



**CSAM**

Centre for Sustainable  
Agricultural Mechanization



## Concept Note

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

*28-30 November 2023, Shanghai, China*

## I. Background and rationale

Women are key actors in the food system - they are producers, processors, laborers, traders, and consumers. Yet, they face barriers in accessing, adopting, and benefiting from agricultural technologies, finance, and other productive resources. This has resulted in a “gender yield gap” with women farmers achieving 20-30% lower yields than male farmers despite forming 60 - 80% of smallholder farmers globally.<sup>1</sup>

Empowering women and closing gender gaps in agrifood systems does not just help towards achieving Sustainable Development Goals, but also leads to better food and nutrition security at the household level and results in resilient and sustainable food systems overall. FAO’s 2023 Status of Women in Agrifood Systems report states that closing the gender gap in farm productivity and the agricultural wages gap in agrifood systems can help reduce the number of food-insecure people by 45 million. Additionally, even if half of all small-scale producers benefitted from women’s empowerment interventions, this could lead to increased incomes for an additional 58 million people and improved resilience for an additional 235 million people.<sup>2</sup>

Sustainable agricultural mechanization has immense potential to benefit women smallholder farmers by relieving labor shortages, saving time, reducing drudgery, ensuring efficient use of resources, enhancing agricultural productivity, and make farming more profitable. For instance, Labor Saving Technologies can reduce the heavy toil of farming often borne by women and children who provide unpaid family labor and can enable women to engage in producing high value crops. Similarly, climate smart technologies such as drip irrigation systems coupled with harvesting and drying equipment can help both women and men smallholder farmers build resilience by adapting to climate change effects.

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<sup>1</sup> FAO (2011) State of Food and Agriculture. Women in agriculture: closing the gender gap for development.

<sup>2</sup> FAO (2023) The status of women in agrifood systems.

The Asia-Pacific region has made great progress over the past six decades in transforming the farm power situation from over 90 per cent from animate sources in the to more than 60 per cent from mechanical sources in 2014 in many countries<sup>3</sup>. Nonetheless, the overall level of agricultural mechanization development in the region is still comparatively low with vast disparity among countries and different districts within countries. Major gaps also exist among different crops and different stages of production.

While both men and women farmers face constraints in adopting new technologies, women face additional barriers to access, adopt, own, and benefit from mechanization leading to lower rates of adoption.<sup>4</sup> Agricultural technologies and mechanization are not gender-neutral, and both women and men farmers have different agricultural technology and mechanization requirements, needs, preferences. However, most technologies are largely “built for and by men” resulting in an invisible bias impacting women users.<sup>5</sup> Women are often not consulted during technological innovation development process, and hence their voices, needs and preferences are not reflected in the design, deployment, and evaluation of agricultural technologies. Moreover, there is a lack of technologies adapted for women that consider the nature of their work, their time use, their physique, and the socio-cultural context they live in.<sup>6</sup>

Even when technologies exist, current agricultural innovation programmes tend to be primarily directed at middle-income male farmers;<sup>7</sup> and scaling processes do not address women’s challenges in land ownership, accessing extension services to learn about the technology, affordability and lack of credit, access to complimentary resources such as repair or maintenance, and intra household dynamics.<sup>8</sup> Moreover, programs fail to consider unintentional issues such as imposing additional time and drudgery on women or displacing their income or livelihoods.

Men and women smallholder farmers are equally likely to adopt new technologies when the necessary enabling factors are put in place; therefore, better policies, investments and interventions are needed to ensure upstream innovations reach and benefit the women users downstream.<sup>9</sup> This includes addressing gender gaps within the mechanization value

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3 Singh G. and Zhao B. (2016), “Agricultural Mechanization Situation in Asia and the Pacific Region”, *Agricultural Mechanization in Asia, Africa and Latin America*, Vol. 47, No. 2.

4 Asian Development Bank (2012) *Sectoral Perspectives on Gender and Social Inclusion: Agriculture*, Asian Development Bank; Doss, C., and Morris, M.L. (2000) How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. *Agricultural Economics*, 25(1); Rola-Rubzen, M.F., Paris, TT., Hawkins, J., and Sapkota, B. (2020) Improving gender participation in agricultural technology adoption in Asia: From rhetoric to practical action, *Applied Economic Perspectives and Policy*, 42(1).

5 Perez, C.C. (2021) *Invisible Women: Data bias in a world designed for men*. New York: Abrams Press.

6 Grassi, F., Landberg, J. and Huyer, S. (2015) Running out of time: The reduction of women’s work burden in agricultural production. *tech*. Rome: Food and Agriculture Organization of the United Nations.

7 CIMMYT (2022) *New Publications: Exploring How Women Seize Control of wheat–maize technologies in Bangladesh*.

8 FAO (2011) *State of Food and Agriculture. Women in agriculture: closing the gender gap for development*.

9 FAO (2023) *The status of women in agrifood systems*.

chain (from design to use) and the enabling environment in partnership with stakeholders such as the private sector, research institutions, civil society organizations, donors and the public sector. Designing technologies for women's roles in agriculture, testing machinery with and for women users, catering to women's information needs in extension and conducting gender-sensitive technology trainings utilizing women's information networks and digitization of agrifood systems are also crucial steps that several countries in the region have started to take and need to upscale. This needs to be addressed also by promoting the enrolment of women in agricultural engineering programmes and developing a pipeline of qualified women professionals to join government and research organizations, and by building capacity of women to provide services related to mechanization and extension.

## **II. Objectives**

The 10<sup>th</sup> Regional Forum is expected to achieve the following objectives:

- 1) To identify the key elements, needs and essential processes to develop and scale gender-responsive technologies and programmes;
- 2) To promote a better understanding of the gender gaps in agricultural mechanization, and present lessons learned from various policies and programmes in region; and
- 3) To explore opportunities for collaboration among stakeholders for developing gender-responsive sustainable agricultural mechanization programmes.

## **III. Organization and Participation**

The Centre for Sustainable Agricultural Mechanization (CSAM), is a regional institution of the Economic and Social Commission for Asia and the Pacific (ESCAP), with a focus on promoting sustainable agricultural mechanization across the region. Its vision is to achieve production gains, improved rural livelihood and poverty alleviation through sustainable agricultural mechanization for a more resilient, inclusive and sustainable Asia and the Pacific.

The Regional Forum on Sustainable Agricultural Mechanization (Regional Forum) is an annual strategic initiative of CSAM with the aim to promote high-level policy dialogue and regional cooperation on relevant shared or emerging issues of member countries in Asia and the Pacific. Since 2013, nine Regional Forums have been successfully organized and have facilitated active discussions on the topics of Recovering from the COVID-19 Pandemic, Public-Private Partnerships, Custom Hiring and Machinery Rental Practices,

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Human Resource Development, Climate-Smart Mechanization, Sustainable Agricultural Mechanization Strategies, and Enabling Environment for the Private Sector.

The 10<sup>th</sup> Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific will be co-organized by CSAM in collaboration with the Nanjing Institute of Agricultural Mechanization (NIAM) of the Ministry of Agriculture and Rural Affairs (MARA) of the People's Republic of China.

Around 40 participants from 20 countries are expected to attend the Forum including representatives of policymaking entities, financial institutions, farmers' organizations, non-profit organizations, and the private sector, as well as staff from relevant international and regional organizations. Dedicated support for the travel of women participants will be made available to ensure gender balance in the attendance.

#### IV. Tentative Programme Outline

<i>27 November, Monday</i>	
<i>Arrival</i>	
<i>28 November, Tuesday</i> <i>Banquet Hall, 9<sup>th</sup> Floor, Pacific Hotel</i>	
09:00-09:30	<i>Registration</i>
09:30-10:00	<p><b>Opening Ceremony</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Li Yutong</b>, Head, Centre for Sustainable Agricultural Mechanization, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP-CSAM)</li> <li>- <b>Mr. Cao Guangqiao</b>, Deputy Director General, Nanjing Institute of Agricultural Mechanization, Ministry of Agricultural and Rural Affairs of China (NIAM-MARA)</li> <li>- <b>Ms. Smriti Aryal</b>, UN Women Country Representative in China</li> </ul> <p><b>Moderator:</b> Mr. Marco Silvestri, Deputy Head a.i. and Programme Management Officer, ESCAP-CSAM</p>
10:00-11:10	<p><b>Keynote Message</b></p> <p><i>Gender mainstreaming in sustainable agricultural mechanization</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Maria Jones</b>, Policy Specialist, UN Women India and ESCAP-CSAM</li> </ul> <p><i>ESCAP efforts in gender mainstreaming</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Chen Tingting</b>, Social Affairs Officer, Social Development Division, ESCAP</li> </ul> <p><i>Women farmers and sustainable agricultural mechanization</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Ma. Esther Penunia</b>, Secretary General, Asian Farmers Association</li> </ul>

	<p><i>Empowering women engineers through sustainable agricultural mechanization</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Janice P. Vargas</b>, Co-representative, International Network of Women Engineers and Scientists (INWES); Division Chief, Bureau of Agricultural and Fisheries Engineering (BAFE), Department of Agriculture of the Philippines</li> </ul> <p><i>Business Model for Women to Access Agricultural Mechanization – Inspiring exploration and practice from China</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Yang Minli</b>, Professor, College of Engineering, China Agricultural University; Director, China Research Center for Agricultural Mechanization Development</li> </ul> <p><b>Moderator:</b> Mr. Marco Silvestri, Deputy Head a.i. and Programme Management Officer, ESCAP-CSAM</p>
11:10-11:30	<i>Group photo and tea break</i>
11:30-12:30	<p>Panel Discussion - <b>Policymakers’ perspectives on gender mainstreaming in sustainable agricultural mechanization</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Ishrat Reza</b>, Deputy Secretary, Ministry of Agriculture, Bangladesh</li> <li>- <b>Mr. Yonten Gyamtsho</b>, Director, Department of Agriculture, Bhutan</li> <li>- <b>Ms. Rohafiza Binti Abd Razak</b>, Principal Assistant Secretary, Ministry of Agriculture and Food Security, Malaysia</li> <li>- <b>Mr. Rewati Raman Poudel</b>, Secretary, Ministry of Agriculture and Livestock Development, Nepal</li> <li>- <b>Ms. Malathy Parasuraman</b>, Director General of Agriculture, Department of Agriculture, Sri Lanka</li> </ul> <p><b>Moderator:</b> Ms. Li Yutong, Head, ESCAP-CSAM</p>
12:30-13:30	<i>Lunch</i>
13:30-15:00	<p>Country Presentations - <b>Women in agrifood systems; challenges and opportunities</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Wei Qiao</b>, Chairman, Zhenjiang New District Yongxing Farm Mechanization Professional Cooperative; Chief Expert, Jiangsu Runguo Agricultural Development Co. Ltd., China</li> <li>- <b>Ms. Sajia Zaman</b>, Deputy Secretary, Policy-1 Section, Ministry of Agriculture, Bangladesh</li> <li>- <b>Mr. Tuy Seng</b>, Director, Department of Agricultural Engineering (DAEng), General Directorate of Agriculture (GDA), Ministry of Agriculture, Forestry and Fisheries (MAFF), Cambodia</li> <li>- <b>Ms. Wang Jinyi</b>, Programme Analyst, UN Women China</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Mr. Zhou Ma, Research Associate, NIAM-MARA</p>

15:00-15:20	<i>Coffee break</i>
15:20-16:50	<p>Panel Discussion - <b>Women in agrifood systems; challenges and opportunities</b></p> <ul style="list-style-type: none"> <li>- <b>Mr. Krishna Pratap Singh</b>, Assistant Director General (Farm Engineering), Indian Council of Agricultural Research, India</li> <li>- <b>Ms. Ivony Hari</b>, Engineer, Indonesian Center for Testing of Standardization Agricultural Mechanization, Indonesia</li> <li>- <b>Mr. Souvanthong Namvong</b>, Division Director, Department of Agricultural Extension and Cooperatives (DAEC), Lao PDR</li> <li>- <b>Mr. Arif Rehman</b>, Chief, Food and Agriculture Section, Ministry of Planning, Development &amp; Special Initiatives, Pakistan</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Mr. Li Qiang, National Programme Officer, ESCAP-CSAM</p>
16:50-17:00	<p><i>Overview of tools to help guide policymakers, researchers, technology developers, for the assessment, design and scaling of gender-responsive agricultural technologies and mechanization</i></p> <ul style="list-style-type: none"> <li>- <b>Ms. Maria Jones</b>, Policy Specialist, UN Women India and ESCAP-CSAM</li> </ul>
<p><b>29 November, Wednesday</b>  <b>Banquet Hall, 9<sup>th</sup> Floor, Pacific Hotel</b></p>	
09:30-10:50	<p>Country Presentations - <b>Designing gender-responsive technologies and empowering women engineers</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Sweeti Kumari</b>, Scientist, Indian Council of Agricultural Research, India</li> <li>- <b>Ms. Sulha Pangaribuan</b>, Engineer, Indonesian Center for Testing of Standardization Agricultural Mechanization, Indonesia</li> <li>- <b>Ms. Sidrah Ashfaq</b>, Lecturer, Department of Farm Machinery &amp; Power University of Agriculture Faisalabad, Pakistan</li> <li>- <b>Ms. Minyoung Kim</b>, Senior Researcher, Planning Director, Department of Agricultural Engineering Agency, National Institute of Agricultural Sciences, Republic of Korea</li> <li>- <b>Mr. Anuchit Chamsing</b>, Director, Post-harvest Engineering Research Group, Agricultural Engineering Research Institute, Department of Agriculture, Thailand</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Mr. Marco Silvestri, Deputy Head a.i. and Programme Management Officer, ESCAP-CSAM</p>

10:50-11:10	<i>Coffee Break</i>
11:10-12:30	<p>Panel Discussion - <b>Designing gender-responsive technologies and empowering women engineers</b></p> <p>Panelists:</p> <ul style="list-style-type: none"> <li>- <b>Ms. Pema Wangmo</b>, Deputy Executive Agriculture Engineer, Department of Agriculture, Bhutan</li> <li>- <b>Ms. Mengliang Bai</b>, Senior Engineer, China Agricultural Mechanization Center, Ministry of Agriculture and Rural Affairs, China</li> <li>- <b>Ms. Ayesha Herath</b>, Technical Consultant, Sri Lanka</li> <li>- <b>Ms. Dinh Thi Tam</b>, Deputy Director General, Vietnam Institute of Agricultural Engineering and Post Harvest Technology, Viet Nam</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Ms. Maria Jones, Policy Specialist, UN Women India and ESCAP-CSAM</p>
12:30-13:30	<i>Lunch</i>
13:30-15:00	<p>Country Presentations - <b><i>Improving women smallholder farmers' access to mechanization: Integrated approaches to scale gender-responsive mechanization and addressing gendered barriers to technology adoption</i></b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Manju Kumari Sherestha</b>, Centre Committee Member, National Land Rights Forum, Asian Farmers Association</li> <li>- <b>Ms. Ayesha Khalil</b>, Scientific Officer, Agricultural Engineering Institute, National Agricultural Research Centre, Ministry of National Food Security and Research, Pakistan</li> <li>- <b>Ms. Phakwipha Sutthiwaree</b>, Director, Agricultural Engineering Research Center, Department of Agriculture, Thailand</li> <li>- <b>Mr. Golibjon Fozilov</b>, General Specialist, Department of International Partnership, Scientific Research Institute of Agricultural Mechanization, Uzbekistan</li> <li>- <b>Ms. Thi Phuong Ngoc Nguyen</b>, Deputy General Director, MCG Energy and Real Estate JSC, Viet Nam</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Mr. Zhou Ma, Research Associate, NIAM-MARA</p>
15:00-15:20	<i>Tea Break</i>
15:20-16:40	<p>Panel Discussion - <b>Improving women smallholder farmers' access to mechanization: Integrated approaches to scale gender-responsive mechanization and addressing gendered barriers to technology adoption</b></p> <p>Panelists:</p> <ul style="list-style-type: none"> <li>- <b>Ms. Wang Mingmei</b>, Officer, International Communication Department,</li> </ul>

	<p>China Agricultural Mechanization Association, China</p> <ul style="list-style-type: none"> <li>- <b>Ms. Sokkheng Tuy</b>, Deputy Director, Department of Agricultural Land Resources Management (DALRM), General Directorate of Agriculture (GDA), Ministry of Agriculture, Forestry and Fisheries (MAFF), Cambodia</li> <li>- <b>Mr. Azman Bin Hamzah</b>, Director General, Engineering Research Centre, Malaysian Agricultural Research and Development Institute (MARDI), Malaysia</li> <li>- <b>Ms. Sunita Khanal</b>, Finance Officer, Department of Agriculture, Nepal</li> </ul> <p>Q&amp;A</p> <p><b>Moderator:</b> Ms. Feng Yuee, Programme Coordinator, ESCAP-CSAM</p>
16:40-17:00	<p><b>Wrap up and Summary</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Maria Jones</b>, Policy Specialist, UN Women India and ESCAP-CSAM</li> </ul> <p><b>Closing remarks</b></p> <ul style="list-style-type: none"> <li>- <b>Ms. Li Yutong</b>, Head, ESCAP-CSAM</li> </ul>
<b><i>30 November, Thursday</i></b>	
08:00-12:30	<p><i>Field Trip</i></p> <ul style="list-style-type: none"> <li>- Shanghai Suncue Machinery Co., Ltd</li> <li>- Shanghai Lianshi Navigation Technology Co., Ltd</li> </ul>
12:30-13:30	<i>Lunch</i>
13:16:30	<p><i>Field Trip</i></p> <ul style="list-style-type: none"> <li>- Shanghai Dahui Agricultural Machinery Equipment, Co., Ltd</li> </ul>
<b><i>1 December, Friday</i></b>	
<i>Departure</i>	