been generating. With our current socio-economic condition, treatment of the huge quantity of wastewater by establishing expensive ETPs with required capacity and efficiency is nearly impossible. Therefore, CWs can be a good option for Bangladesh. The application of CWs in treating wastewaters originated from the dyeing processes in garments can be tested as a pilot basis. We can rent an existing pond/wetland in Narayonganj or Gazipur city to convert as CWs/ponds. The wastewater discharges from a cluster of mini garments can be collected to the pond to treat naturally. We can work in collaboration with city municipality and a local NGO. The estimated cost (per acre) can be approximately 13,50,000 BDT

(f) ***Policy support with technical assistance*** is required for further studies, policy making, and industry assessment, technology transfer for sustainable mini-garments, hosiery and handloom sub-sector.

(g) A number of ***common service facilities (CSF)*** should be created in order to transferred a basic technical knowledge to the mini-garments, hosiery and handloom sub-sector and ensure common services for the entrepreneurs, workers production managers, machenaries and input suppliers, storekeeper, transport workers about the environmental and tehnological regulatory requirements for production, processing, storing, transportation and marketing of mini-garments, hosiery and handloom products. Learning hub events may be arranged for separated group of owners, managers, technical staff and laborers.

(h) ***Regional hubs and business incubators*** should be established in highly concentrated districts like Serajgonj, Gazipur, Narshigdi, Naogaon, Bogra and Narayangonj districts. The business incubator will create a forum along with the prospective small entrepreneurs of mini-garments, hosiery and handloom to enhance their technical, financial, managerial management and marketing capacity. It will also link other segments of markets with the mini-garments, hosiery and handloom by providing integrated one stop service.

(i) Handloom industries in Serajgonj, Narayangong, Naogaon and Bogra need special attention and specialized treatment for the product specialization. Serajonj is specialized in shari and lungi, Naogaon is in Gamcha, Bogra and Naogaon is specialized in mat, quilt, shall, pull over (chador) and Narayangonj for Jamdani and Benarashi and Tangail for shari and gamcha products. Natore and Paban for garments those need specialized technology and support services because they reach special market segments and meet the choice and preference of specil group of people. One coat will not fit to all. There is a wider prospect for business expansion of mini-garments, hosiery and handloom. Special measures should be taken to identify and support to the prospective entrepreneurs for setting up mini-garments, hosiery and handloom industries on commercial basis.

(j) ***Financing*** is one of the important constraints for mini-garments, hosiery and handloom industries in Bangladesh. Special fund like Equity Entrepreneurship Funds (EEF Fund) should be created to support mini-garments, hosiery and handloom industries.