

Agroecology & Gender Transformative Approaches for Climate Resilient Food Systems

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[Photo credit: R. Bezner Kerr]

What have we observed since AR5?

- The impact of climate change is worsening other large-scale societal changes, such as economic inequity and inequitable access to water, food, and biodiversity;
- Gender and other social inequities (e.g., racial, ethnic, age, income) worsen vulnerability to climate change impacts;
- Shocks such as the COVID-19 pandemic and conflicts exacerbate inequalities.



Gender justice

- Gender perspective: examines structures, processes and relationships of power. Gender transformative approach noted as important strategy in AR6.
- Gender transformative approach aims to change structural inequalities.
- Deliberative programming and policymaking spaces that support inclusive decision making.



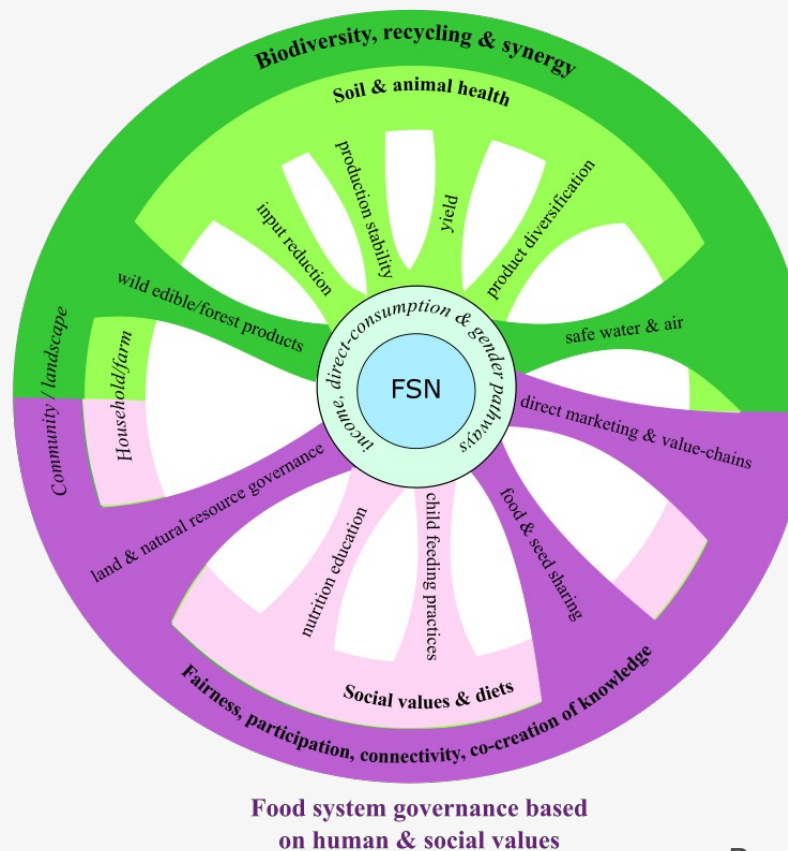
Agroecology, ecosystem-based management in fisheries, & other approaches that work with natural processes support food security, nutrition, health & well-being, livelihoods, biodiversity, sustainability and ecosystem services. These services include pest control, pollination, buffering of temperature extremes, and carbon sequestration and storage (*high confidence*). (IPCC WGII AR6 2022, SPM C2.2)



[Photo credit: R. Bezner Kerr]

Can agroecology impact food security & nutrition?

Agroecosystem health & resilience



- Reviewed evidence 1998-2019
- 11,771 articles screened; 56 selected
- 78% found evidence of positive outcomes
- More complex agroecological systems (e.g. crop diversification, farmer-to-farmer networks) more likely to have positive food security & nutrition

	No. of agroecological components	Cases with positive outcomes	Cases with negative outcomes	Cases with mixed outcomes	Cases describing category (n = 55)
Agroecology	Simple				
	1	14	0	6	20
	2	14	1	3	18
	3	8	0	1	9
Complex	4	7	0	1	8

Participatory & equitable learning approaches key component of agroecology

- Drawing on Indigenous knowledge systems & practices, participatory action research, co-creation
- Farmer-led schools, grassroots farmer-to-farmer networks and social movements;
- Attention to social inequity in food system & need for democratic governance in food system to address systemic inequities.



Case Studies: Participatory Research on Agroecology with African Smallholders

Research Question: Can agroecological methods be used to improve food security, nutrition, livelihoods and well-being of smallholder African households?



6000
household
s in
Malawi,
pre-post /
control



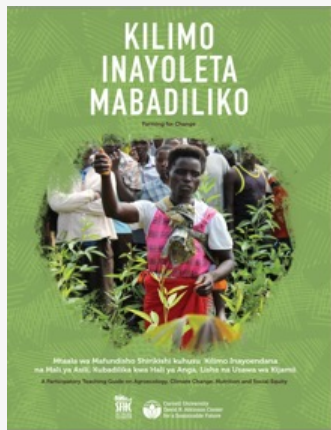
588 households
in Tanzania,
pre/post and
delayed
intervention,
cluster
randomized trials

400 households in Malawi, highly
food insecure, 20 villages, Pre-post
design



[Photo credit: R. Bezner Kerr]

Testing Community-based educational activities *devised by farmers*

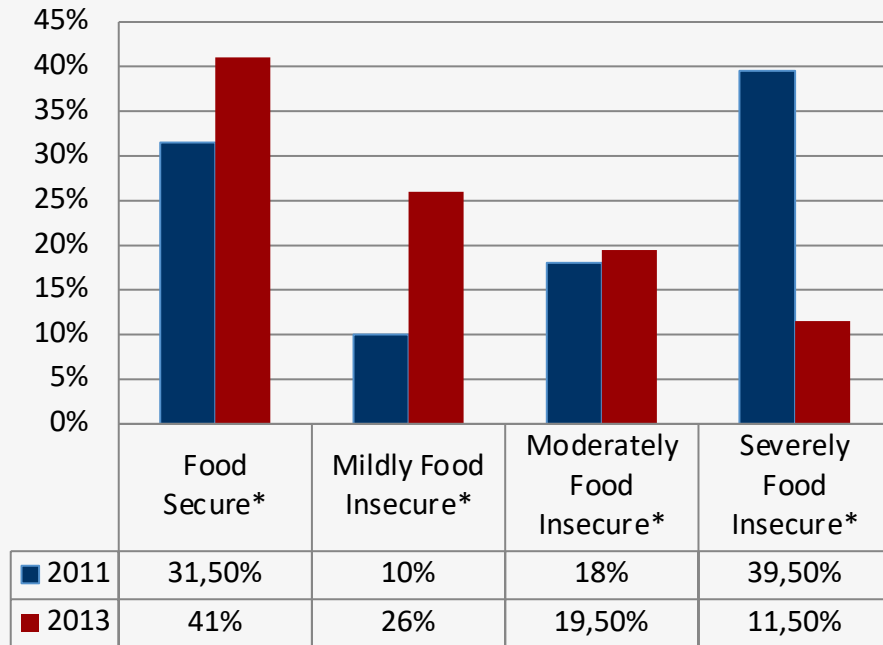


- Developed integrated curriculum (agroecology, climate change, nutrition, social equity) aimed at farmers in southern Africa;
- Theatre, hands-on activities, story-telling, small group discussions.
- Developed by farmers, scientists, NGO staff.

Bezner Kerr, R., et al. 2019. Farming for change: Developing a participatory curriculum on agroecology, nutrition, climate change and social equity in Malawi and Tanzania, *Agriculture and Human Values* 36 (3): 549-66. Bezner Kerr, R. et al.. 2016. "Doing Jenda Deliberately" in a Participatory Agriculture and Nutrition project in Malawi. 2016. In: *Transforming Gender and Food Security in the Global South*. London: Routledge; Satzinger, F, et al. 2009. Farmers integrate nutrition, social issues and agriculture through knowledge exchange in northern Malawi. *Ecology of Food and Nutrition* 48 (5): 369-82.

[Photo credit: R. Bezner Kerr]

Agroecological practices significantly improved food security and dietary diversity



* Significant percentage change @ $p < 0.05$

Significant increase in **food security** and **dietary diversity** in all research studies. **Crop diversity, compost application** and participation in agroecology project significantly positively associated with food security.

In Tanzania **1.48x** odds of child in agroecology intervention having minimum acceptable diet

Kangmennaang, J. et al. 2017. Impact of a participatory agroecological development project on household wealth and food security in Malawi. *Food Security* 9: 561-576 Madsen, S., et al. . 2021. Explaining the impact of agroecology on farm-level transitions to food security in Malawi. *Food Security* <https://doi.org/10.1007/s12571-021-01165-9>; Santoso et al. 2021 Santoso, M.V., et al. 2021. A nutrition-sensitive agroecology intervention in rural Tanzania increases children's dietary diversity and household food security but does not change child anthropometry: results from a cluster-randomized trial. *Journal of Nutrition*. doi:<https://doi.org/10.1093/jn/nxab052>;

Gender relations mattered for agroecology impacts



In Malawi, farmers who **discussed farming with their spouse** were 2.4 times more likely to be food secure & have diverse diets.

In Tanzania, participating in agroecology intervention reduced by 0.57x odds of **women's probable depression.**

Bezner Kerr, R., et al. 2019. Participatory agroecological research on climate change adaptation improves smallholder farmer household food security and dietary diversity in Malawi. *Agriculture, Ecosystems and Environment* 279: 109-121. Cetrone, H. M. et al. (2021). Food security mediates the decrease in women's depressive symptoms in a participatory nutrition-sensitive agroecology intervention in rural Tanzania. *Public Health Nutrition*. doi:10.1017/S1368980021001014



[Photo credit: R. Bezner Kerr]

THANK YOU & ACKNOWLEDGEMENTS

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