



Tropentag, September 10-12, 2025, hybrid conference

“Reconcile land system changes  
with planetary health”

## Empowering women through mechanised innovation: exploring gender dynamics in smallholder agriculture

RACHEL MUJONG<sup>1</sup>, MARTINA PADMANABHAN<sup>2</sup>, CHARITY OSEI- AMPONSAH<sup>3</sup>, BEKELE HUNDIE  
KOTU<sup>4</sup>, MIRJA MICHALSCHECK<sup>5</sup>

<sup>1</sup>*University of Passau, Governanca and Public Policy, Germany*

<sup>2</sup>*Passau University, Chair of Critical Development Studies, Germany*

<sup>3</sup>*International Water Management Institute (IWMI), Ghana*

<sup>4</sup>*International Institute of Tropical Agriculture (IITA), Ghana*

<sup>5</sup>*Agroscope, Integrative Agroecology, Switzerland*

### Abstract

Mechanisation plays a critical role in advancing sustainable intensification among smallholder farmers. However, access to mechanised implements remains uneven, particularly along gender lines. The Africa RISING project introduced small-scale mechanised planters and threshers to smallholder farmers in Northern Ghana to ease labor-intensive processes, such as cowpea living mulch (CPLM). This is an intercropping process of planting cowpea as a living mulch at 1–2 weeks after planting maize, particularly to improve soil fertility and increase productivity levels. This innovation increased the labour burden of women smallholder farmers in planting by 20 % and harvesting by 13–30 %. Due to the increased drudgery, simple hand-operated machines such as mechanised planters and threshers were introduced. Despite their benefit, access and usage remain limited amongst women smallholder farmers. This study adopts Feminist Political Ecology (FPE) to understand why limited access to mechanisation amongst smallholder women farmers persists in planting and harvesting. It provides insights on how gender norms, power relations, and socio-economic structures shape access to mechanised tools, reinforcing gender inequalities in agriculture. Using the Reach, Benefit, Empower, and Transform (RBET) framework, the research employs a qualitative methodology involving focus group discussions and social and resource mapping with smallholder farmers and service providers. The findings reveal that women’s limited access to mechanised planters and threshers is not only a production or distribution challenge but a reflection of deeper power imbalances in rural agricultural systems, as women have access to these implements only through men, irrespective of their personally owned resources or availability of the machinery. Moreover, women who use these implements are conscious of further harm to the soil.

**Keywords:** Feminist Political Ecology, gender , labor-saving technologies, Mechanized planters and threshers, smallholder farmers