10th Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific

*Gender Mainstreaming in Sustainable Agricultural Mechanization*

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Designing Gender-responsive Technologies and Empowering Women Engineers in Pakistan

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Pakistan Agriculture Sector

Agriculture contributes 23% to the Gross Domestic Product (GDP) of Pakistan*

2/3rd population out of 241.5 million depends on agriculture for livelihood*

Agriculture sector employs 37% of labour force

67% Agriculture labour force is female

Agriculture sector growth rate is unable to meet the requirement of national economy

State of Agricultural Mechanization

Low Mechanization Level resulting in Poor Agriculture Productivity

Current Horsepower/acre **0.9** instead of **1.4** required*

Currently **25%** of sowing and **40%** of harvesting is mechanized*

A Case Study of Female Enrollment in Agricultural Engineering

- No Nationwide Data on Female Agricultural Engineers
- At University of Agriculture, Faisalabad, only 16% women enrolled in Agricultural Engineering*
- Compared to 47% Female enrollment in all of UAF
- Before 2019 only 10% Females allowed to enrol in Agricultural Engineering
- Ratio now increasing as restriction on enrollment removed
- Underserved area for women with greater potential for future growth
- Application of new technologies attracting female students
- Need industry assistance in experience and placements

*UAF Data as of September 2023
Key Challenges and Opportunities for Women in Agricultural Engineering*

**Challenges**
- Involvement of intensive field work compared with laboratory-based work
- Limited employment opportunities in market
- Perception of hardship in agriculture
- Cultural preferences

**Opportunities**
- Government’s affirmative actions for women employment
- Increase support for women empowerment
- Underrepresentation attracting interest
- Innovative applications of High-tech in engineering (e.g., artificial intelligence, robotics, big data science, designing, software)

*Based on interviews with UAF Faculty and Female Students November 2023*
Recommendations for Designing Gender-responsive Technologies and Empowering Women Engineers

- Gender-sensitive agricultural machinery standards
- Replicating successful practices of gender responsive technologies from neighboring countries
- Government policy support to encourage gender responsive agriculture mechanization and improving awareness
- Financial support to improve enrolment in agricultural engineering and industrial placements

Punjab Agriculture Department is planning to establish Pakistan’s 1st agricultural machinery testing centre with support of the Asia and Pacific Network for Testing of Agricultural Machinery (ANTAM) of the Centre for Sustainable Agriculture Mechanization (CSAM) in collaboration with Asian Development Bank.
Agriculture Engineers from University of Agriculture Faisalabad
Reference
Agriculture Sector of Pakistan-An overview

- In Pakistan agriculture sector with 23 percent contribution to the GDP is 2nd largest sector of country’s economy after services sector.
- Agriculture sector accounts 37.4 percent of employed labour force and is also the largest source of foreign exchange earnings and significant for sustainable growth.
- However, from last couple of years, the climatic shocks have adversely affected agriculture sector as its productivity is highly sensitive to the frequency of adverse climatic events like flood and drought along with abnormal heat waves, rain, and glacial melt etc.
- The prolonged precipitation patterns increase river and inland water levels, resulting in flash and seasonal river and urban flooding commonly experienced in the recent past.
- Pakistan contributes not even 1 percent of global greenhouse gas emissions but is ranked among the top ten climate-affected countries.
- Farm mechanization is an important element to accelerate growth in agriculture sector.
- The number of operational tractors in the country is around 692,626 resulting in availability of around 0.9 horsepower (HP) per acre against the required power of 1.4 HP per acre.
- Women farmers in are lack access agricultural support including mechanization.

(Source: Pakistan Economic Survey 2022-23)
Agriculture Sector of Pakistan- Performance during 2022-23

- During July 2022 to June 2023 overall growth of agriculture sector was 1.55 percent.
- Livestock having share of 62.68 percent in agriculture and 14.36 percent in GDP, grew at 3.78 percent.
- The details along with comparison with recent years is given in the following table.

The 2022 monsoon rains followed by devastating flooding affected 33 million people in 94 districts across Pakistan, took the lives of more than 1,700 people, displaced around 7.6 million people, and resulted in the loss of critical agricultural infrastructure, standing crops, grain storage, and livestock. Resultantly, domestic production remained below the required levels, raising the prices of all essential food items to historic high.

To overcome flood losses during 2022 and uplift the agriculture sector, the government has taken various measures which would have positive impact on the sector during future. (Source: Pakistan Economic Survey 2022-23)
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Thank you

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