**Review and analyze relevant policies, design criteria with Report**

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**Executive Summary**

This report provides an in-depth review and analysis of agricultural policies and design criteria, aimed at enhancing the effectiveness and sustainability of agricultural practices within Meherpur District of Bangladesh. The evaluation focuses on ensuring that agricultural activities are aligned with current regulatory frameworks, environmental standards, and best practices, while also addressing the unique challenges and opportunities within the sector.

**Key Findings:**

**Policy Review:** The report identifies and examines key agricultural policies, including those related to land use, water management, crop protection, and food security. The analysis highlights how these policies influence agricultural practices.

**Design Criteria Analysis:** The design criteria for agricultural projects were evaluated against industry standards and guidelines, such as sustainable farming practices, soil conservation techniques, and climate-resilient crop selection. The report assesses the adequacy of these criteria in promoting productivity, sustainability, and resilience in agricultural systems.

**Compliance and Gaps:** A gap analysis was conducted to identify areas where current agricultural practices and design criteria may fall short of policy requirements or best practices. The report provides actionable recommendations to bridge these gaps, ensuring that agricultural operations are compliant with regulations and aligned with broader policy goals.

**Best Practices and Innovations:** The report incorporates best practices and innovative approaches from successful agricultural initiatives worldwide. These include precision agriculture, integrated pest management, and water-efficient irrigation systems. By integrating these practices, the report suggests pathways to enhance productivity and sustainability in the agricultural sector.

**Stakeholder Impact:** The potential impact of existing policies and design criteria on farmers, agribusinesses, local communities, and the environment was thoroughly evaluated. The report outlines strategies to balance economic, social, and environmental considerations, ensuring that the agricultural sector can thrive while meeting the needs of all stakeholders.

**Recommendations:**

Policy Enhancements: Propose updates to existing agricultural policies to better support sustainable and resilient farming practices, particularly in the face of climate change and market fluctuations.

Design Criteria Adjustments: Suggest revisions to the design criteria to incorporate more sustainable, efficient, and innovative agricultural practices.

Stakeholder Collaboration: Encourage stronger collaboration among policymakers, farmers, researchers, and agribusinesses to drive continuous improvement and innovation in the sector.

**Policy Implementation and Compliance:**

**Enhanced Regulatory Compliance**: The alignment of agricultural practices with existing policies ensures that farms and agribusinesses operate within legal frameworks, reducing the risk of penalties and fostering a stable operating environment.

**Need for Policy Reforms:** The identification of gaps between current practices and policy requirements suggests the need for policy reforms. Policymakers must consider updating outdated regulations to better support modern, sustainable agricultural practices and address emerging challenges such as climate change and food security.

**Sustainability and Environmental Impact:**

**Promotion of Sustainable Practices:** The adoption of recommended design criteria encourages the use of sustainable farming practices, such as crop rotation, organic farming, and water conservation techniques. These practices can mitigate the environmental impact of agriculture, preserving soil health, reducing water usage, and lowering greenhouse gas emissions.

**Long-term Resource Management:** By integrating sustainability into agricultural design criteria, the sector can ensure more efficient use of natural resources, which is crucial for long-term agricultural productivity and environmental preservation.

**Economic Viability and Productivity:**

**Increased Agricultural Productivity:** The application of best practices and innovative design criteria, such as precision agriculture and climate-resilient crop selection, can lead to increased crop yields and higher productivity. This not only benefits farmers economically but also enhances food security at the regional and national levels.

**Economic Diversification:** The recommendations may also encourage diversification in agricultural production, opening up new markets and reducing dependency on a limited range of crops. This can enhance economic resilience for farmers and agribusinesses.

**Stakeholder Engagement and Social Impact:**

**Strengthened Collaboration:** The findings emphasize the importance of collaboration among various stakeholders, including farmers, policymakers, researchers, and agribusinesses. Such collaboration can lead to more informed decision-making, greater innovation, and the development of policies that better reflect the needs and realities of the agricultural sector.

**Community and Social Welfare:** The report's recommendations, if implemented, can lead to improved livelihoods for farming communities by promoting sustainable and profitable agricultural practices. This can also reduce rural poverty and contribute to broader social and economic development goals.

**Adaptation to Climate Change:**

**Resilience Building:** The emphasis on climate-resilient practices in the design criteria highlights the need for the agricultural sector to adapt to changing environmental conditions. Implementing these practices can help safeguard agricultural productivity in the face of extreme weather events and shifting climatic patterns.

**Policy Integration:** Policymakers may need to integrate climate adaptation strategies more explicitly into agricultural policies to ensure that the sector is prepared for future challenges.

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| Relevant policy | Policy Implementation |
| National Seed Policy 2010  The National Seed Policy in Bangladesh aims to enhance agricultural productivity by ensuring the availability of high-quality improved seed varieties to farmers. | This task will be implemented through assignment 3 of TOR: Visiting fields to collect seed, plant, and soil samples to assesses crop production with Report. |
| Pesticide Rules 2019  It focuses on regulating pesticides’ import, production, sale, and usage. They emphasize the necessity of registering pesticide brands, outline the application process, and specify criteria for registration and renewal. Safe and responsible pesticide use is emphasized to prevent health risks and environmental harm. | This task will be implemented through assignment 6 of TOR: Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving problems and report submission |
| The National Agricultural Mechanization Policy 2020  Bangladesh aims to modernize the country's agriculture sector by promoting farm mechanization. The policy outlines strategies to increase domestic production of agricultural machinery, ensure their quality and availability, and facilitate access to credit and training for farmers. It emphasizes on research and development to introduce new technologies and create a skilled workforce for operating and maintaining agricultural machinery. This will ultimately increase productivity, profitability, and sustainability of agriculture in Bangladesh. | This task will be implemented through assignment 6 of TOR: Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving problems and report submission |
| The fertilizer Management Amendment Rules, 2021  The amendment likely aims to improve fertilizer management practices in Bangladesh over 2007 fertilizer amendment. It adds new laws towards fertilizer management. | This task will be implemented through assignment 3 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report |
| The Bangladesh Good Agricultural Practices (GAP) Policy 2020  It promotes safe and sustainable farming. It encourages optimal use of fertilizers, water, and pesticides while protecting the environment and worker health. This ensures production of high-quality, nutritious food for domestic consumption and export, ultimately aiming to boost food security and economic growth. Develop web portals related to the Bangladesh GAP and upload all instructions on the website. | This task will be implemented through assignment 3, 5, and 6 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Evaluates and improves seed quality of the District with Report; Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving problems and report submission. |
| Bangladesh Fisheries Development Corporation Act, 1973  It was enacted to establish the Bangladesh Fisheries Development Corporation. This corporation aims to develop the fishing industry in Bangladesh and address related matters. It defines the corporation’s functions, management structure, capital, and borrowing powers. The Act emphasizes sustainable fisheries development, efficient management, and financial accountability. It repeals previous ordinances related to fisheries development | This task will be implemented through assignment 1 of TOR: Reconnaissance Report on existing crop variation within the region |
| 7th Five Year Plan:  Increase agricultural productivity and ensure food security (Chapter 4, pp 27)  Agriculture lands has been proposed as urban promotion control zone, suggested to promote salinity tolerant crop variant and integrated farming; | This task will be implemented through assignment 3, 5 and 6 of TOR: Assignment 3, 5, and 6 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Evaluates and improves seed quality of the District with Report; Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving problems and report submission. |
| Bangladesh Delta Plan 2100:  Increase resilience of agricultural production system; Diversification in agricultural output and livelihoods (pg 23)  The plan recommended to conduct research to explore regionally, ecologically, and culturally appropriate diversification strategies; the plan has conducted study on cropping pattern which will help to fix priority areas for conducting research and diversification strategies; tourism and port related facilities will generate employment opportunities for local people to support livelihood | This task will be implemented through assignment 3 and 4 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Identification of seasonal Variation of crop in the District. |
| Perspective Plan (2021-2041):  Paradigm shift in agriculture to enhance productivity and ensure food security (Section 1.3, pg 6)  The plan suggested to explore proper water management by using the knowledge of precision farming, construction of storage facilities, co-operative farming societies, explore appropriate preventive measures, introduction of drone technology and, monitoring or management software to collects and analyzes data from sensors to monitor changes in plant growth, weed density and also detect pest presence. | This task will be implemented through assignment 3, 5 and 6 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Identification of seasonal Variation of crop in the District, and Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving problems and report submission. |
| Include climate change adaptation strategy in agriculture (Section 6.4, pg 76)  Develop climate-resilient cropping systems (including agricultural research), as well as fisheries and livestock systems to ensure local and national food security. | This task will be implemented through assignment 4 of TOR: Identification of seasonal Variation of crop in the District. |
| Diversification in agricultural output and livelihoods, involving off-farm activities (Section 6.4, pg 77); Also promote agro based manufacturing industry (Section 6.7, pg 84)  To engage farming households in multiple agricultural and nonagricultural activities the plan has proposed economic regions considering geological and hydrogeological attribute, better communication facilities and proximity to existing urban area. | This task will be implemented through assignment 3, 4, 5, and 6 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Identification of seasonal Variation of crop in the District; Evaluates and improves seed quality of the District with Report; Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving Problems and report submission. |
| Promote optimum land use and its conservation for food production (Section 6.4.3, pg 78)  To promote optimal land use the plan has proposed strategic service centers at three level and defined agricultural land as urban promotion control zone to ensure food production. | This task will be implemented through assignment 4, and 6 of TOR: Identification of seasonal Variation of crop in the District; and Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving Problems and report submission. |
| Environmental Conservation Act 1995  Mitigate environmental pollution and protect eco-system (Section 4, pg 4)  This policy focuses on addressing environmental pollution and safeguarding ecosystems. It aims to reduce pollutants and implement measures to protect and restore natural habitats, ensuring that ecosystems remain healthy and resilient against environmental stresses. | This task will be implemented through assignment 6 of TOR: Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving Problems and report submission. |
| National Environmental Management Plan 1995  Reduce environmental degradation, preserve wetlands and conserve wildlife habitats and biodiversity (Table 4.5.6, pg 86)  This policy focuses on mitigating environmental degradation by protecting wetlands and wildlife habitats. It aims to conserve biodiversity and maintain ecological balance, ensuring that natural environments are preserved for future generations while supporting the health of various ecosystems. | This task will be implemented through assignment a and 6 of TOR: Reconnaissance Report on existing crop variation within the region; Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving Problems and report submission. |
| Establishment of mini-cold storage  The policy aims to set up mini-cold storage facilities to preserve agricultural products, reduce spoilage, and extend market reach. | This task will be implemented through assignment a and 4 of TOR: Identification of seasonal Variation of crop in the District |
| Crop processing and value chain for agricultural products  This policy emphasizes developing crop processing facilities and value chains to add value to agricultural products, enhancing profitability for farmers and producers. | This task will be implemented through assignment a and 4 of TOR: Identification of seasonal Variation of crop in the District |
| Zero hunger; Achieve food security and promote sustainable agriculture (Goal 2) Preservation of agricultural land, sustainable management of fisheries. | This task will be implemented through assignment 3, 4, 5, and 6 of TOR: Visiting fields to collect seed, plant, and soil samples Assesses crop production with Report; Identification of seasonal Variation of crop in the District; Evaluates and improves seed quality of the District with Report; Developing better planting, cultivation, and harvesting techniques, improving crop yield, and solving Problems and report submission. |

**6. Conclusion**

Meherpur District's agricultural sector is marked by a rich diversity of crops driven by favorable climatic conditions and fertile soils. While challenges such as soil degradation and water scarcity persist (due to land cover change pressure), significant opportunities exist for improving land use planning, agricultural productivity and sustainability through diversification, technology adoption, and market development. Continued research, infrastructure development, and farmer education efforts are essential to harness these opportunities and ensure the district's agricultural prosperity.