Enabling Environment for Agriculture and Innovative Technology –
SAARC Region and overview of Nepal

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SAARC Region Overview

- **Importance of agriculture to region**

  - In 2010 while the agriculture sector in South Asian (SA) region contributed to only 18% of GDP, it employed 51% of population. In 2015 the share of agriculture in GDP 19.2 percent, providing employment to over 50 percent of the population in the region.

  - Agriculture in the region is dominated by smallholders. The average size of holdings varies from less than 0.6 hectare in Bangladesh to 3 ha in Pakistan (0.79 ha in Nepal, 0.69 in Sri Lanka, and 1.23 ha in India)

  - Agricultural trade plays an important role in South Asia

- **Basic characteristics of South Asian agriculture**

  - Low and unstable growth rate in agriculture

  - Non-shifting of labor force from agriculture to non-agriculture despite high growth and shrinking contribution of agriculture to GDP

  - Widespread poverty, hunger and under nutrition

  - Growing natural resource degradation affecting sustainability of agricultural growth

  - Vulnerability of the region to natural disasters due to climate change

  - High energy price and high inputs and costs of production
SAARC region overview

- Compared to some Asian advanced countries, South Asian countries spend far less budgetary resources in agricultural research and development.

- SAARC Agriculture Centre (renamed in April 2007 from SAARC Agricultural Information Centre, SAIC) is the first regional Centre established by the SAARC.
Technology and Agriculture sector

- A large yield gap exists in agricultural crops and commodities.
- Conservation and use of available biodiversity and indigenous knowledge for the benefits of poor, and smallholder farmers.
- There is a need of better management and use of natural resources and ecosystem services to protect the environment and enhancing agricultural systems.
- Linking smallholders and disadvantaged communities to infrastructures and markets.
- Technology policy and adaptation practices for climate change impacts and disaster risk reduction
- Efficient and effective use of natural as well as external inputs in food production systems
- Better use of modern technologies, biotechnology, and information and communication (ICT) technology for the betterment of farmers and farming systems.
Nepal Overview

- Sixty five percent of the total population rely on agriculture as their main source of occupation. Agriculture accounts for nearly one-third of the nation’s GDP, and its growth rate has averaged around 2.9 percent during the last decade.

- Low level of investment and technology inputs in agriculture in Nepal

- Nepalese agriculture-characterized by low productivity, low yields and volatile pattern of growth.

- ADS recognises low rates of adoption of improved technology and poor access to suitable technology and limited availability of inputs

- Appropriate technology hard to find due to ecological differences

- Total factor productivity (TFP) in Nepalese agriculture has grown steadily since 1998
Laws and Policies in the Nepalese context

Research And Development

- Nepal Agricultural Research Council (NARC) is the apex organization for agricultural research in Nepal
- NARC responsible for transferring appropriate technologies to farmers and coordination between among various technology delivering agencies

- Several policy documents highlight the needs for effective R&D in agriculture sector.
  - National Agricultural Policy, 2004
  - Agricultural Development Strategy, 2015,
  - Fourteenth Plan
  - Cooperative Policy, 2012
  - Agricultural Enterprise Promotion Policy, 2006
Implementation Issues

- R&D efforts have been a blanket effort. R&D efforts have not been able to adequately customize to diverse needs of agro-ecological regions and socioeconomic groups.

- R&D subsector remains largely underfunded and understaffed

- The focus of agricultural research remains more on food crops than on horticulture, fisheries, livestock, and non-timber forest products.

- More investment is needed to improve the human resource situation
Contd:

- Mechanisms for transfer are rarely touched upon.

- Preserving indigenous/local technologies are referred in many policies but the issues of their upgrading and upscaling are rarely dealt with the exception of Agriculture Mechanization Policy.

- Foreign Aid and Foreign Investment policies and Acts like Foreign Investment and Technology Transfer Act and SEZ Act should have given more space for transfer of technologies.
Ideas for improvement for agriculture tech R&D

- Partnerships – universities, research institutes, private sectors. There should be more programmes in public-private partnerships.

- Government needs to hold more interactive communications with different stakeholder.

- Focus should be on supporting Incubators with effective policies.
The Agricultural Engineering Unit was established in 1953 under the Ministry of Agriculture. The Agriculture Implements Research Centre (AIRC), was established at Ranighat in 1965.

The Agricultural Tools Factory (ATF) was established in 1968 and was later privatized due to its poor performance. NARC’s Agricultural Engineering Division (AED) was also involved in producing agricultural implements.

National Agriculture Policy, 2004 had nothing explicit to say about mechanization though it underlined the need for developing and using small and appropriate agricultural tools that reduce women’s workload, improve labor productivity, and add labor value.

Budget speeches since 1996–97 have mentioned some policies and measures to import agricultural machineries and tools.

The ADS pledges to use a range of mechanization options accessible to farmers.

Agriculture Mechanization Policy 2015 emphasizes on: identification, development, and promotion of appropriate agricultural machineries and implements for diverse geographical terrains.
FROM FARM TO FORK

- SUPPY SIDE CONSTRAINTS
- MARKET ACCESS CONCERNS
Supply side constraints

- Lack of awareness about and access to appropriate and quality agricultural machineries, equipment and tools among farmers and entrepreneurs;
- Machineries and tools appropriate for the small farmers are not identified and developed;
- Difficult terrain of the hills and mountains not allowing mechanization;
- Lack of rural infrastructure and energy;
- Problem of spare parts and maintenance of imported implements
- Inadequate program, budget and institutional provisions
Suggestion/Ideas for Improvement

- Extension capacity building
- Research partnerships to develop needed technologies/innovation
- Government champions to support agriculture innovations and new ideas
Good Agriculture Practices (GAP)

- **Benefit to farmers and consumers**
  - Food security and food safety
  - Benefit of new agriculture technologies and innovations

**Ideas for improvement**

- Government initiatives collect, analyze and disseminate information of good practices in relevant geographical contexts. SAARC GAP/Nepal GAP/Global GAP Examples from other countries that have worked to resolve or address these implementation issues

- There is a need to review national policies related to agriculture in view of GAP so that farmers have enough incentives to invest in good agricultural practices

- Regional harmonization should be focused more as it is beneficial to the region as a whole
Food safety and quality control

- Food Act, 1967
- The Food Rules, 1970
- Nepal Standard (Certification Mark) Act, 1980
- Zero Hunger Plan of Action 2016
- Dietary Supplement Guidelines, 2015
Implementation Issues

- Inspection and analysis of end products for food safety instead of modern framework that emphasizes on total quality management from ‘farm to fork’

- The development of regulatory framework in line with CODEX standards has been slowed down by traditional regulatory framework and weak infrastructure

- There are some parameters missing in fulfilling the Sanitary and Phytosanitary (SPS) requirements. The framework for fulfilling this requirement is not sufficient. Nepal has mandatory standards on 27 quality parameters but the standards on essential food safety parameters (MRLs, aflatoxins, microbial contaminants, and heavy metals) are yet to be developed.

- The quality testing system of Nepal has no relevance for food safety requirements. The existing laboratories do not have sufficient capacity to test the presence of important contaminants.

- Nepal also lacks human resources trained for testing and coordinating SPS issues and for enforcing inspections.
Recommendations to improve the Enabling Environment

- **A separate consolidated and comprehensive policy on technology and TT**: Issue is scattered over various documents.
- **Increase investment in technology development, innovation and dissemination**: Policy should be followed by resources.
- **Customized interventions**: Because of the agroecological diversity, a blanket approach for development of technology may not work.
- **Returnee migrant workers**: this could be a pool of resources for development of technology in the agriculture sector.
- **Prioritization of subsectors**: Current agriculture policies seem to focus more on cereal crops and less on horticulture and aquaculture – new priorities should be established.
- **Farmers’ participation**: the stakeholders participation is important for a responsive implementation – ensure adaption of new technologies and innovations.
- **Women focus** – Appropriate policies to encourage adoption of technologies and improve economic development.
- **Upgrade the Government Laboratories**: Upgrade the existing government laboratories to offer timely accredited testing facilities for all the major parameters.