ADAPTATION FUTURES 2025
ACCELERATING ADAPTATION ACTION

Impact of natural disasters on Local Food System and Agro-Biodiversity, A case from Western Nepal

Session: Food, Water and Biodiversity Nexus – Land Use, Restoration & Transformation
13 October 2025

Presented by: Samjhana Bista, PhD
Country Director,
DanChurchAid (DCA), Country Office Nepal

DCA
actalliance

Impact of natural disasters on Local Food System and Agro-Biodiversity, A case from Western Nepal

- The findings and information provided in this presentation is based on the research, findings and initiatives taken by DCA in Nepal.

- **Project Name:** ***Easing and De-risking transition to climate resilient food production for enhanced self-reliance in humanitarian contexts***

- **Project Area:** Lebanon, Kenya, Nepal

- Funding Agencies: Novo Nordisk Foundation

- Pictures are taken by DCA, with consent from the individuals in the picture.

Background

- Nepal is among the most vulnerable countries to the impacts of climate change and climate-induced disasters.
- The increasing trend of natural disasters such as flood and landslides disrupt the interconnected processes of food production, processing, distribution, and consumption, resulting in widespread food insecurity (FAO, 2021).
- In countries like Nepal, where agriculture underpins rural livelihoods, enhancing the resilience of local food systems is crucial.
- Agroecology has emerged as a transformative solution to these challenges.

Introduction:

- In the context of Nepal, agroecology offers practical pathways for climate change adaptation by diversifying farming systems, reducing vulnerability to erratic rainfall and drought, and sustaining rural livelihoods under shifting climatic conditions

- Floods & Droughts disrupt agro-ecological systems by altering water availability, affecting plant and animal species distributions, & changing ecosystem functions.

- These extreme weather events can lead to a loss of crop production, disruption of ecological interactions, which are vital for maintaining resilient agricultural systems.

Objective and Methodology

Objectives: The study was conducted to contribute towards the success of the entire project which has the objective to aassess the vulnerabilities of local food systems to climate shocks, develop and test adaptive strategies, including anticipatory action and risk mitigation, and embed findings into policy and humanitarian frameworks to scale resilience-building efforts.

Methodology: A participatory and multidimensional approach was employed, combining qualitative tools such as focus group discussions and key informant interviews with quantitative household surveys covering 154 household. Analytical frameworks, including FAO's agroecological principles and vulnerability risk assessments, were utilized to evaluate the local food system's status and challenges.

Findings

The agroecological transition remains limited, with an overall score of 42.4%*, indicating poor implementation of practices like biodiversity enhancement, recycling, and resource integration.

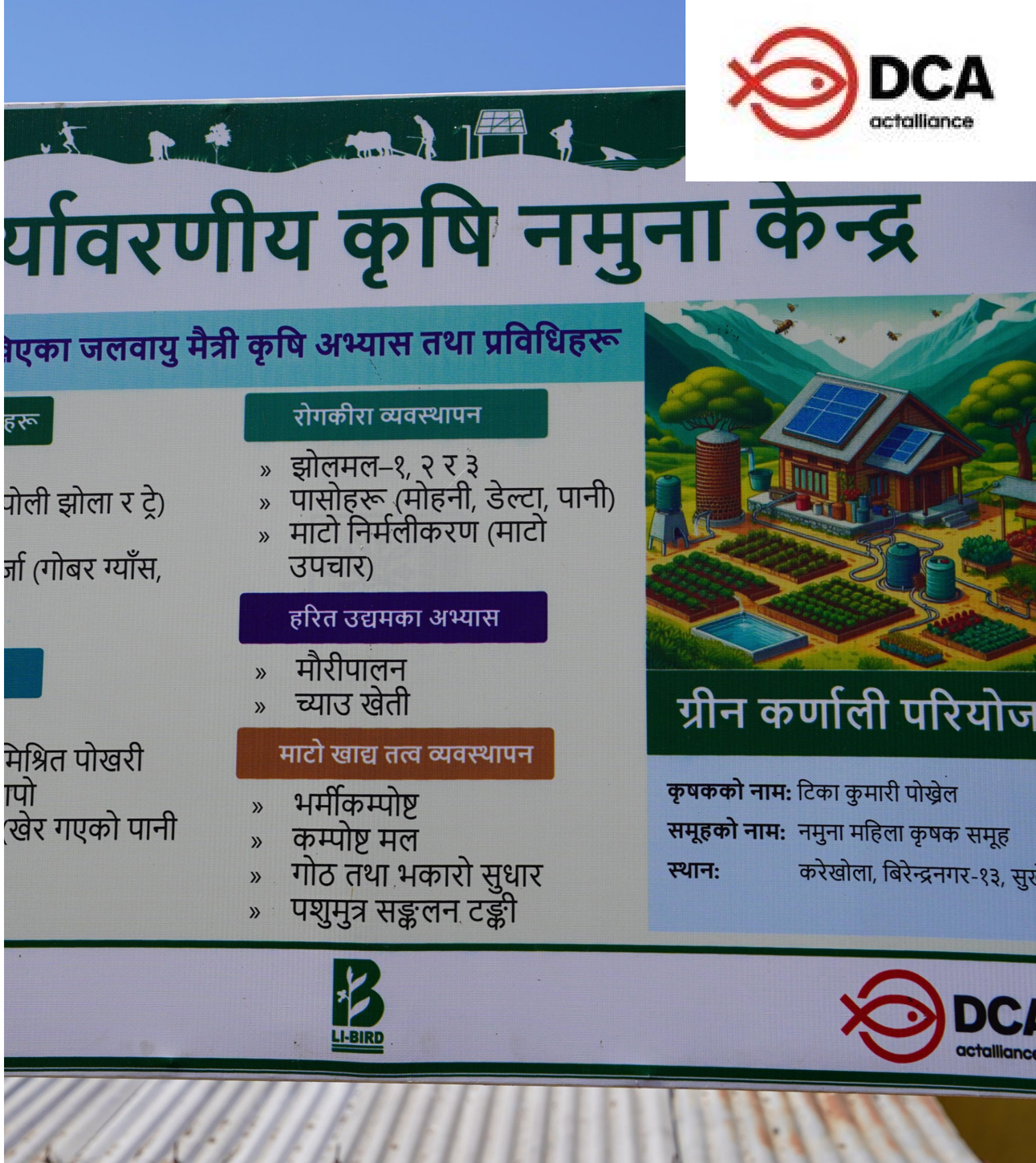
Cultural and traditional practices, however, remain strong, providing a foundation for resilience.

Community adaptation strategies are primarily focused on adopting flood and drought-resistant crops and modifying agricultural practices .

Infrastructure development, early warning systems, and social safety networks remain weak.

Findings…contd

- Effective adaptation measures are essential for enhancing the resilience of agroecology-based food systems.
- Strategies such as promoting drought-resistant crops, sustainable water management, and strengthening local seed systems are critical.
- Community-based initiatives like community seed banks, agroforestry, and integrated pest management can mitigate risks while preserving biodiversity.
- Empowering women and marginalised groups through access to education, resources, and decision-making platforms can further bolster resilience.



Findings.. contd

- The success of agroecology depends on the integration of scientific innovation with traditional knowledge, community engagement, and robust governance.
- Limited access to agro-met advisory services significantly constrains the ability of farmers to anticipate and respond to climate risks
- There is a need to scaling up agroecological practices and addressing systemic barriers to tackle the dual challenges of climate adaptation and food security.
-

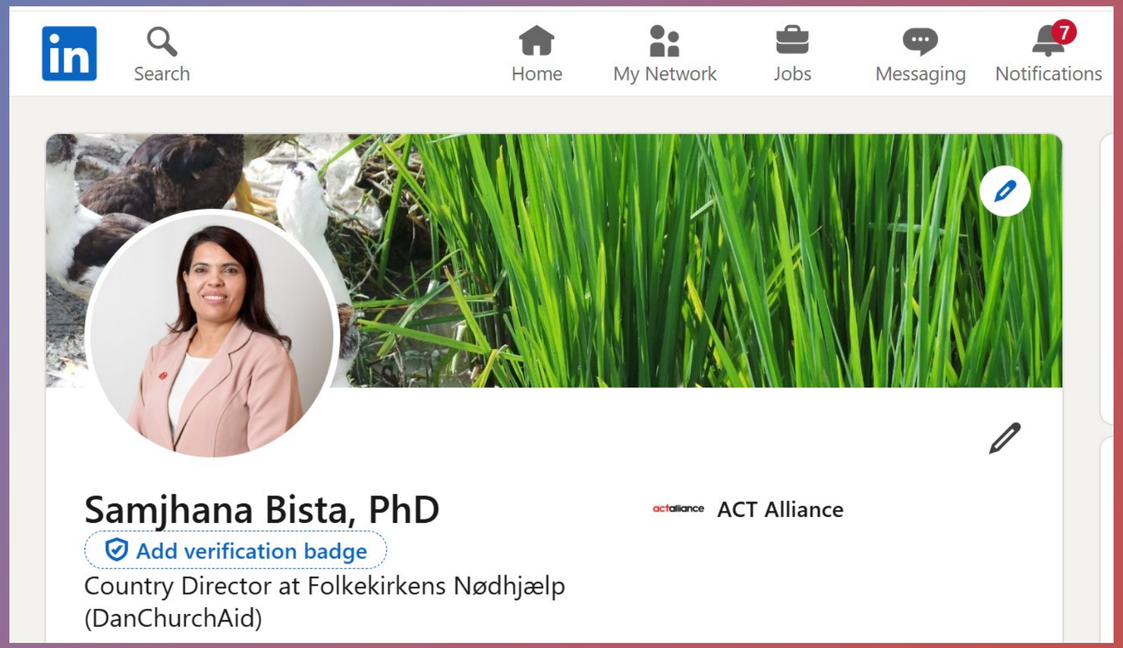
Challenges

- The dual threat of monsoon floods and droughts complicates farming practices.
- Floods often lead to waterlogging, erosion of fertile soil, and crop damage, severely impacting food security. On the other hand, droughts, particularly in dry spells, exacerbate water scarcity, reducing crop productivity and threatening the livelihoods of farmers.
- Additionally, climate variability disrupts the predictability of traditional cropping calendars, creating uncertainty around planting and harvesting times and making water management more difficult.

Recommendations

- Promoting agroecological practices such as mixed farming, agrobiodiversity conservation, and organic inputs; investing in infrastructure like irrigation systems, market facilities, and early warning mechanisms; and enhancing capacity-building programs for farmers.

- The implementation of existing policies must be prioritised, with equitable allocation of resources and improved stakeholder collaboration to ensure sustainable outcomes.



Thank You

Samjhana Bista, PhD
Country Director,
DanChurchAid (DCA),
Country Office Nepal

- LinkedIN: https://www.linkedin.com/in/samjhana-bista-phd-60102347/
- Email: sabi@dca.dk