# Health Services and Epidemics in The Context of Recent Floods

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## *Abstract:*

*This report, prepared by the Minister for Food and Agriculture Security's Task Force, critically examines the persistent challenges of agricultural productivity, food inflation, and malnutrition among women and children in Pakistan. Although agriculture contributes 24% to GDP and employs over a third of the workforce, the sector suffers from stagnating productivity, supply chain inefficiencies, and climate vulnerability. These issues have led to recurring food inflation and widespread malnutrition, with 40% of children stunted and 41% of women anemic. Using a mixed-methods approach, the report analyzes gaps in policy implementation and institutional weaknesses by reviewing national and provincial frameworks, programs, and budget allocations from 2018 to 2025. Findings highlight fragmented, outdated policies, poor enforcement, and weak intersect oral coordination as key barriers. The report offers evidence-based recommendations to enhance institutional capacity, improve policy coherence, and promote sustainable, nutrition-sensitive agricultural development to ensure food security and better health outcomes for Pakistan's most vulnerable populations.*

## *Key words:*

*food security, agricultural productivity, malnutrition, policy implementation, Pakistan*

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## *Introduction*

Agriculture is a sector in Pakistan's economy having utmost significance, contributing approximately 24% to the country's Gross Domestic Product (GDP) and employing about 37.4% of the labor force, predominantly in rural areas (Pakistan Economic Survey, 2024). The sector not only ensures food security but also supports rural livelihoods and generates export revenues. Pakistan is among the world's leading producers of key crops such as wheat, rice, cotton, and sugarcane. Despite this, agricultural productivity has stagnated over the past decades, constrained by systemic challenges including poor input quality, inefficient water management, weak extension services, and climate change impacts (Aslam, 2016; PIDE, 2024). It goes without saying that due to low agricultural productivity viz-a-viz population growth, Pakistan faces a crisis of food inflation that threatens the affordability and accessibility of staple foods, particularly for low-income households. Rising input costs, supply chain inefficiencies, and policy inconsistencies have driven food prices upward, aggravating food insecurity (FAO, 2025; IPC, 2024). Compounding these challenges is the persistent malnutrition crisis, especially among women and children. High rates of stunting, wasting, and anemia reflect the deep-rooted socio-economic and health issues that undermine human capital development and national progress (Nutrition International, 2024; Business Recorder, 2024).

This report, prepared by the Minister for Food and Agriculture Security's Task Force (Group# 7), aims to analyze the policy implementation gaps and institutional fault-lines that hinder agricultural productivity and contribute to food inflation and malnutrition in Pakistan. It seeks to provide evidence-based recommendations to strengthen institutional capacities, improve policy coherence, and foster sustainable agricultural and nutrition outcomes.

### *Conceptual and Theoretical Framework*

#### *Agricultural Productivity*

Agricultural productivity refers to the efficiency with which agricultural inputs (land, labor, capital, and technology) are converted into outputs (crops, livestock, and related products). It is commonly measured as output per unit of input, such as yield per hectare or output per worker (FAO, 2025). In Pakistan, despite agriculture's central role-contributing about 24% to GDP and employing 37.4% of the labor force (Pakistan Economic Survey, 2024)-productivity has stagnated due to systemic challenges.

Mechanization is a critical component of productivity. It involves the adoption of machinery and modern technology (tractors, harvesters, irrigation systems) to replace or supplement manual labor, thereby increasing efficiency, reducing drudgery, and improving timeliness of operations. In Pakistan, mechanization remains limited, with even tractor density of only 0.9 per 100 hectares, far below regional peers (FAO, 2025).

Barriers include high costs, limited credit, lack of technical support, and fragmented land holdings (PIDE, 2024). Without widespread mechanization, productivity gains are constrained, especially as population growth increases food demand.

### *Crisis and Food Inflation*

The crisis in Pakistan's agriculture sector is marked by stagnating productivity, recurrent food inflation, and growing import dependence. Food inflation, defined as the sustained increase in prices of food items, is driven by both supply-side and demand-side factors. On the supply side, poor yields, post-harvest losses (15–40%), and climate shocks reduce availability (Standing Committee on National Food Security and Research, 2025). On the demand side, rapid population growth and urbanization increase pressure on food systems.

Imports are also a reason for food inflation. Pakistan increasingly relies on imports for staples such as wheat, pulses, and edible oil. For example, pulses are not produced in sufficient quantities domestically, making Pakistan one of the world's largest importers (FAO, 2025). Import dependence exposes the country to global price volatility and exchange rate fluctuations, which are passed on to consumers as higher prices (World Bank, 2024).

### *Demand vs. Supply of Food Items*

The mismatch between demand and supply is evident in key food commodities. Wheat and rice production has grown, but not fast enough to match consumption needs, especially during years of poor harvests. Pulses are a notable gap-domestic production meets less than 30% of demand, with the rest covered by imports (FAO, 2025). This supply shortfall, coupled with rising demand, fuels food inflation and jeopardizes food security.

### *Food Inflation Trends*

Food inflation in Pakistan peaked at 28.8% in FY2023 before declining to 7.2% in FY2025 due to global price easing and policy interventions (Finance Division, 2025). However, recent contractions in crop production have renewed upward pressure on prices, particularly for wheat and pulses. The effects of food inflation are felt most acutely by vulnerable groups, as food accounts for a large share of household expenditure among the poor (PIDE, 2024).

**Milk:** Milk is a staple in the Pakistani diet and a primary source of animal protein and micronutrients, especially for children. Despite being the fourth largest milk producer globally, per capita milk availability in Pakistan remains below recommended levels, at approximately 220 liters per year compared to the global average of 300 liters (FAO, 2025).

The gap between production and demand is due to several factors:

**Low Productivity:** Average milk yield per animal is significantly lower than in developed countries, primarily due to poor genetics, inadequate feed, and limited veterinary care.

**Seasonal Fluctuations:** Milk production varies seasonally, with shortages during lean periods leading to price spikes.

**Supply Chain Inefficiencies:** Lack of cold chain infrastructure and efficient transportation results in significant post-production losses.

Electronic milking, or automated milking systems, represent a technological advancement that can revolutionize Pakistan's dairy sector. These systems use sensors and robotics to automate the milking process, ensuring consistent milk quality, reducing labor costs, and improving animal health monitoring (Concave Agri, 2025). Adoption of electronic milking is currently limited to large commercial farms due to high initial investment costs. However, with appropriate policy support, credit facilities, and training, small and medium-sized dairy farmers can also benefit from this technology, leading to increased milk yields and improved livelihoods.

Commercial-scale milk production is essential for addressing malnutrition in Pakistan. Large-scale dairy farms with modern infrastructure can produce higher-quality milk at lower costs, making it more accessible to poor and vulnerable populations. Additionally, commercial dairies can supply fortified milk products, such as vitamin A- and D-enriched milk, which are critical for child growth and development.

Integration of smallholder farmers into commercial value chains through cooperatives or contract farming arrangements can further enhance milk availability and rural incomes. Government support for commercial dairy development, including subsidies for equipment, training, and cold chain infrastructure, is vital for scaling up milk production and improving nutrition outcomes (FAO, 2025).

### *Vulnerable Populations*

Food inflation and agricultural crises disproportionately impact Pakistan's most vulnerable populations, stratified into the lower middle class, poor, and extreme poor. Each group experiences unique challenges and consequences due to their socio-economic positions, income levels, and access to resources.

The **lower middle class** in Pakistan, often comprising salaried workers, small business owners, and skilled laborers, is particularly sensitive to fluctuations in food prices. This group typically allocates 40-50% of household income to food expenditure (World Bank, 2024). When food inflation rises, these households are forced to make difficult choices, such as reducing consumption of protein-rich and nutrient-dense foods like meat, milk, and pulses. This dietary shift often leads to "hidden hunger," where caloric intake may be sufficient, but micronutrient deficiencies develop (Nutrition International, 2024).

The lower middle class is also vulnerable to economic shocks, such as job losses or medical emergencies, which can quickly erode their limited savings. As a result, even moderate food price increases can push these households closer to the poverty line, increasing their dependence on informal credit or social support networks (Pakistan Bureau of Statistics, 2025).

The **poor**, defined as individuals or households living below the national poverty line, are even more severely affected by food inflation and low agricultural productivity. This group often spends up to 60% of their income on basic food items, leaving little room for dietary diversity or healthcare (UNICEF, 2024). Poor households are frequently forced to adopt negative coping strategies, such as skipping meals, reducing portion sizes, or substituting less expensive but less nutritious foods.

**Children** in poor households are at heightened risk of malnutrition, as families prioritize filling foods (such as wheat or rice) over fruits, vegetables, and animal-source foods. **Women**, especially pregnant and lactating mothers, are also disproportionately affected due to intra-household food allocation biases and increased nutritional needs (Nutrition International, 2024).

The **extreme poor**, often living in rural, remote, or marginalized urban areas, face chronic food insecurity and are most exposed to the consequences of agricultural crises. These households have little or no access to land, stable employment, or social protection programs. They are often dependent on daily wage labor or seasonal agricultural work, making their incomes highly volatile and insufficient to meet even basic needs (FAO, 2025).

For the extreme poor, food inflation can mean the difference between subsistence and starvation. Chronic under nutrition, frequent illness, and limited access to health and education services perpetuate a cycle of poverty and vulnerability. This group is also the least likely to benefit from government interventions due to barriers such as lack of documentation, geographic isolation, or social exclusion (WFP, 2024).

**Malnutrition: Stunting, Wasting, and Anemia**

Malnutrition in Pakistan is a multifaceted crisis, with high rates of stunting, wasting, and anemia among women and children. These forms of malnutrition are both a cause and consequence of poverty, food insecurity, and inadequate healthcare.

**Stunting**: Stunting, defined as low height-for-age, is a marker of chronic under nutrition. According to Nutrition International (2024), approximately 40% of Pakistani children under five are stunted, a figure that has remained stubbornly high for over a decade. Stunting results from long-term insufficient nutrient intake and frequent infections, often beginning in utero and continuing through early childhood.

The consequences of stunting are severe and long-lasting. Stunted children are more likely to experience delayed cognitive and physical development, perform poorly in school, and have lower earning potential as adults. At the population level, high stunting rates translate into lost human capital and reduced economic growth (UNICEF, 2024).

**Wasting**: Wasting, or low weight-for-height, reflects acute under nutrition and is often associated with recent food shortages or illness. In Pakistan, the prevalence of wasting among children under five is estimated at 17%, which is above the World Health Organization's emergency threshold (UNICEF, 2024). Wasted children are at significantly increased risk of mortality, particularly from common infections such as diarrhea and pneumonia.

**Anemia**: Anemia, primarily caused by iron deficiency, affects 41% of women of reproductive age in Pakistan (Nutrition International, 2024). Anemia in women leads to fatigue, reduced work capacity, and increased risk of complications during pregnancy and childbirth. Children born to anemic mothers are more likely to have low birth weight and impaired cognitive development.

### *Consequences of Food Inflation and Malnutrition*

At the **local level**, the consequences are felt most acutely by rural and urban poor communities:

**Household Food Security:** Rural households face reduced food availability due to poor harvests and limited market access, while urban poor struggle with high prices and limited income-earning opportunities (Khurshid, 2024).

**Health Outcomes:** Malnutrition increases the incidence of illness, impairs child development, and perpetuates intergenerational cycles of poverty (Nutrition International, 2024).

**Migration:** Food insecurity can drive rural-to-urban migration, increasing pressure on urban infrastructure and services (World Bank, 2024).

At the **national level**, persistent food inflation and malnutrition have far-reaching socio-economic consequences:

**Economic Impact:** Food inflation erodes real incomes, increases poverty rates, and undermines economic growth. Malnutrition reduces workforce productivity and increases healthcare costs, constraining national development (PIDE, 2024).

**Human Capital:** High rates of stunting and anemia limit educational attainment and cognitive development, resulting in a less skilled and less competitive workforce (Nutrition International, 2024).

**Social Stability:** Food insecurity and rising prices can lead to social unrest, protests, and increased crime rates, threatening national stability (World Bank, 2024).

**Internationally**, Pakistan's food security and nutrition challenges have implications for trade, aid, and global development goals:

**Trade Balance:** Increased food imports to meet domestic demand worsen the trade deficit and expose Pakistan to global price volatility (FAO, 2025).

**Global Commitments:** Persistent malnutrition and food insecurity hinder Pakistan's progress towards Sustainable Development Goal 2 (Zero Hunger) and other international development commitments (UN, 2023).

**Reputation and Aid:** High malnutrition rates attract global concern and may affect eligibility for international aid and investment (UNICEF, 2024).

## *Statement of the Problem*

Agricultural productivity, food inflation, and malnutrition remain among the most persistent challenges undermining Pakistan's food security and socio-economic development. Despite the sector's centrality to the national economy, low crop yields, escalating food prices, and high rates of malnutrition among women and children reflect systemic policy implementation gaps and institutional weaknesses. This situation calls for a comprehensive study to identify these gaps and fault-lines, enabling the formulation of effective strategies to enhance agricultural productivity, control food inflation, and improve nutrition outcomes.

## *Scope and Significance*

This report focuses on the nexus of agricultural productivity, food inflation, and malnutrition in Pakistan, with a specific emphasis on policy implementation gaps and institutional weaknesses. The analysis includes current agricultural productivity trends and challenges, food inflation dynamics and their drivers, malnutrition prevalence and its determinants, policy and institutional analysis, including mapping of key stakeholders. It covers all provinces, with particular attention to vulnerable rural areas, using data and developments primarily from 2018 to 2025. The study, hence aims to provide actionable recommendations to bridge policy and institutional gaps, promote sustainable agricultural growth, stabilize food prices, and improve nutrition outcomes, especially for marginalized groups such as smallholder farmers, women, and children.

## *Methodology*

This study employs a mixed-methods approach, integrating both qualitative and quantitative data to comprehensively analyze the policy implementation gaps and institutional fault-lines impacting agricultural productivity, food inflation, and malnutrition among women and children in Pakistan.

The methodology includes literature review of secondary data from government reports, academic publications, and international organizations (e.g., FAO, World Bank, UNICEF), analysis of official statistics from the Pakistan Bureau of Statistics, Ministry of Finance, and provincial agriculture departments, key informant's interviews with policymakers, agricultural experts, and representatives from development agencies.

## *Policy, Program and Project Review*

Pakistan's agricultural sector, crucial for national food security and economic stability, is supported by a range of policies, programs, and projects aimed at enhancing productivity, controlling food inflation, and reducing malnutrition. This review synthesizes the current landscape of government-led initiatives and development partner interventions, highlighting their scope, objectives, and implementation status.

### *Policy Frameworks*

**1. National Food Security Act (2018) and National Food Security Policy (2018)**

These landmark policies establish the legal basis for ensuring food availability, affordability, and nutritional security. They mandate strategic food reserves, regulate food prices, and promote targeted subsidies for vulnerable populations. However, post-18th Amendment devolution has created challenges in uniform policy enforcement across provinces.

**2. Prime Minister's Agricultural Transformation Plan (2021 – ongoing)**

This flagship policy initiative focuses on modernizing agriculture through subsidized high-efficiency irrigation systems (drip and sprinkler), promotion of high-yield seed varieties, mechanization, and climate-resilient farming techniques. It also emphasizes biotechnology and genetically modified crops to enhance pest and weather tolerance.

**3. Provincial Agriculture Policies**

Provinces like Punjab, Khyber Pakhtunkhwa, and Sindh have developed their own agriculture policies targeting regional priorities such as cash crops, water management, and land reforms. However, disparities in capacity and resource allocation affect consistent implementation.

**4. Climate Change and Water Policies**

The Climate Change Act (2017) and National Water Policy prioritize climate adaptation and water conservation, including canal lining and smart water meters. Large dam projects like Diamer-Bhasha and Mohmand are planned to augment irrigation supply.

### *Major Programs and Projects*

**1. Public Sector Development Program (PSDP) 2023-24 Allocations**

The federal government allocated Rs. 8.85 billion for the Ministry of National Food Security & Research (NFS&R) to fund 21 agriculture and livestock projects. Key allocations include:

- Rs. 2.8 billion for National Program for Improvement of Watercourses (Phase-II)
- Rs. 900 million for enhancing command areas in Barani regions
- Rs. 700 million for commercial olive cultivation
- Rs. 500 million for locust emergency and food security
- Rs. 440 million for pilot shrimp farming cluster development
- Rs. 300 million for pulses productivity research
- Rs. 235 million for rice productivity enhancement
- Rs. 130 million for sugarcane productivity
- Rs. 147 million for better cotton initiative
- Rs. 100 million for Pakistan-Korea joint certified seed potato production
- Rs. 50 million for horticulture support
- Rs. 377 million for solarization of agricultural tube wells (targeting 100,000 tube wells)

These projects collectively aim to improve water efficiency, diversify crop production, enhance livestock and fisheries, and introduce renewable energy in agriculture.

**2. Kissan Package**

A large-scale initiative providing interest-free loans, subsidized inputs, and insurance to small and medium farmers. Over Rs 1567.9 billion disbursed by mid-2023, with particular focus on flood-affected farmers. The package enhances access to credit and inputs, boosting farm incomes and productivity.

**3. Ehsaas Rashan Program (ERP)**

A food subsidy scheme delivering Rs 1,000 monthly to 20 million low-income families for essential commodities like pulses, flour, and oil/ghee. ERP aims to stabilize food consumption among vulnerable groups, mitigating the impact of food inflation.

**4. National Multi-Sectorial Nutrition Programme (PANI)**

With an Rs 8.5 billion budget, PANI targets 36 high-burden districts to reduce stunting and wasting through micronutrient supplementation, nutrition education, and therapeutic foods. The program integrates health, agriculture, and social protection sectors.

**5. Ehsaas Nashonuma**
A conditional cash transfer program supporting pregnant and lactating women and children under two, promoting improved nutrition and health service utilization. It leverages the Ehsaas Kafaalat database for beneficiary targeting.

**6. Horticulture Support Program**
A Rs 1 billion initiative to reduce on-field and post-harvest losses of fruits and vegetables through value addition and public-private partnerships, strengthening horticultural value chains.

**7. Prime Minister's National Programme for Solarization of Agricultural Tube wells**
This Rs 377 million project aims to convert 100,000 diesel and electric tube wells to solar power over three years, reducing energy costs and promoting sustainable irrigation.

***Provincial and Regional Projects***

**Punjab:**

- National Program for Improvement of Watercourses (Phase-II) with a Rs 46 billion budget, focusing on canal lining and water-use efficiency.
- Punjab Resilient and Inclusive Agriculture Transformation (PRIAT) project promoting climate-smart agriculture.
- Command Area Development of Jalalpur Irrigation Project and Barani command area enhancement projects.

**Khyber Pakhtunkhwa:**

- Water conservation initiatives in Barani areas with Rs 400 million funding.
- Promotion of climate-smart gram cultivation in Thal areas.

**Gilgit-Baltistan:**

Mainstreaming of high-value agriculture through MARC (Mountain Agricultural Research Centre) initiatives.

***Development Partner and Coalition Support***

- FAO supports technical capacity building, food safety reviews, and resilience-building projects targeting women and vulnerable groups.
- Pakistan Agricultural Coalition advocates for farmer-friendly policies and sustainable agricultural growth.
- World Bank and ADB provide financial and technical assistance for modernization and social protection.

### *Implementation Status and Challenges*

While these policies and projects represent a comprehensive effort to address Pakistan's food security and nutrition challenges, several issues persist:

- Delays in fund disbursement and project execution, especially at provincial and district levels.
- Capacity constraints in extension services and monitoring systems.
- Coordination challenges between federal and provincial governments post-devolution.
- Limited coverage and integration of nutrition-sensitive social protection programs.
- Vulnerabilities to climate shocks and market volatility impacting project sustainability.

Pakistan's policy, program, and project ecosystem is robust and multifaceted, targeting key constraints in agriculture and nutrition. The government's focus on modernization, water management, social protection, and climate resilience is evident in the scale and diversity of initiatives. However, strengthening implementation capacity, enhancing intergovernmental coordination, and ensuring inclusive coverage remain critical to realizing the full potential of these efforts.

## *Institutional Mapping and Fault Lines*

A thorough institutional mapping is essential for diagnosing the root causes of policy implementation gaps in Pakistan's agri-food and nutrition sectors. This mapping identifies all key institutions, their mandates, operational overlaps, and the "fault lines" or systemic weaknesses that impede effective delivery of services and policies. The analysis spans federal, provincial, district, and local levels, as well as cross-sectorial linkages.

### *Ministry of National Food Security & Research (MNFSR)*

**Mandate**

Federal lead for national food security, agricultural policy, strategic food reserves, and coordination with provinces. It also oversees national crop reporting, price stabilization, and import/export policy.

**Fault lines**:

**Post-18th Amendment Weakness:** Devolution of agriculture to provinces has reduced MNFSR's authority, leading to inconsistent national standards and poor inter-provincial coordination (FAO, 2023).

**Data Gaps:** Inadequate real-time data sharing with provinces and districts hampers timely decision-making.

**Regulatory Overlap:** Conflicts with Ministry of Commerce on import/export decisions; limited enforcement of food reserve mandates.

### *Provincial Agriculture and Livestock Departments*

**Mandate**

Provincial departments are responsible for crop and livestock development, extension services, mechanization, and local food security and implement provincial agriculture policies and programs.

**Fault lines**

**Capacity Disparities:** Wide variation in technical, financial, and human resource capacity across provinces (Punjab Board of Investment and Trade, 2018).

**Fragmented Priorities:** Provinces often pursue divergent goals (e.g., Punjab focuses on cash crops, Sindh on rice), undermining national coherence.

**Weak Extension Services:** Insufficient staff, outdated training, and lack of digital tools limit farmer outreach and technology adoption.

**Poor Monitoring:** Limited ability to track input quality, subsidy use, and program impact at district and tehsil levels.

### *Pakistan Agricultural Research Council (PARC)*

**Mandate**

National apex body for agricultural R&D, seed and breed improvement, and technology transfer.

**Fault lines**

**Underfunded Research:** Chronic budget shortfalls reduce research output and innovation (PIDE, 2024).

**Slow Technology Transfer:** Weak linkages with provincial extension departments and private sector.

**Outdated Agendas:** Research priorities often misaligned with climate change and nutrition needs.

### *Seed Certification & Registration Department*

**Mandate**

Certifies and regulates seed quality, ensures compliance with Seed Act.

**Fault lines**

**Enforcement Gaps:** Rampant sale of adulterated and counterfeit seeds due to limited inspection and enforcement (Standing Committee on National Food Security, 2025).

**Farmer Awareness:** Low awareness among farmers about certified seeds and their benefits.

*Pakistan Standards and Quality Control Authority (PSQCA)*

**Mandate**

Sets and enforces standards for fertilizers, pesticides, and food products.

**Fault lines**

**Regulatory Overlap:** Multiple agencies set overlapping standards, causing confusion and weak enforcement.

**Market Surveillance:** Limited capacity for field inspections and rapid response to violations.

*Benazir Income Support Programme (BISP) & Ehsaas Programme*

**Mandate**

Deliver cash transfers and targeted social protection to poor and vulnerable households.

**Fault lines**

**Coverage Gaps:** Many malnourished women and children remain uncovered due to restrictive eligibility and weak outreach (Nutrition International, 2024).

**Integration Issues:** Poor coordination with health and nutrition services; lack of a unified beneficiary registry.

**Funding Instability:** Political changes and fiscal pressures lead to inconsistent funding and program scale.

*Planning Commission / National Nutrition Forum*

**Mandate**

Coordinate national nutrition strategy, multi-sectorial planning, and resource mobilization.

**Fault lines**

**Siloed Operations:** Weak cross-ministry collaboration, especially with health and agriculture.

**Monitoring Gaps:** Absence of a real-time national nutrition dashboard and robust evaluation systems.

*Ministry of Climate Change*

**Mandate**

Develop and implement climate adaptation policies for agriculture, water, and land use.

**Fault lines**

**Sector Disconnect:** Limited integration of climate adaptation with agricultural planning.

**Enforcement Weakness:** Climate policies exist on paper but lack actionable, sector-specific regulations (APN-GCR, 2022).

### *Ministry of Commerce & Trade*

**Mandate**

Regulate agricultural imports/exports, negotiate trade agreements, and align with WTO standards.

**Fault lines**

**Coordination Issues:** Policy misalignments with MNFSR and provincial departments on export bans and import tariffs.

**Compliance Gaps:** Poor adherence to international sanitary and phytosanitary standards, limiting export potential (PIDE, 2024).

### *Provincial and Local Governments*

**Mandate**

Oversee on-ground implementation of agriculture, health, and nutrition policies.

**Fault lines**

**Resource Constraints:** Many districts lack adequate staff, funding, and infrastructure.

**Decentralization Challenges:** Devolution has not been matched by capacity building, leading to uneven service delivery.

### *Regulatory and Legal Bodies*

**Mandate**

Enforce land, seed, fertilizer, and food safety laws.

**Fault lines**

**Outdated Legislation:** Key laws (e.g., Land Revenue Act 1967, Fertilizer Control Act 1959) are obsolete and poorly enforced.

**Weak Zoning/Urban Planning:** Ineffective prevention of farmland loss to urban encroachment (PIDE, 2024).

### *Private Sector and Dairy Industry*

**Mandate**

Invest in agri-inputs, mechanization, commercial dairy, and food processing.

**Fault lines**

**Fragmented Supply Chains:** Poor integration between smallholders and commercial processors.

**Technology Barriers:** Limited adoption of electronic milking and cold chain infrastructure (Concave Agri, 2025).

**Market Access:** Smallholders often lack access to finance, markets, and value-added opportunities.

### *Farmer Organizations and Cooperatives*

**Mandate**

Advocate for farmer rights, access to subsidies, and fair market prices.

**Fault lines**

**Representation Gaps:** Many smallholders, women, and tenant farmers are underrepresented.

**Capacity Issues:** Limited organizational capacity for policy advocacy and service delivery.

### *NGOs, Civil Society, and Development Partners*

**Mandate**

Implement nutrition, food security, and rural development projects; provide technical assistance.

**Fault lines**

**Fragmented Efforts:** Projects often operate in silos, with limited alignment to government priorities.

**Sustainability Concerns:** Many interventions are donor-driven and not institutionalized.

### *Academia and Research Institutions*

**Mandate**

Conduct research, policy analysis, and professional training.

**Fault lines**

**Limited Policy Uptake:** Research findings are often not translated into policy or practice.

**Funding Gaps:** Chronic underfunding limits research scope and innovation.

### *Media*

**Mandate**

Raise awareness, shape public opinion, and hold stakeholders accountable.

**Fault lines**

**Superficial Coverage:** Focus on crises rather than systemic issues; limited investigative journalism on agri-food policy.

*Institutional Fault lines (Cross-Cutting Issues)*

**Coordination Deficits:** Weak horizontal (across ministries) and vertical (federal-provincial-district) coordination.

**Legal Lacunas:** Outdated, fragmented, or poorly enforced laws and regulations.

**Capacity Imbalances:** Stark differences in institutional capacity across provinces and districts.

**Data and Monitoring Gaps:** Lack of integrated data systems for real-time monitoring and policy adjustment.

**Political Interference:** Frequent changes in leadership and policy direction disrupt continuity and effectiveness.

**Resource Constraints:** Chronic underfunding and delayed budget releases.

**Accountability Deficits:** Weak mechanisms for performance evaluation and public accountability.

## *Stakeholder Mapping*

Stakeholder mapping is a critical analytical tool for understanding the landscape of actors who influence, implement, or are affected by policies and programs related to agricultural productivity, food inflation, and malnutrition in Pakistan. Effective stakeholder mapping enables policymakers and practitioners to identify key players, clarify roles and responsibilities, anticipate conflicts of interest, and foster collaboration for optimal outcomes. In the context of Pakistan's agri-food system, stakeholders operate at multiple levels-national, provincial, district, and community-and span the public, private, and civil society sectors.

### *Government Ministries and Departments*

**a. Ministry of National Food Security & Research (MNFSR)**

**Role**: Lead federal agency for policy formulation, coordination, and oversight of food security, agricultural productivity, and nutrition.

**Functions**: Develops national strategies, maintains strategic food reserves, regulates food prices, and coordinates with provinces (post-18th Amendment).

**Influence**: High at national level, but limited at provincial level due to devolution of powers.

**b. Provincial Agriculture and Livestock Departments**

**Role**: Responsible for implementing agricultural policies, extension services, and farmer support at the provincial level.

**Functions**: Oversee crop and livestock development, mechanization programs, and farmer education.

**Influence**: Directly impact productivity and food availability at local level.

**c. Ministry of Planning, Development & Special Initiatives**

**Role**: Integrates agriculture and nutrition into national development plans and allocates development budgets.

**Functions**: Coordinates multi-sectoral initiatives, including nutrition programs and climate adaptation projects.

**d. Ministry of Climate Change**

**Role**: Develops and implements policies for climate adaptation in agriculture.

**Functions**: Oversees climate-resilient farming, water conservation, and disaster risk reduction.

**e. Ministry of Commerce & Trade**

**Role**: Regulates agricultural imports and exports, trade policy, and compliance with international standards.

**Functions**: Negotiates trade agreements, sets tariffs, and manages export promotion for agri-products.

**f. Ministry of Finance**

**Role**: Allocates budgets for agricultural development, subsidies, and social protection programs.

**Functions**: Manages fiscal policy, public sector development programs (PSDP), and emergency funding.

*Regulatory and Research Bodies*

**a. Pakistan Agricultural Research Council (PARC)**

**Role**: National apex research body for crop and livestock innovation.

**Functions**: Develops improved seed varieties, conducts research on mechanization, and supports technology transfer.

**b. Seed Certification & Registration Department**

**Role**: Regulates seed quality and certification.

**Functions**: Ensures availability of certified seeds, monitors seed companies, and combats counterfeit seeds.

**c. Pakistan Standards and Quality Control Authority (PSQCA)**

**Role**: Sets and enforces quality standards for agricultural inputs and food products.

**Functions**: Certifies fertilizers, pesticides, and food safety standards.

*Social Protection and Nutrition Agencies*

**a. Benazir Income Support Programme (BISP)**

**Role**: Provides unconditional and conditional cash transfers to poor and vulnerable households.

**Functions**: Targets women, supports nutrition, and links with health and education services.

**b. Ehsaas Programme / Ehsaas Nashonuma**

**Role**: Flagship social protection initiative with a focus on maternal and child nutrition.

**Functions**: Delivers cash transfers, nutrition education, and health services to pregnant and lactating women and children under two.

**c. Planning Commission / National Nutrition Forum**

**Role**: Coordinates national nutrition strategy and multi-sectoral interventions.

**Functions**: Monitors progress, mobilizes resources, and evaluates program effectiveness.

*Provincial and Local Governments*

**Provincial Governments:** Oversee agriculture, health, and nutrition policy implementation particularly after 18th Amendment.

**District Administrations:** Responsible for local service delivery, coordination, monitoring, and community mobilization.

**Union Councils:** Engage in grassroots outreach, beneficiary identification, and feedback collection.

*Private Sector Stakeholders*

**a. Agri-Input Suppliers**

**Role**: Provide seeds, fertilizers, pesticides, and machinery to farmers.

**Influence**: Directly impact productivity through input quality and pricing.

**b. Commercial Dairy Producers and Milk Processors**

**Role**: Invest in large-scale milk production, electronic milking systems, and value-added products.

**Functions**: Enhance milk availability, quality, and affordability.

**c. Agri-Tech Startups and Service Providers**

**Role**: Innovate in precision agriculture, digital advisory, and supply chain management.

**Functions**: Offer mobile-based extension, market information, and logistics solutions.

**d. Food Retailers and Supermarkets**

**Role**: Influence food prices, availability, and consumer access to diverse diets.

*Farmer Organizations and Cooperatives*

**Kissan Ittehad and Other Farmer Associations:** Advocate for farmer rights, access to subsidies, and fair market prices.

**Women's Cooperatives:** Empower women in agriculture, dairy, and nutrition-focused enterprises.

**Smallholder and Tenant Farmer Groups:** Represent the interests of marginalized and landless farmers.

### *Civil Society and Non-Governmental Organizations (NGOs)*

**Role**: Implement grassroots projects on nutrition, food security, and women's empowerment.

**Functions**: Provide extension services, nutrition education, and monitor policy impact.

**Examples**: Rural Support Programmes Network (RSPN), Aurat Foundation, Action against Hunger.

### *Development Partners and International Organizations*

**Food and Agriculture Organization (FAO):** Technical support on policy, research, and food security.

World Bank, Asian Development Bank (ADB): Financial and technical assistance for agri-sector reforms and social protection.

**UNICEF, World Food Programme (WFP), and Nutrition International:** Focus on child and maternal nutrition, emergency food aid, and capacity building.

**Scaling up Nutrition (SUN) Movement:** Multi-sectoral coordination for nutrition improvement.

### *Academia and Research Institutions*

**Universities (e.g., University of Agriculture Faisalabad, Sindh Agriculture University):** Conduct research, train agri-professionals, and evaluate interventions.

**Think Tanks (e.g., PIDE, SDPI):** Policy analysis, advocacy, and dissemination of best practices.

### *Consumers and Community Stakeholders*

**Urban and Rural Households:** End-users of food products, directly affected by inflation and malnutrition.

**Community Leaders and Religious Institutions:** Influence dietary practices, social norms, and mobilize community action.

### *Media*

**Role**: Shape public opinion, raise awareness, and hold stakeholders accountable for policy outcomes.

**Functions**: Investigative journalism, reporting on food inflation, malnutrition, and government performance.

### *Interactions between Stakeholders and Power Dynamics*

Stakeholder relationships in Pakistan's agri-food system are complex and often characterized by overlapping mandates, competition for resources, and varying degrees of influence:

**Federal-Provincial Coordination:** The 18th Constitutional Amendment devolved key agricultural and nutrition functions to provinces, requiring robust inter-governmental coordination, which is often lacking.

**Public-Private Partnerships:** Increasingly important for scaling up mechanization, commercial dairy, and supply chain modernization.

**Civil Society Engagement:** Essential for reaching marginalized groups, monitoring policy implementation, and ensuring accountability.

**International Collaboration:** Critical for aligning national policies with global standards and accessing technical and financial support.

### *Stakeholder Influence Matrix (Summary Table)*

| Stakeholder Category | Influence Level | Interest Level | Key Roles/Functions |
|---|---|---|---|
| Federal Ministries | High | High | Policy, funding, coordination |
| Provincial Departments | High | High | Implementation, extension, monitoring |
| Regulatory/Research Bodies | Medium | High | Standards, innovation, quality control |
| Social Protection Agencies | High | High | Targeting, cash transfers, nutrition |
| Private Sector | Medium-High | High | Inputs, dairy, mechanization, retail |
| Farmer Organizations | Medium | High | Advocacy, capacity building |

| Stakeholder Category | Influence Level | Interest Level | Key Roles/Functions |
|---|---|---|---|
| NGOs/Civil Society | Medium | High | Outreach, education, monitoring |
| Development Partners | Medium | High | Technical/financial support, best practices |
| Academia/Research | Medium | Medium | Research, training, evaluation |
| Consumers/Communities | Low-Medium | High | Demand, feedback, social norms |
| Media | Medium | Medium | Awareness, advocacy, accountability |

## *Policy Implementation Gaps/Bottlenecks*

Despite the existence of comprehensive policy frameworks, targeted programs, and significant budget allocations, Pakistan's progress in agricultural productivity, food inflation control, and malnutrition reduction remains disrupted by persistent implementation gaps. These gaps are rooted in both performance (execution and monitoring) and legal (regulatory and legislative) deficiencies, manifesting at national, international, and local levels.

### *National Level Gaps*

**1. Fragmented and Outdated Legal Frameworks**

**Multiple Overlapping Laws:** Key laws such as the National Food Security Act (2018), Seed Act (2015), Fertilizer Control Act (1959), and Land Revenue Act (1967) are either outdated or poorly harmonized. This results in regulatory confusion and inconsistent enforcement (PIDE, 2024).

**Provincial Autonomy vs. National Coordination:** The 18th Amendment devolved agriculture and nutrition to provinces, but mechanisms for inter-provincial and federal-provincial coordination remain weak (FAO, 2023).

This leads to policy fragmentation, with provinces often pursuing divergent priorities.

**Weak Enforcement:** Even where laws exist, penalties for non-compliance (e.g., with price controls, food reserve targets, or seed certification) are rarely imposed, eroding the deterrent effect of regulation (PIDE, 2024).

### *Performance Gaps in Policy Execution*

**Resource Allocation Disparities:** While national budgets for food security and agriculture have increased (e.g., MNFSR's development budget rose by Rs3.71 billion in FY2024-25), actual disbursement and utilization at provincial and district levels are inconsistent, often delayed, and subject to bureaucratic bottlenecks (Finance Division, 2025).

**Monitoring and Evaluation Deficits:** There is a lack of integrated, real-time monitoring systems for tracking program implementation and outcomes. For example, the National Multi-Sectoral Nutrition Programme is yet to establish a national dashboard for nutrition indicators (Scaling Up Nutrition, 2023).

**Limited Extension Services:** National and provincial extension services are under-resourced, lack modern training, and are unable to reach the majority of smallholder farmers with timely information and support (Punjab Board of Investment and Trade, 2018).

### *Inadequate Social Protection and Nutrition Program Coverage*

**Targeting and Integration Issues:** Programs like BISP and Ehsaas Nashonuma, though impactful, do not cover all malnourished women and children due to restrictive eligibility criteria and lack of integration with health and agriculture services (Nutrition International, 2024).

**Sustainability Concerns:** Many nutrition programs lack legal backing and are vulnerable to funding cuts or political changes (ILO, 2021).

### *International Level Gaps*

**1. Non-Compliance with Global Standards**

**WTO Agreements:** Pakistan's agricultural exports are hampered by poor compliance with WTO sanitary and phytosanitary (SPS) standards, resulting in lost export opportunities and costing the country an estimated $1.2 billion annually (PIDE, 2024).

**SDG Reporting:** Pakistan's Voluntary National Review (2023) highlights slow progress on SDG 2 (Zero Hunger) due to legal and institutional gaps in nutrition and food security frameworks (UN, 2023).

**2. Weak Alignment with Donor and Development Partner Priorities**

**Fragmented Project Implementation:** Donor-funded programs often run parallel to government initiatives, leading to duplication of efforts, inconsistent standards, and sustainability challenges (FAO, 2025).

### *Local Level Gaps*

**1. Inconsistent Policy Implementation**

**Provincial and District Disparities:** Implementation capacity varies widely between provinces and districts. Some regions, such as Punjab, have more robust extension and monitoring systems, while others lag behind due to resource constraints and weak governance (Punjab Board of Investment and Trade, 2018).

**Decentralization without Capacity Building:** The devolution of agricultural and nutrition responsibilities has not been matched by adequate training, staffing, or infrastructure at the local level, resulting in service delivery gaps.

**2. Poor Targeting and Outreach**

**Social Protection Exclusion:** Many poor and vulnerable households, especially in remote or conflict-affected areas, are not reached by cash transfer or nutrition programs due to weak beneficiary identification systems and lack of community engagement (Nutrition International, 2024).

**Gender and Social Barriers:** Women, tenant farmers, and marginalized groups often face additional barriers in accessing support due to cultural norms, lack of documentation, or exclusion from local decision-making bodies.

**3. Weak Monitoring, Evaluation, and Feedback Mechanisms**

**Lack of Real-Time Data:** Most provinces and districts lack integrated data systems for monitoring agricultural productivity, food prices, and nutrition outcomes, making it difficult to identify problems and adjust interventions in a timely manner (Scaling Up Nutrition, 2023).

**Limited Community Feedback:** Mechanisms for community input, complaints, and feedback are either absent or ineffective, reducing accountability and responsiveness at the local level.

### *Cross-Cutting Legal and Performance Lacunas*

**Outdated Legislation:** Many foundational laws governing land, seeds, fertilizers, and food safety are decades old and do not reflect current realities or international best practices.

**Enforcement Weakness:** Regulatory bodies lack the authority, resources, and political backing to enforce standards effectively.

**Political Interference:** Frequent changes in leadership, shifting priorities, and politicization of agricultural and nutrition programs disrupt continuity and undermine effectiveness.

**Accountability Deficits:** There are few independent mechanisms for evaluating institutional performance or holding officials accountable for failures in policy implementation.

## *SWOT and EETH Analysis of Relevant Institutions*

### *Ministry of National Food Security & Research (MNFSR)*

| SWOT Analysis | EETH Analysis |
|---|---|
| **Strength** : Federal mandate for policy formulation | **Enhance**: Strengthen federal-provincial coordination council for agriculture and food security |
| **Weakness**: Weak post-18th Amendment coordination; outdated data systems | **Eliminate**: Invest in real-time data systems and inter-provincial policy harmonization |
| **Opportunity** : Partnerships with FAO/WFP; align with SDGs for global funding | **Exploit**: Formalize technical partnerships and pursue SDG-aligned funding streams |
| **Threat**: Political interference; provincial resistance to oversight | **Hedge**: Legally safeguard policy continuity and clarify federal/provincial roles in new legislation |

### *Provincial Agriculture Departments*

| **SWOT analysis** | **EETH Strategy** |
|---|---|
| Strength: Localized implementation capacity; direct farmer engagement | Enhance: Standardize and upgrade extension worker training and digital outreach |
| Weakness: Capacity disparities; weak extension services | Eliminate: Allocate budget for staff training and modern extension tools |
| Opportunity : Tailor policies to regional needs; leverage PARC research | Exploit: Collaborate with PARC and agri-tech startups for region-specific innovation |

| SWOT analysis | EETH Strategy |
|---|---|
| Threat: Funding inconsistencies; climate shocks | Hedge: Establish climate-resilient crop insurance and ring-fenced provincial agri funds |

*Pakistan Agricultural Research Council (PARC)*

| SWOT analysis | EETH Strategy |
|---|---|
| Strength : Leading R&D institution; national research network | Enhance: Increase R&D funding and incentivize collaboration with universities and private sector |
| Weakness: Chronic underfunding; outdated research agendas | Eliminate: Align research with farmer needs and emerging climate/nutrition demands |
| Opportunity: Collaborate internationally (e.g., CAAS/China) for GMOs, climate crops | Exploit: Launch joint ventures for advanced seed and biotech development |
| Threat: Slow tech transfer; staff poaching | Hedge: Improve researcher retention through competitive salaries and career paths |

*Seed Certification & Registration Department*

| SWOT Analysis | EETH Strategy |
|---|---|
| Strength: Regulatory authority over seed quality | Enhance: Deploy mobile labs and digital certification for on-site quality assurance |
| Weakness: Weak enforcement; prevalence of counterfeit seeds | Eliminate: Strengthen penalties and increase field inspections |

| SWOT Analysis | EETH Strategy |
|---|---|
| Opportunity: Digitize certification; partner with social programs for outreach | Exploit: Integrate with BISP/Ehsaas to subsidize certified seed for smallholders |
| Threat: Farmer reliance on informal seed markets | Hedge: Run awareness campaigns and incentivize certified seed adoption |

***Benazir Income Support Programme (BISP) & Ehsaas Nashonuma***

| SWOT Analysis | EETH Strategy |
|---|---|
| Strength: Wide digital coverage; transparent payments | Enhance: Link cash transfers to nutrition and agri outcomes, not just poverty targeting |
| Weakness: Exclusion errors; limited integration with agri/nutrition | Eliminate: Use NSER data and local outreach to include all malnourished households |
| Opportunity: Integrate with health/agriculture for greater impact | Exploit: Partner with MNFSR and provincial health for bundled interventions |
| Threat : Funding cuts; political misuse | Hedge: Legally mandate minimum funding and insulate from political cycles |

***Pakistan Standards and Quality Control Authority (PSQCA)***

| SWOT Analysis | EETH Strategy |
|---|---|
| Strength: Authority to set food safety standards | Enhance: Mandate ISO/fortification standards for all dairy and processed foods |
| Weakness: Limited market surveillance; weak enforcement | Eliminate: Train more inspectors and digitize market surveillance |
| Opportunity: AI and digital tech for quality checks; e-commerce enforcement | Exploit: Collaborate with tech platforms for automated and remote compliance checks |
| Threat: Non-compliance by informal sector | Hedge: Impose fines, offer formalization incentives, and run compliance awareness campaigns |

## *Best Practice Integration*

### *Agriculture: Digital Soil Mapping and Precision Farming (Kenya – Purdue University Model)*

**Description:**
Purdue University, in partnership with local agencies in Kenya, developed high-resolution digital soil maps for rural farming areas. This innovation provides farmers with precise information on soil fertility, texture, and nutrient status, enabling site-specific nutrient management and optimized input use.

**Key Features:**

- Use of satellite imagery, soil sampling, and GIS technology to create detailed digital soil maps accessible via mobile apps and extension services.
- Farmers receive tailored fertilizer and crop recommendations based on soil variability rather than uniform application.
- Integration with farm management software (e.g., AGRIVI) to track inputs, labor, and outputs for data-driven decisions.

**Impact:**

- Increased fertilizer efficiency and reduced input costs.
- Yield improvements of 15-30% reported in pilot areas.
- Environmental benefits through reduced nutrient runoff and soil degradation.

### *Malnutrition: Conditional Cash Transfers Linked with Nutrition Education (Mexico's Progresa/Oportunidades)*

**Description:**
Mexico's Progresa/Oportunidades program pioneered conditional cash transfers (CCTs) that link financial support to health and nutrition behaviors, targeting poor households with pregnant women and young children.

**Key Features:**

Cash transfers conditional on regular health clinic visits, child growth monitoring, and participation in nutrition education sessions.

Provision of fortified foods and micronutrient supplements to vulnerable groups.

Comprehensive monitoring and evaluation system to track child growth and program adherence.

**Impact:**

- Significant reductions in child stunting and wasting (up to 10-15% decrease).
- Improved maternal knowledge of nutrition and child feeding practices.
- Enhanced school attendance and long-term human capital development.

***Dairy Industry: Electronic Milking and Cooperative Dairy Development (India's Amul Model)***

**Description:**
India's Amul cooperative dairy model revolutionized milk production through large-scale cooperative organization combined with modern dairy technologies, including electronic milking machines.

**Key Features:**

- Formation of village-level dairy cooperatives that aggregate milk from thousands of smallholder farmers.
- Use of electronic milking machines to improve hygiene, increase yield consistency, and reduce labor.
- Cold chain infrastructure and quality testing labs to ensure milk safety and value addition.
- Farmer education on animal health, breeding, and nutrition.

**Impact:**

- India became the world's largest milk producer, with per capita availability rising significantly.
- Smallholder incomes increased due to better prices and market access.
- Enhanced milk quality and export potential.

## *Conclusion*

Pakistan's ongoing struggles with agricultural productivity, food inflation, and malnutrition are rooted not in a lack of strategic vision, but in persistent implementation failures, institutional weaknesses, and poor intergovernmental coordination. Despite the introduction of progressive frameworks such as the National Food Security Policy, the National Food Security Act, and the Prime Minister's Agricultural Transformation Plan, their impact has been limited. Fragmented legal systems, outdated regulations, and weak enforcement mechanisms continue to undermine progress. The devolution of agriculture and nutrition responsibilities to provinces under the 18th Constitutional Amendment, while intended to promote localized governance, has instead resulted in fragmented priorities and a lack of standardized implementation across provinces.

Provincial and local disparities further complicate the situation. Punjab, benefiting from stronger institutions and better fiscal capacity, has achieved relatively improved outcomes. In contrast, other provinces face significant challenges, including limited technical expertise, underfunded agricultural extension services, and bureaucratic issues. At the grassroots level, district and tehsil administrations remain chronically under-resourced and lack the authority and training necessary for effective service delivery. This uneven governance landscape disproportionately affects smallholder farmers, women, and marginalized communities, who are least equipped to navigate these systemic obstacles.

Food inflation continues to pose a serious threat to household food security. Inefficiencies in supply chains and 15–40% post-harvest losses (depending on crop type) contribute to market instability. Additionally, Pakistan's dependence on food imports particularly for essential items like pulses and edible oils, of which 80–90% are imported, exposes the country to global price volatility and foreign exchange risks. Government efforts to stabilize prices through subsidies and procurement are frequently undermined by corruption, mismanagement, and poor monitoring systems.

Meanwhile, malnutrition remains a severe public health crisis. Nearly 40.2% of children under five suffer from stunting, 17.7% from wasting, and 51.1% of women of reproductive age are anemic. Social protection programs such as the Benazir Income Support Programme (BISP) and Ehsaas Nashonuma have had positive impacts but are constrained by narrow eligibility criteria, unstable funding, and weak integration with health, food, and agricultural services. Deep-rooted gender disparities, cultural barriers, and inequitable food distribution within households further hinder improvements in nutrition, especially for women and children in rural areas.

## *Recommendations*

Based on the comprehensive analysis of Pakistan's agricultural productivity, food inflation, and malnutrition landscape-including the mapping of institutional fault-lines, policy implementation gaps, and program/project reviews-the following recommendations are proposed. These are structured according to the key gaps identified at national, provincial, and local levels, and are intended to be practical, scalable, and sustainable.

### *Modernize and Strengthen Policy and Legal Frameworks*

**Update and Harmonize Laws:** Revise and harmonize the National Food Security Act, Seed Act, Fertilizer Control Act, and Land Revenue Act to reflect current realities, international standards, and provincial autonomy. Ensure clear enforcement mechanisms and penalties for non-compliance.

**Strengthen Provincial Legislation:** Encourage provinces to update their agriculture and nutrition policies, with a focus on protecting tenant farmers, promoting land reforms, and supporting smallholder agriculture.

**Improve Regulatory Coordination:** Establish a federal-provincial coordination council for agriculture and nutrition to standardize implementation protocols and align priorities.

### *Enhance Institutional Capacity and Accountability*

**Capacity Building:** Invest in training, digitalization, and resource allocation for provincial and district agriculture and nutrition departments. Prioritize recruitment and retention of skilled extension workers, nutritionists, and data analysts.

**Integrated Monitoring Systems:** Develop a national dashboard for real-time monitoring of agricultural productivity, food prices, and nutrition outcomes. Link this with provincial and district databases for transparency and timely decision-making.

**Strengthen Accountability:** Establish independent evaluation units within key ministries and departments to regularly assess program effectiveness, with results made public to foster transparency.

### *Improve Agricultural Productivity and Mechanization*

**Promote Mechanization:** Provide targeted subsidies, credit facilities, and training for small and medium farmers to adopt modern machinery and precision agriculture technologies.

**Support Research and Innovation:** Increase funding for PARC and provincial research institutes to focus on climate-resilient crops, high-yield seeds, and water-efficient practices.

**Public-Private Partnerships:** Facilitate partnerships between government, private sector, and farmer organizations to scale up mechanization, improve input quality, and expand access to markets.

### *Address Food Inflation and Supply Chain Bottlenecks*

**Strengthen Storage and Transport:** Invest in modern storage facilities, cold chains, and rural road infrastructure to reduce post-harvest losses and stabilize prices.

**Improve Subsidy Targeting:** Use digital beneficiary identification and direct cash transfers to ensure subsidies reach the most vulnerable without market distortions.

**Enhance Market Information Systems:** Expand digital platforms that provide real-time price and market information to farmers and consumers.

### *Expand and Integrate Social Protection and Nutrition Programs*

**Scale-up Coverage:** Broaden the reach of BISP, Ehsaas Nashonuma, and other cash transfer programs, ensuring all malnourished women and children are eligible regardless of documentation or location.

**Integrate Services:** Link social protection programs with health, agriculture, and education services to provide comprehensive support for nutrition and livelihoods.

**Legal Backing and Sustainable Funding:** Enact laws to guarantee stable funding for nutrition interventions and embed them in provincial and federal budgets.

### *Promote Commercial Dairy and Milk Sector Modernization*

**Support Commercial Dairy Farms:** Provide incentives, tax breaks, and access to finance for investment in commercial-scale dairy farms and electronic milking systems.

**Integrate Smallholders:** Develop cooperative models and contract farming arrangements to integrate smallholder dairy producers into formal supply chains.

**Fortification and Quality Standards:** Mandate fortification of milk and dairy products with essential micronutrients, and enforce strict quality standards through PSQCA.

### *Foster Inclusive Stakeholder Engagement and Gender Equity*

**Empower Farmer Organizations:** Strengthen and expand farmer associations, especially those representing women, tenant farmers, and marginalized groups, to participate in policy dialogue and program design.

**Community Feedback Mechanisms:** Institutionalize community-based monitoring and feedback systems to improve accountability and responsiveness.

**Address Social Barriers:** Implement targeted outreach and education campaigns to overcome gender, cultural, and social barriers to program access.

### *Align with International Standards and Donor Coordination*

**WTO and SDG Compliance:** Invest in capacity building and infrastructure to meet WTO sanitary and phytosanitary standards, and improve SDG reporting and implementation.

**Donor-Government Alignment:** Develop joint planning and monitoring frameworks with development partners to ensure donor-funded projects are aligned with national priorities and are sustainable.

### *Strengthen Climate Resilience and Environmental Sustainability*

**Climate-Smart Agriculture:** Promote drought-resistant crops, water-saving irrigation techniques, and climate-resilient livestock breeds.

**Enforce Environmental Laws:** Strengthen enforcement of climate and water policies, and incentivize adoption of sustainable practices.

**Disaster Preparedness:** Integrate disaster risk reduction and early warning systems into agriculture and nutrition planning.

### *Improve Data, Research, and Evidence-Based Policy Making*

**Invest in Data Systems:** Build integrated, interoperable data platforms for agriculture, food security, and nutrition at all administrative levels.

**Support Operational Research:** Fund applied research on the effectiveness of interventions, with a focus on local adaptation and scalability.

**Policy Learning and Adaptation:** Institutionalize mechanisms for policy review and adaptation based on new evidence and lessons learned.

## *Logical Framework*

| Goal/Objective | Key Activities / Recommendations | Indicators | Means of Verification | Time Frame | Assumptions/ Risks |
|---|---|---|---|---|---|
| 1. **Modernize and harmonize policy/legal frameworks** | - Update Food Security, Seed, Fertilizer, and Land Acts<br>- Harmonize provincial policies<br>- Establish coordination council | - Number of revised/updated laws<br>- Number of provinces aligned | Govt. notifications, policy docs | 2025–2027 | Legislative support; political stability |
| 2. **Strengthen institutional capacity and accountability** | - Capacity building for staff<br>- Digitalize monitoring<br>- Establish evaluation units | - Number of trained staff<br>- Existence of dashboards/evaluations | Training records, dashboard reports | 2025–2028 | Funding; staff retention; technical support |
| 3. **Improve agricultural productivity and mechanization** | - Subsidies/credit for machinery<br>- Research on climate-resilient crops<br>- PPPs for tech transfer | - Yield per hectare (major crops)<br>- Mechanization rate<br>- Adoption of improved seeds | PBS, PARC, provincial agri data | 2025–2030 | Farmer adoption; timely input supply |
| 4. **Address food inflation and supply chain bottlenecks** | - Invest in storage/cold chains<br>- Digital subsidy targeting<br>- Market information systems | - Food inflation rate (CPI)<br>- Post-harvest loss percentage<br>- Number of digital platforms | PBS, SBP, market audits, digital platform reports | 2025–2028 | Infrastructure investment; supply chain disruptions |
| 5. **Expand and integrate social protection/nutrition programs** | - Scale up BISP/Ehsaas Nashonuma<br>- Integrate with health/agri services<br>- Legalize/sustain funding | - Percentage coverage of poor/women/children<br>- Program integration index | BISP/Ehsaas MIS, nutrition program reports | 2025–2029 | Accurate targeting; stable funding |
| 6. **Promote commercial dairy and milk sector modernization** | - Incentives for commercial farms<br>- Support for smallholder integration<br>- Mandate milk fortification | - Milk yield per animal<br>- Percentage of milk processed/fortified<br>- Number of electronic milking units | Livestock census, PSQCA, industry reports | 2025–2030 | Private sector investment; technology adoption |

| | | | | | |
|---|---|---|---|---|---|
| 7. **Foster inclusive stakeholder engagement and gender equity** | - Strengthen farmer/women organizations<br>- Community feedback systems<br>- Gender-targeted outreach | - Number of organizations supported<br>- Percentage of women in leadership<br>- Number of feedback sessions | Farmer org records, project reports | 2025–2028 | Social/cultural barriers; community buy-in |
| 8. **Align with international standards and donor coordination** | - Build SPS/SDG capacity<br>- Joint planning with donors<br>- Improve export compliance | - SPS compliance rate<br>- SDG reporting score<br>- Number of joint donor plans | WTO/SDG reports, trade stats, donor MOUs | 2025–2029 | Donor alignment; regulatory compliance |
| 9. **Strengthen climate resilience and environmental sustainability** | - Promote climate-smart agriculture<br>- Enforce water/environment laws<br>- Disaster preparedness | - Area under climate-smart practices<br>- Water use efficiency<br>- Number of DRR plans | Agri/environment reports, water audits, DRR documents | 2025–2030 | Climate shocks; enforcement gaps |
| 10. **Improve data, research, and evidence-based policymaking** | - Build integrated data systems<br>- Fund operational research<br>- Institutionalize policy review | - Number of integrated databases<br>- Number of research projects<br>- Number of policy reviews | Data platform logs, research publications, review reports | 2025–2028 | Data quality; research funding |

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