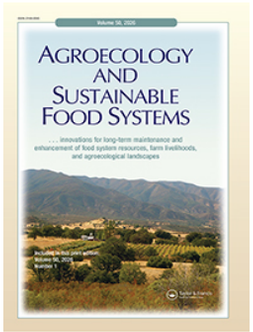

Agroecology and Sustainable Food Systems

ISSN: 2168-3565 (Print) 2168-3573 (Online) Journal homepage: www.tandfonline.com/journals/wjsa21

Youth in relation to agroecology: practices, promises, and perceptions in five countries

A.M. Rietveld, N. Guettou-Djurfeldt, M. Shijagurumayum, S. Gupta, M. Tristán, V.G.P. Chimonyo, R. Nehring, V.G. Murugani, Z. Idoudi & S. Singh

To cite this article: A.M. Rietveld, N. Guettou-Djurfeldt, M. Shijagurumayum, S. Gupta, M. Tristán, V.G.P. Chimonyo, R. Nehring, V.G. Murugani, Z. Idoudi & S. Singh (24 Oct 2025): Youth in relation to agroecology: practices, promises, and perceptions in five countries, Agroecology and Sustainable Food Systems, DOI: 10.1080/21683565.2025.2573791

To link to this article: https://doi.org/10.1080/21683565.2025.2573791

Published online: 24 Oct 2025.

AGROECOLOGY AND SUSTAINABLE FOOD SYSTEMS
https://doi.org/10.1080/21683565.2025.2573791

Taylor & Francis
Taylor & Francis Group

Youth in relation to agroecology: practices, promises, and perceptions in five countries

A.M. Rietveld [a], N. Guettou-Djurfeldt [b], M. Shijagurumayum[c], S. Gupta [d,e], M. Tristán [f], V.G.P. Chimonyo [g,h], R. Nehring [i], V.G. Murugani[g], Z. Idoudi [j], and S. Singh[d]

[a]Multifunctional Landscapes Lever, Bioversity International, The Hague, The Netherlands; [b]Multifunctional Landscapes Lever, Bioversity International, Nairobi, Kenya; [c]Multifunctional Landscapes Lever, Bioversity International, Bengaluru, India; [d]Natural Resources and Resilience Unit, International Food Policy Research Institute (IFPRI), New Delhi, India; [e]Centre for Development Research, University of Bonn, Bonn, Germany; [f]Multifunctional Landscapes Lever, International Center for Tropical Agriculture (CIAT), Lima, Peru; [g]Sustainable Agrifood Systems Program (SAS), International Maize and Wheat Improvement Center (CIMMYT), Harare, Zimbabwe; [h]Centre for Transformative Agriculture and Food Systems, University of KwaZulu-Natal, Pietermaritzburg, South Africa; [i]Natural Resources and Resilience Unit, International Food Policy Research Institute (IFPRI), Washington, DC, USA; [j]Economics and Participatory Methods, International Center for Agricultural Research in the Dry Areas (ICARDA), Tunis, Tunisia

ABSTRACT

In the context of rising youth populations in many low- and middle-income countries, coupled with high youth unemployment and aging farmer populations, this paper asks in what ways agroecology, as a sustainable alternative to the conventional agricultural practices and paradigm, attracts youth to farming and rural-based livelihoods. We draw on empirical data from semi-structured interviews and photovoice conducted with young women and men in five countries: Kenya, India, Peru, Tunisia, and Zimbabwe. In our discussion, we highlight which dimensions and aspects of agroecology resonate with youth and why.

KEYWORDS

Rural youth; agroecology; agriculture; rural development; labor and livelihoods

Introduction

Agroecology is being promoted by international organizations, national governments, academia, farmers' organizations, and local and transnational social movements as a promising solution to make food systems globally more socially inclusive and environmentally sustainable (Wezel et al. 2009; Altieri 2018). Existing research on the social and political dimensions of agroecology points to its systems approach that incorporates a diversity of knowledges, human-environmental relationships, and place-based practices under an overarching set of principles (Altieri 1989; Francis et al. 2003; Gliessman 2016).

CONTACT A.M. Rietveld a.rietveld@cgiar.org Multifunctional Landscapes Lever, Bioversity International, vlielandsestraat 41, The Hague 2583JD, The Netherlands

A foundational principle of agroecology is that it is an alternative to large-scale industrial agriculture characterized by monocropping, high input use, and high levels of social and economic inequality (Gliessman 2011). Given the multidimensionality of agroecology, it appeals to an array of social groups as a viable alternative for rural futures (Bezner Kerr et al. 2022). The social category of youth is a less understood social group when it comes to how they relate to agroecology. This article draws on qualitative research in five countries to explore how youth perceive and relate to agroecology.

Our focus on youth is imperative given that the current young generation in low- and middle-income countries (LMIC) is the largest ever both as a percentage of the overall population and in absolute numbers (United Nations 2015). Two main problems regarding youth are noteworthy in relation to the current dominant food systems. The first is that young people are failing to build viable agricultural-based livelihoods. This is, in part, because young women and men face serious constraints when it comes to building agricultural-based livelihoods in a context of high and increasing youth unemployment in both urban and rural areas, decreasing land availability and climate change, and in part because many youths do not aspire to agricultural-based livelihoods (Larue et al. 2021; Kodom et al. 2022; Srinivasan and White 2024). This is directly linked to the second problem: the lack of generational renewal in agriculture (Kodom et al. 2022; Srinivasan and White 2024). Farmer populations are aging, threatening the sustainability of agricultural landscapes, local and global food security and intergenerational knowledge transfer.

In Sub-Saharan Africa (SSA), rural areas are expected to be most exposed to the demographic "youth bulge" whilst opportunities in urban areas are expected to decline warranting reduced urbanization rates. Since less than 25% of young people in SSA are expected to find salaried work (Yeboah and Jayne 2018), and rapid industrialization with associated job creation is unlikely to happen in most places, there is a clear incentive for policies in SSA to focus on youth in rural areas and specifically on the agricultural sector for broad agricultural-based development (Laske and Michel 2022). In newly industrialized Asian countries, such as Thailand and the Philippines, young people's involvement in agriculture is decreasing as they increasingly seek and find off-farm employment (Ruiz Salvago et al. 2019; Mercado and Osbahr 2023). Also in India, a withdrawal of youth from farming has been observed, which is attributed to the increasing availability of (more) lucrative salaried industrial jobs and to poor prospects within agriculture (Jothilakshmi et al. 2014; Narayanan 2024). For rural Indonesia, the increasing dominance of plantations and other extractive industries as well as declining soil fertility are identified as key factors underlying youth's withdrawal from agriculture (Griffin et al. 2024). In addition, limited land availability coupled with delayed land inheritance in farming families contributes to the aging of Indonesian

farmer populations (Ambarwati A and Chazali C 2024; Ambarwati C I, et al. 2024). In Mexico, high levels of youth out-migration from rural areas is attributed to a cultural and physical distancing of youth from agriculture resulting from increased access to education, mass- and social media, and communication technologies as well as to the pursuit of tertiary education (Jiménez-Moreno et al. 2023).

Proposed solutions to the two intertwined problems of youth unemployment and the aging of farming populations and rural populations in general are often geared toward building skills of individual youth. Such an approach often aims to "make farming attractive" through increasing the use of digital tools, promoting agripreneurship and having youth assemble collective action groups (Ohanwusi et al. 2018; Daum 2019; Petruzzella et al. 2020; Barman et al. 2023; Girard 2023; Thorsen et al. 2024). We argue, however, that because youth in rural areas face structural barriers, such approaches are unlikely to be successful as standalone strategies (Sumberg et al. 2021, 2024). Rather, these issues are part and parcel of the political economy of the global food system. The dominant agro-industrial model is failing to create thriving rural economies and environments that support youth employment, agricultural-based livelihoods and vibrant communities. Sumberg et al. (2024, 2) refer to the current food system as a "severely depleted opportunity landscape." Case studies from different places in the world confirm this diagnosis. In rural dryland areas in Morocco and in Central Uganda, for instance, some youth, especially young men, were interested in developing agricultural-based livelihoods but mentioned the general lack of rural facilities as major drawbacks (Giuliani et al. 2017; Rietveld et al. 2020).

Agroecology, as an alternative paradigm for food systems, may allow for the revitalization of rural economies and communities and provide solutions to climate and biodiversity crises amongst other benefits (Peña-Torres and Reina-Rozo 2022; AFSA 2024). It may present viable rural livelihood opportunities for youth and, as a concept and social movement, act as a lever for a resignification of agriculture (Peña-Torres and Reina-Rozo 2022). The latter has for instance been demonstrated in Brazil where agroecology as a new frame for agriculture has managed to attract young people to farming (Goris et al. 2019). However, this more experiential dimension of agroecology has received little attention from academia (Bezner Kerr et al. 2022). In our study, we do not dwell on the question whether performing or engaging in agroecology increases well-being, but we do explore whether young women and men may perceive agroecology as such. We ask in what ways does agroecology attract youth to farming and rural-based livelihoods, and what are the motivations, enablers, opportunities, and constraints specific to youth in this regard? In doing so, we look at how the desires of youth are enabled or constrained by broader political economic factors, such as access to productive resources, representation in political spaces, work and labor, and income generation.

Our study is based on data collected in field sites of the CGIAR research initiative on Agroecology[1] in Kenya, India, Peru, Tunisia and Zimbabwe. Although these five countries provide diverse and contrasting contexts, the "issue of youth" came up during visioning exercises with diverse local, mostly non-youth, food system actors in all these field sites. The commonality across these sites was that young people were underrepresented in engagements.

Framing and conceptualization

Defining youth

There are many, often opposing, ideas about what youth is as a concept and how to define the term. Youth is usually defined as a phase in the life course that all human beings pass through from childhood into adulthood (Thorsen et al. 2024). Although often associated with a biological transition (adolescence), "youth" is socially defined through status, rights, and norms (Djurfeldt et al. 2019; White 2012). Youth is, therefore, no universal experience (Thorsen et al. 2024). Increasing autonomy and independence, for instance, are often associated with this transitional phase, whilst we know that many youths, especially young women, are unlikely to ever reach "full autonomy" (ibid; Glover and Sumberg 2020). Age in years is commonly used to indicate when youth occurs in one's life course and to easily distinguish between youth and non-youth.

Youth as a social category requires a certain disentanglement to understand the nuances, key differences, and contexts associated with young women and men across countries and continents better. Within the heterogeneous social category of "youth," there are clear differences in power, privilege, and marginality based on gender, class, ethnicity, status, location, and assets, among other dimensions (Thorsen et al. 2024). This means that not all youth share the same sets of values, interests, and/or ideas about agriculture, rural life, and much less so about agroecology, nor do they have the same opportunities (Rietveld et al. 2020; LaRue et al. 2021). It is widely acknowledged that in most contexts, gender is particularly influential at shaping young people's experiences of youth (Rietveld et al. 2020; Sumberg et al. 2024; Thorsen et al. 2024). This acknowledgment usually does not extend to the lived experiences of those non-conforming to heteronormative understandings of gender but is limited to understanding gender as a binary (woman/man) (Pfammatter and Jongerden 2023).

In this paper, which draws on data from five very different contexts, we use national definitions of youth provided as "age in years," to identify youth and only work with adult youth (above 18 yrs old). This is out of practical considerations and in awareness that age brackets do not necessarily reflect local social understandings of what youth

is for whom nor do age-brackets bound experiences of youth or emic definitions of youth themselves. In one of our sites (Zimbabwe), this clash between emic and etic understandings of youth resulted in us working with youth as participants in this study, that were older than national definitions stipulated. Similarly, we restrict our understandings of gender by only referring to gender in binary terms on basis of participants' self-identification. We are aware that young people do not live and make a living in isolation. Youth are connected to many others across generations through their families, communities, and relationships in other diverse networks (Glover and Sumberg 2020) and their interests and challenges may often overlap with the interests of non-youths (Ripoll et al. 2017; Arslan et al. 2020).

Understanding agroecology

Efforts to define Agroecology often refer to the 13 principles of agroecology as outlined by the High-Level Panel of Experts (HLPE 2019) on food security and nutrition (Zaremba et al. 2021). These thirteen principles are organized into three categories or larger-level principles of sustainable food systems: (1) improve resource efficiency; (2) strengthen resilience; and (3) secure social equity/responsibility. Bezner Kerr et al. (2022), also identify three dimensions of agroecology based on a review of agroecological literature. The first, the *techno-scientific dimension*, focuses on minimizing environmental damage from agriculture, fostering ecological processes, and enhancing food system resilience, and draws mostly on agronomic and ecological scientific disciplines. This dimension covers most of the processes listed under categories 1 and 2 of the HLPE principles. The second; *socio-political dimension*, broadly covers the political, social, and economic dynamics that shape food systems and largely overlaps with issues outlined under the third category of principles as defined by the HLPE. Thirdly, Bezner Kerr et al. (2022, 2) describes an *ontological, epistemic, and experiential dimension* as capturing the "*different subjectivities and understandings of people's sense of living in the natural world*." This understanding of agroecology is only partially captured in the HLPE' principles (in the third category) but seems relevant in relation to our research question and data.

We thus identify an array of activities, processes, circumstances, and outcomes associated with agroecology (Figure 1.), which, from the perspective of an individual young woman or man, might be something they would like to do, engage with, experience and/or achieve. This distinction between different kinds of dimensions of agroecology will guide our data analysis.

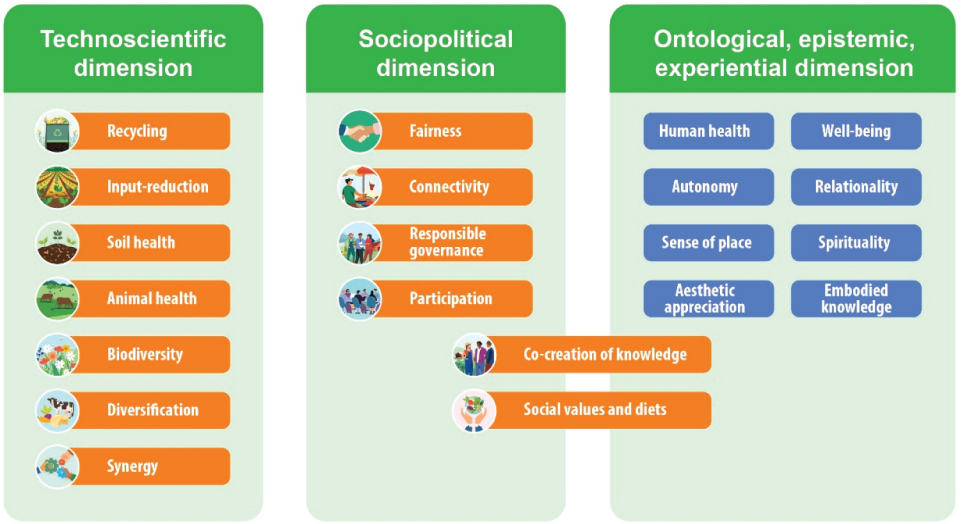

Figure 1. Unpacking agroecology; building on HLPE's (2019), 13 principles of agroecology (in orange) and on Bezner Kerr et al. (2022) three dimensions of agroecology (in blue).

Methodology

Methods

The methodology of this study was co-designed by the coauthors of this article, with two criteria in mind. Firstly, it should facilitate comparative analysis of qualitative data between countries; secondly, it should be sufficiently flexible to allow for adaptations to suit local contexts and interests. Two primary methods were devised: individual semi-structured interviews and photovoice.

Individual semi-structured interviews (ISSI)

The objectives of the ISSI were to understand the perceptions and imaginaries of young women and men about their livelihoods, agroecology, and the collective action groups with which they are affiliated. The ISSIs were conducted with young women and men living in the research sites in which agroecology was being promoted/taught by local organizations and consisted of five modules: I) Building respondent's profiles; II) Livelihoods; III) Agroecology; IV) Well-being at the individual and collective level; and V) Belonging and value of collective action and community groups.

The following criteria were applied to select the ISSI respondents:

- 50% should be women and 50% men
- Their age is between 18 and 35 years

Table 1. Sample size ISSI per country by gender.

Country	women	men	Total N
Kenya	12	12	24
India	10	10	20
Peru	12	11	23
Tunisia	12	15	27
Zimbabwe	16	7	23
TOTAL	**62**	**55**	**117**

- Their livelihood includes farming or may be considered as an agri-food based livelihood

The total sample size was 117 respondents with a breakup per country and gender provided in Table 1. Respondents were selected and contacted with support from our local partners in the sites; they usually had a connection to the partner organization either as a member or as a relative of a member. All ISSI respondents received detailed information about the study prior to the interview and provided their consent to participate and use the resulting data in publications.

Photovoice

Photovoice is a visual participatory research methodology that allows participants to record their realities and everyday experiences in photos. It enables the documentation of, reflection on, and communication about issues of concern, and allows participants to express their perceptions on a certain prompted issue. Photos, along with an explanation from the photographer, serve as input to a facilitated discussion with peers in a focus group discussion setting. The method is a collaborative process that requires multiple engagements between participants and facilitator(s).

For this study, all country teams followed a similar, though not identical, protocol. The participants were guided in topic selection by five photo-prompts: 1) "Dream farm," 2) "Collective groups," 3) "Environment," 4) "Agency and action," and 5) "Agroecology." An elaboration of the photo-prompts as presented to participants is included in Annex A. The photo-prompts were selected as most relevant by coauthors on the basis of a longer list which emerged from a collective brainstorm on key-elements of the youth/agroecology discourse.

The photovoice protocol comprised the following steps:

(1) Building rapport with the participants in a single-sex focus group discussion (FGD) setting: Introducing them to the method, objective, photo-prompts, and end goal. Practical instructions were provided on how to take photos.

(2) Check-in: Participants show their photos to the facilitators and discuss them. They prioritize 1–3 photos of good quality per topic. The facilitator makes an inventory of all photos and determines an order for discussion.
(3) Reflection and storytelling in the form of an FGD, further exploring the guiding questions and allowing for narrative-building

Photovoice participants were selected and invited with support from our local partners in the sites.

All photovoice participants provided consent after receiving information about the methodology and its proposed application including the right to withdraw their participation at any time.

Research sites

Data was collected in five countries. In each country, data collection concentrated on one or two places. In these areas, coauthors engaged with researchers, farmers, their associations, and other stakeholders to progress toward a mutually defined agroecological transition. Activities organized and implemented following a participatory visioning process (Vision to Action planning) included building evidence on agroecological innovations' performance; identifying business opportunities and financial mechanisms that support agroecology; devising behavior change strategies toward agroecology and pro-agroecology policy development (CGIAR Initiative on Agroecology 2023).

Kenya

Kenya's research site is Kiambu County, a peri-urban county bordering Kenya's capital Nairobi (Figure 2). Agroecology is gaining momentum and support among national and civil society organizations and groups in Kenya. In 2020, Inter-Sectoral Forum on Agrobiodiversity and Agroecology (ISFAA) launched a multistakeholder and multi-sectoral platform at a national level that facilitates collaboration between government, civil society, and farmer organizations on agroecology. Kenya has developed a national agroecology strategy (November 2024), with the aim to transform food systems. At the county level, Kiambu county has adopted policies and strategies to support agroecological transition (Leippert et al. 2020; Nyawira et al. 2023; Ouko et al. 2024).

In Kenya, "youth" is defined as people between the ages of 15 and 34 years old. (Republic of Kenya, 2019). Internal migration and urbanization are common for young people in Kenya, including in Kiambu. Although Kiambu does not have a specific policy on youth, earmarked youth activities are integrated into the county's annual development plans. Several youth-

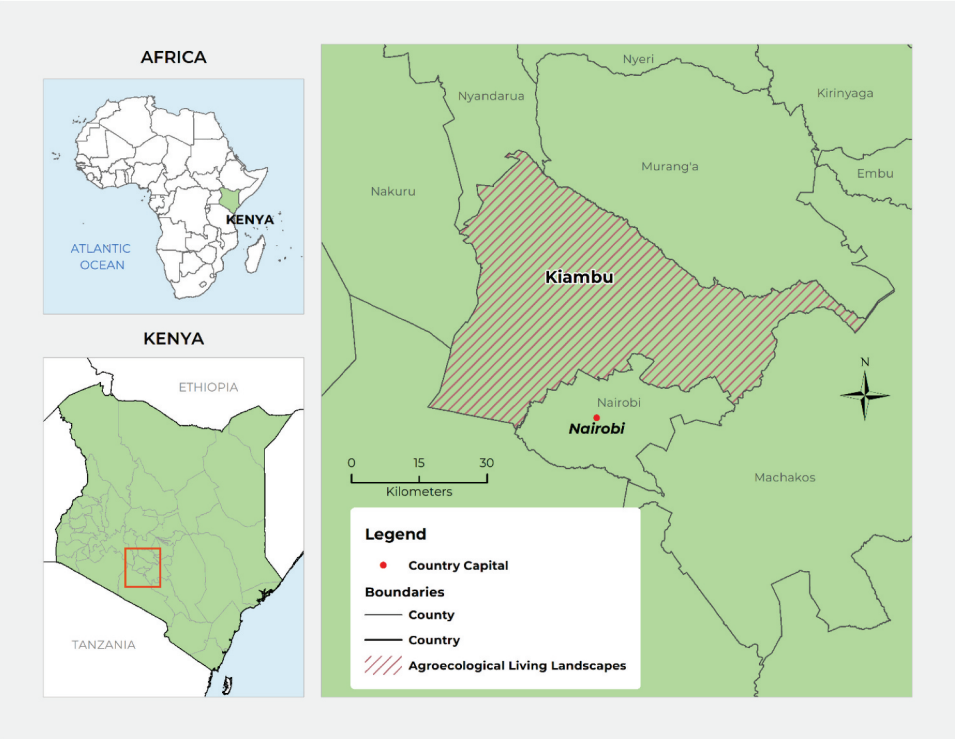

Figure 2. Location of the field site in Kenya (CGIAR 2023).

specific policies and plans exist on a national level, such as the National Youth Development Policy 2019.

India

India's research site is the Mandla district in the state of Madhya Pradesh (Figure 3). At the national level, agroecology has been gaining attention through initiatives such as PM-PRANAM[2] (PM Programme for Restoration, Awareness Generation, Nourishment, and Amelioration of Mother Earth) and the National Mission on Natural Farming run by the central government. Agroecology is typically couched under the broad term "natural farming" (Khadse et al. 2017). Madhya Pradesh state has the largest area of land under transition to agroecology of all states in India: 0.76 million ha whilst 25% is covered by forest (Khurana and Kumar 2020). Mandla is a predominantly rural district inhabited by tribal communities.

Youth are defined in India as any individual between the ages of 15 and 29. Policy priorities outlined in the National Youth Policy draft, primarily focus on enhancing youth employment opportunities through career counseling, such as the Attracting and Retaining Youth in Agriculture (ARYA) Scheme, entrepreneurship support such as Agri-Clinics and Agribusiness Centres

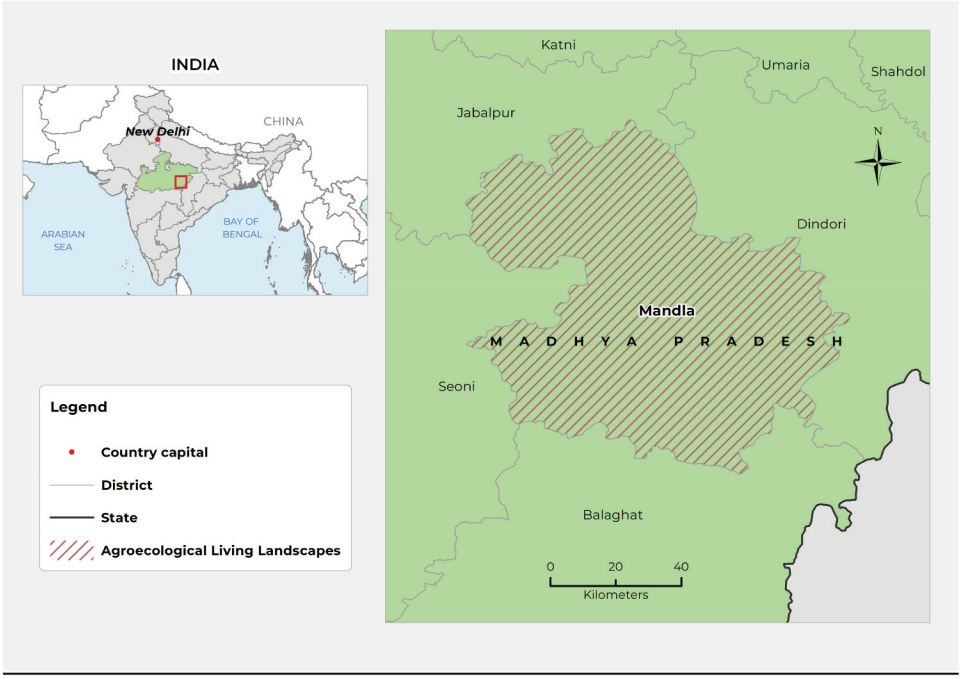

Figure 3. Location of the field site in India (CGIAR 2023).

(ACABC) schemes, and schemes related to skill development and start-ups related to agriculture (Barman et al. 2023).

Peru

The Peru research site is the department Ucayali, located in the Amazon region. For this study, data was collected in the Curimaná district of Ucayali (Figure 4). Since the 1980s, agroecology in Peru has primarily been driven by social movements supported by academic institutions, mainly from the Andes. These efforts established the conceptual foundations for agroecology, emphasizing organic production, creating training networks, and consolidating organizations of agroecological producers (Alvarado 2003). In Ucayali, the agroecological social movement consolidated in the 1990s with the creation of the "Federación de Productores Ecológicos de Ucayali" (FUSEVI). FUSEV promotes the conservation of traditional agricultural practices, the rejection of agrochemicals, and the elimination of slash-and-burn. Since the 2000s, the expansion of commodities (oil palm and cacao), driven by the state to substitute illicit coca, became the hegemonic alternative in agriculture. Ucayali experiences high levels of deforestation caused by the expansion of the agricultural frontier. Many inhabitants of Ucayali are identified as *mestizos* (migrants, or descendants of migrants, from non-Amazonian regions of Peru).

Figure 4. Location of the field site in Peru (CGIAR 2023).

The youth population in Peru is defined as individuals between 15 and 29 years old. Since 2019, Peru has had a regulatory framework that guides state actions related to youth which recognizes the need to address inequality in achieving the integral development of the young population and their participation in society (D.S N°013–2019-MINEDU). The National Youth Policy prioritizes the sectors of education, work, health, violence prevention, anti-discrimination efforts, and citizen participation. It specifically identifies as priority areas for rural youth: The completion of basic education, fostering entrepreneurial skills, and preventing discrimination.

Tunisia

Agroecology is gradually being incorporated into the Tunisian national agenda. The federal government has acknowledged the necessity of agroecology as a systems approach by incorporating several agroecological principles into different national strategies to improve climate change adaptation, soil health, and sustainability. Furthermore, an inventory revealed 26 Agroecology related projects in Tunisia over the last two decades, which shows that the government has been involved in the promotion of agroecological practices in different areas and farming systems within the country (Lestrelin et al. 2023).

The Tunisia research site consists of several rural communities in the Kef-Siliana transect (Figure 5). Kef-Siliana, a semi-arid agricultural zone where mixed cereal-tree-small ruminants farming systems prevail, has been co-prioritized with national partners for agroecological development.

In Tunisia, young people aged 15–29 represent 29% of the total population. Population growth and land fragmentation in rural areas are threatening the viability of farms and affecting land inheritance. Youth migration from rural areas of our research site, Kef-Siliana, is leading to a decrease in the number of young people in these communities.

Zimbabwe

Zimbabwe's research sites are in the Mbire and Murehwa districts (Figure 6). Mbire district is located in the Zambezi Valley which is a semi-arid region that supports livestock and drought-tolerant crops and experiences high levels of human-wildlife conflict. Murehwa, located 80 km northeast of Harare, receives high rainfall and supports intensive crop and livestock production. Both districts are vulnerable to food insecurity caused by increasingly frequent droughts. Since 2005, agroecology has steadily gained traction in Zimbabwe, driven by agricultural, environmental, and nutrition policies (Chiduwa et al. 2022). Conservation agriculture

Figure 5. Location of the field sites in Tunisia (CGIAR 2023).

Figure 6. Location of field sites in Zimbabwe (CGIAR 2023).

has been successfully promoted in the research sites since the early 2000s (Voss and Zingwena 2024).

Youth are defined in Zimbabwe as ages 15–35 years old. They comprised 32% of the national population in 2022. Most (55%) reside in rural areas and many face unemployment. Rural communities are grappling with youth out-migration, primarily to Harare but also to countries like Botswana and South Africa .

Youth perceptions about agroecology in five countries

Country results

Kenya

Of twenty-four young women (12) and men (12) interviewed in Kiambu, eleven (6 women and 5 men lived with their parents. Agriculture was the primary occupation for eight youth (3 women, 5 men). Most youth were members of various community groups. Additional demographic and socio-economic data results are in Annex B–Table B1.

Young women and men held diverse views on the role and importance of agriculture in their lives and these were shaped by gendered responsibilities and expectations. Most youth, both women and men, did

not aspire to have "farming" as a primary livelihood. They rather conceived it as supporting other economic activities, mostly because farming was not considered profitable. Farming was perceived as a safety net, especially by young men; something to fall back on when other options do not work out. One young woman explained how farming was just part of her life. She considered it better to be active and farm than to sit idle. She also viewed farming as an integral part of her family life: *"It is something which we do here"* (ISSI, woman 23 y/o). Both young women and young men highlighted the importance of farming for household food security, often in relation to their own gendered roles in household food preparation and provision. A young man said for instance that *"farming is very important because I am able to feed my family well which allows me to use my construction income on other things."* (ISSI, man, 27 years old y/o).

When asked about "dream farms," diverging responses emerged from the ISSI and the photovoice. In the ISSIs all but one youth described mixed farms which combined crop cultivation and livestock husbandry. Many young women and men desired multiple and diverse crops, trees and animals to fulfill both home consumption and income needs. Secure water availability and fencing were also common themes in the ISSIs. *"The farm that I desire to own is a four-sector farm. I have got a serious love for avocados so major parts of the farm would be dominated by avocado. I am picturing the farm with a small section for other fruits; passion fruits, apple, mango, orange, banana. That is the second part. I would then have another part for subsistence farming of maize, potatoes, beans and peas and then the last part is for vegetables"* (ISSI, man, 27 y/o). In photovoice on the contrary, youth showed images of greenhouses and monocropping as desirable.

When asked about the meaning of ''agroecology' most of the young women and men interviewed, equated agroecology to "organic farming." Some expanded the explanation to environmentally friendly practices but none of them highlighted social-political or other aspects of agroecology. This is likely related to the actions of a local organization that promotes agroecology in the area; they position agroecology mainly as organic farming; healthy for humans and the environment.

With regard to experiences with agroecology, young women's and men's answers were primarily related to specific farm practices, and opinions and experiences were both positive and negative. Young women emphasized the cost-effectiveness of agroecology in terms of input reduction and improved nutrient recycling. One woman said for instance *"Manure is something you can just get for free; I get cow dung from my mother-in-law, or I clean my chickens' waste, and use that manure rather than paying for fertilizer."* (ISSI, woman, 31 y/o). Young men mentioned environmental benefits and soil health as important benefits. One young man stated: "*Our soils have been damaged by these*

artificial fertilizers and it would be good to see them recover" (ISSI, man, 35 y/o). The most mentioned benefit of agroecology according to ISSI respondents, however, was experiential: improved human health. This was mainly associated with a discontinuation of the use of synthetic crop protection chemicals.

Both young women and men listed constraints regarding agroecological transitions. Most youth mentioned the labor intensity of agroecological farming practices. Young men sometimes linked this to higher costs linked to hiring more casual labor. Young women mentioned weak access to (resources to produce) bio-inputs and to markets. "I often wonder; w*here will I sell my products, will they sell at a good price and will I earn any profit. We have an organic market which is sometimes oversaturated making selling a problem"* explained one young woman (ISSI, 29 y/o). Young women and men acknowledged men's advantage in accessing market opportunities as a consequence of gender norms which restrict women to their homes to take care of household reproductive work.

Young women and men were explicit in the importance they attached to community or farmers' groups which were sometimes linked to promoting and implementing agroecology. They tended to find a sense of belonging, as well as support in these groups; they described the groups as a space where they can thrive. *"I feel comfortable and at home in the group, members are all around, they're there for you as much as you are there for them"* explained a young woman (ISSI, 21 y/o). Another woman highlighted her motivation for remaining in the group was related to fairness and reciprocity, stating: *"When there is a chance, in a year we add one or two people, to help others."* (ISSI, 31 y/o). This collective support and action were an important pathway for the co-creation of knowledge, where youth appreciated the *"ability to reason differently when it comes to making decisions in the farm."* (ISSI, woman, 32 y/o) and getting new ideas. Group support and especially credit and saving facilities, served as a pathway for economic diversification and for household improvement. As one woman explained, *"since the money is stored collectively, you may do something worthwhile with it. For instance, you may purchase a different set of chairs that you were unaware you could."* (ISSI, woman, 31 y/o).

India

In India, ten young women and ten young men, ages ranging between 20 and 29 years old, were interviewed. A selection of key demographic and socio-economic data results is included in Annex B–Table B2. Most of the interviewed youth (16) lived with their parents or with their parents-in-laws. Five women and nine men called agriculture their primary occupation. The majority of respondents lived in households which owned land. Few youths were part of community groups.

For most young women and men living in Mandla, agriculture was important in their lives. For example, one young man said, "*We get food only from agriculture. It is the source of income for us, all our expenses are met through agriculture only*" (ISSI, 29 y/o). For some young men who had previously migrated and worked in factories and non-agricultural industries, agriculture also represented a means of self-sufficiency, stability, and autonomy. One young man farmer said about farming: "*We are our own bosses; it's our own work.*" (ISSI, 25 y/o). Young women emphasized agriculture as a guarantee for household stability and a valuable means to remain connected to their land and communities. They also stressed that agriculture allows women to avoid migration, which they conceived as less desirable for women. "*We don't migrate for work, instead we work on our farm. The paddy crop is sufficient for the entire year.*" (ISSI, woman, 25 y/o). While another added "*The people in our village that migrate outside for work, they are not able to save money, that's why we only work on our farm*." (ISSI, woman, 25 y/o). However, most youth did not aspire to pursue agriculture as their (main) career and livelihood. They rather aspired having diversified livelihoods by adding non-agricultural economic activities to their livelihood along the way. As one young woman explained: "*We begin with agriculture only because it is necessary for our sustenance. But along with that I also want to learn stitching and tailoring work so that I can generate additional income.*" (ISSI, 23 y/o).

Notwithstanding the perceptions of some young men about farming as a place where one can be their own boss, most young women and men exhibited limited autonomy and agency in relation to agricultural decision-making. By virtue of living with their parents (in-law), most of the respondents farmed under the auspices of elder, male family members. "*For sowing and deciding which crop to cultivate, I have to take permission from my father and brother*" (ISSI, Man, 25 y/o). Young married women, at the bottom of family hierarchies, dealt with multiple layers of control that restricted their autonomy: "*I have to take permission from my husband, my father-in-law, and from my mother-in-law on agriculture-related matters*" (ISSI, Woman, 26 y/o). There was a clear contrast in autonomy in agriculture between young women and young men. Of ten young men interviewed, all but two took at least a few decisions independently. Of ten women, nine were unable to take any agricultural decision without permission from family members.

From photovoice, water scarcity emerged as a key constraint for agriculture in general and household use. This theme came back in all discussions with youth, also in relation to agroecology. Dream farms were overwhelmingly described as farms with secure water availability.

Only half of the respondents (7 men, 4 women) had heard about "agroecology" which they associated mainly with reducing external, synthetic chemical inputs. These youth were mostly positive about transitioning to agroecology as

they believed that current agricultural practices, relying on chemical inputs, are damaging the soil. Cost-reduction by saving on external inputs was mentioned as well. Agroecological farming was associated with improved human health. *"This [agroecological] farming is beneficial, helps improve fertility of soil, makes the crop more nutritious so we don't get any disease."* (ISSI, man, 25 y/o). On the other hand, youth associated agroecological farming as more labor-intensive than conventional farming. Lack of manure for maintaining soil fertility concerned some youth; they consequently refrained from adopting agroecological farming practices.

Few youths were members of community or farmers' organizations, but some mentioned having parents with such organizations. Both young women and men expressed a shared sentiment that their ideas and opinions were often overlooked or dismissed as inexperienced in group or community meetings. "*In village meetings if we suggest something, we are often told: 'small mouth but big words'" (Photovoice, man, 22 y/o)*. In response to the prompt on "collective groups" in photovoice, youth expressed an interest in youth-specific groups following the format of the common women's collectives in the area. They emphasized the role of collectives to rally both internal and external support and to share and co-create knowledge of farming.

Peru

The sample in Curimaná district consisted of 23 young people (12 women, 11 men) whose ages ranged from 18 to 30 years old. A selection of key demographic and socio-economic data results is provided in Annex B–Table B3. Half of the interviewees were living with their parents or parents-in-law at the time of the interview. Most youth reported working locally (19) of which 15 (7 women, 8 men) were engaged in agriculture as their primary occupation. Young men (9 of 11) owned land more often than young women (8 of 12) and land size was considerably higher for young men in comparison to women (13.75 ha vs. 3.23 ha on average).

Most interviewees (22 out of 23) perceived agriculture as important. Sixteen respondents (9 women and 7 men) highlighted its importance as the main source of economic income for their household and nine (3 women and 6 men) perceived agriculture as being part of their daily life. Seven youth (3 women, 4 men) elaborated on the aspect of *agriculture* being valuable as an inherited livelihood. *"Agriculture is important in my life because since I was a child my father instilled in me the importance of the activity and to value work of the farmer. He taught me the benefits of the land and how rewarding it is to see your crops grow"* (ISSI, woman, 20 y/o). Two young women and three young men highlighted the central role of farmers in producing food for themselves but also the national population. One young man pointed out that being a farmer offers great freedom in terms of managing one's time when compared to other economic work, stating, *"If you want to work, you*

work, and if you don't want to, you don't have to" (ISSI, 27 y/o). Photovoice participants and two ISSI respondents emphasized the importance of agriculture as a space where one can engage and spend (quality) time with family.

When describing the "dream farm" most youth ISSI respondents (20 of 23) wanted to farm "ecologically" without using synthetic chemicals. Young people's aspirations for their "dream farm" centered around generating income (23 of 23) and creating diverse agricultural systems (21 of 23). The interviewees highlighted the importance of having one to three crops oriented exclusively to the market; cacao was always amongst these crops. Whilst young men mostly emphasized the desirability of diversifying crops for the market and hence increasing their income, women emphasized food crop diversification for diverse diets for the household itself. Over half of the youth (6/12 women and 7/11 men) desired including a forest conservation area on their land to ensure the maintenance of resources such as water and trees in addition to enjoying environmental services like clean air and natural habitat for wild animals. Four young women noted that their "dream farm" includes recreational areas for their families in a natural setting. Similar results were found in photovoice. Most participants pictured cacao in their photo submissions, as well as often livestock and, less frequently, fish farming. A key theme was productive diversification, with participants envisioning farms that included various crops alongside trees as well as native flora. Synthesizing individual visions of dream farms, the image of a dream farm which emerges centers around productive and sustainable cocoa farming, includes integrated livestock grazing within a conservation forest, and a family home surrounded by diverse food crops and native flora.

Most interviewees (18/23) stated that they practice agroecology on their farms. When delving into the meaning of agroecology, we found that their ideas and understanding varied. Definitions ranged from a more basic "no use of synthetic inputs" to more holistic definitions which highlight conservation of nature and the environment and/or well-being. One young man said for instance: "*It is the link between agriculture and nature, the responsible work of agriculture with the environment and the social part. It is about carrying out agricultural activities, fostering a better quality of life, under the responsibility of taking care of the environment"* (ISSI, farmers' cooperative employee and farmer; 29 y/o). Women perceived that agroecological production is often slower and less productive than conventional agriculture. Meanwhile, men indicate that agroecology requires more labor than conventional agriculture. As a young man said: "*It's better but more labor-intensive because when the grass is growing, you must cultivate it, maintain it, and stay on top of it. When you use synthetics, it's easier; you spray the entire farm and the grass doesn't grow"* (ISSI, man, 25 y/o).

Even when cacao was the cornerstone of respondents' farms, all young farmers considered crop diversification as an important element of an

agroecological farm and something worthwhile having. One young man aimed for *"having good cocoa productivity that is sustainable as well as productive diversification* (ISSI, man, 29 y/o). Three men mentioned that cacao quality is better with agroecological farming and two women and two men emphasized the improved marketability of organic (which they equated to agroecological) cacao. The main objection to agroecology was the perceived higher labor requirement compared to conventional farming.

In terms of how to achieve dream farms, young women considered support networks as crucial. Such networks consisted of the partner and family members (8/12 women), as well as the cooperative as an organization for technical and marketing support (6/12 women). Half of the women interviewed, mentioned capacity development through trainings (5/12 women) or technical assistance (2/12 women) on crop management as essential for realizing dream farms and transitions to agroecology. Young men in contrast, did not mention support networks at all. A third of the men interviewed, indicated social capital as important for their purpose. They considered individual effort and willpower as key to achieving their aspirations in terms of farming.

The organic cacao cooperative was recognized as the only organization that brings people together around a common goal in the area; the production and marketing of quality organic cacao. Most interviewees were not members themselves despite selling their cacao to the cooperative on occasion. Most were indirectly linked through their spouses (5/12 women and 1/11 men) and/or their parents (5/12 women and 6/11 men). As such, they were able to identify benefits and challenges in relation to the cooperative organization. Improved market access and fair prices were perceived as main benefits of the cooperative whilst training, technical assistance and learning came second. Both women and men ISSI respondents argued for improving youth-specific services and youth's access to these services.

Tunisia

A total of 27 young people were interviewed at the research sites (12 women, 15 men), with ages ranging from 21 to 32 years. Only three respondents (1 woman) were married and only these lived independently whilst all others lived with their parents. For half of the young men and one-third of the young women, agriculture was the primary occupation. Most (24/27) owned land with young men holding an average of 9.3 ha compared to 5.7 ha for young women. Only eight youth (3 women) were involved in farmers' groups. A selection of other key demographic and socio-economic data results is provided in Annex B–Table B4.

Almost all young women and most young men referred to agriculture as important to them. Apart from agriculture's significance for food security and income, young people and especially young men emphasized its importance as cultural heritage. One young man said: *Farming is at the*

heart of my life. I live and breathe for it. Beyond the financial aspects and the income, it provides, there is a sentimental dimension that is very important to me. I cannot imagine my life without agriculture" (*ISSI, man*, 30 y/o). Another young man commented that *"it [agriculture] represents my existence, my heritage, my region, my family"* (ISSI, man, 32 y/o). A young woman (24 y/o) explained how farming provides livelihood security *"Agriculture will always be accessible for me if I don't find job opportunities."* A few youths were negative about agriculture or simply expressed being uninterested.

When asked about a "dream farm" most young women and men mentioned mixed farming and a high diversity of fruit trees as desirable. Water availability was a major theme as well. *"Before, I imagined having a farm with a variety of trees, a house, and livestock. But after I developed my land, everything changed. I need a property with a sustainable and stable water source. Water is the most important thing"* (ISSI, man, 30 y/o). Some youth considered machinery and adequate equipment as aspects of a "dream farm." When it came to achieving a dream farm, most young women (8/12) and some young men (4/15) referred to the active (moral and financial) support of family, and especially of the father, husband or brother(s), as crucial: *"I need to be financially independent and have the energy to see my project [dream farm] through. I need my family to have confidence in me and to encourage and support me in carrying out my projects"* (ISSI, woman, 23 y/o). Six young men and two women mentioned state support as essential to realize their dream farm.

Almost all young people (25/27) had ideas about what agroecology means. These ideas highlighted technical understandings of farming, especially in terms of environmental sustainability. Many, and especially young women, saw opportunities in relation to agroecology in terms of increasing profits from farming through decreasing input costs and accessing (new) organic markets with price premiums. One woman stated for instance: *"This [agroecological farming] could create opportunities to better market our local products nationally or even internationally. I can imagine a brand of packaged honey from my apiary for export"* (ISSI, woman, 25 y/o). Tapping into government support schemes for organic farming were mentioned as potential opportunities. Government intervention more broadly was seen as necessary to get agroecology off the ground: *"It's up to the government, through its resources and mechanisms, to promote and prepare the ground for this type of agriculture"* (ISSI, woman, 30 y/o). A lack of knowledge was mentioned as constraining agroecological transitions, and several young people consequently emphasized the importance of adequate extension advice. Several young men identified labor availability as constraining agroecological transitions. One man said for instance: *"I think I have to put in more physical effort and time to do all the recommended practices in this mode than someone who produces in another,*

more modernized and equipped mode" (ISSI, man, 30 y/o). Short-term profitability during transition toward agroecology was mentioned as a prerequisite to enable such transition.

Respondents pointed out that community and farmers' groups serve a vital role and function as a support system for young farmers to tackle diverse challenges. One respondent linked the collective problem solving to equity among farmers by stating: *"We must come together, be together, and solve collective problems (in the form of NGOs, organizations) with equity among all farmers."* (ISSI, Man, 30 y/o). Furthermore, these groups were perceived as strategic; boosting collective agency and market access: *"Joining an associative network can only improve our bargaining power with government agencies, development projects, and microfinance institutions. A group of farmers can help us get more value out of our products and our region, have access to a range of agricultural services, ensure equity among farmers, and better organize our vision and goals. Acting collectively is much better than acting individually"* (ISSI, Woman, 29 y/o). Being part of a group was perceived as strengthening a sense of belonging as well as individual agency and autonomy as well: "*I wanted to get involved and do something instead of sitting around; it's a place to learn, to go to trainings, to be connected, and to find opportunities"* (ISSI, Woman, 27 y/o). This was echoed by another respondent that stated, *"By joining a group, I have access to several opportunities"* (ISSI, Woman, 29 y/o).

Zimbabwe

Twenty-three young people (16 women and 7 men) were interviewed in the research sites of Mbire and Murehwa districts. The sample was relatively old, with respondents aged between 20 and 40 years. Most men (6) and approximately half of the women were married (9). Over half of the women, compared to only two young men, lived with their parents or parents-in-law. All the young women and five out of seven young men worked in agriculture as the main occupation. All youth lived in households that owned land. Other key demographic and socio-economic data results are provided in Annex B–Table B5.

Most youth described agriculture as very important in their life, and essential to sustain daily needs and fund household investments: "*Agriculture is what I depend on for food and money"* (ISSI, man, 33 y/o). Farming successfully also provides a sense of accomplishment, pride, and joy as two photovoice participants described: "*I enjoy farming and converting a piece of land that is empty into one that has beautiful crops"* (photovoice, man, 40 y/o). *"I used the money I got from crop sales to construct a house for myself. This really made me proud of myself because I did this through my hard work" (*photovoice, man 33 y/o). However, a livelihood made up of agriculture alone was not enough for most interviewees. Most were struggling to meet their basic needs especially in times of drought: *"The money is not enough,*

from January to March, we have a drought in the house; there is no more food" (ISSI, woman, 30 y/o). Limited land size was one reason agricultural livelihoods did not suffice. Failing to access draught power and fuel due to high prices and financial credit were also mentioned by several young people, mostly women. Most youth therefore engaged in additional non-farm livelihood activities such as petty trade and casual work. Remittances were another important source of income.

When asked about their dream farm, secure water supply was the most mentioned element (10/16 women, 4/7 men), and this was largely to enable year-round commercial horticultural production. Four men and two women mentioned access to draught power (oxen or tractor) for cropping land. Young women and men envisaged either focusing on horticulture or on a mix of cropping and horticulture. Women also desired combinations with poultry farming. None of the young men mentioned livestock farming. Five women mentioned fencing and two mentioned drought-tolerant crops. "*We need drought tolerant crops – I will grow this short season sorghum variety which ripens in 2 months and then I will sell my sorghum which can improve my life. The chief will be impressed because the land he has given me has become productive. In the future, I want my farming to fund my baking or sewing business during the off-season. I also want to farm during winter, to grow tomatoes, and this will be possible once I get a water pump and I can continue farming"* (ISSI, woman, 27 y/o).

Everyone was familiar with the concept of agroecology. In descriptions, young women and young men mostly mentioned key agroecological practices related to reducing external inputs, resource efficiency, and nutrient cycling. Several youths referred to the agroecosystem as well; understanding linkages between systems elements, harnessing ecosystem services, and living in harmony with nature and community members. A young woman said for instance: *"[Agroecology] is farming without harming our environment, we no longer disturb the environment using ploughing and our cattle can rest. We use crop rotation. We no longer use chemicals to kill worms, but we control them by picking and applying chilies" (ISSI, farmer, 27 y/o). A* photovoice participant explained what agroecology means to her: *"Agroecology focuses on producing using what you have at your disposal. For example, biochar. We make this using locally available materials and then we apply it on our fields" (woman, 35 y/o).* Two young woman and one young man mentioned knowledge sharing with community members as an element of agroecology and two youth (one woman) mentioned revaluating indigenous or traditional knowledge.

Regarding the benefits of agroecology, both women and men mentioned water retention, improved crop productivity, and reduced erosion as key benefits. Reduced workload related to conservation agriculture practices and increased knowledge and understanding of agroecosystem interactions were also mentioned. One woman mentioned better human health. A photovoice

participant described valuing the learning through training on (aspects of) agroecological farming and elaborated how this changed her farming practice and evoked a desire to try out new things. *"Intercropping has been a game changer for me because I have a small plot, but still I will harvest maize and beans. It has also given me ideas to plant fruit trees alongside tomatoes"* (Photovoice, woman, 34 y/o). Whilst most respondents were positive about agroecology, a few claimed that conventional farming achieves superior yields.

All but one of the interviewees was a member of a farmers' group. The group supported many youth in aggregating resources for input and output markets and securing better prices. They also valued the opportunities provided for learning and knowledge sharing.

Discussion

Viable rural livelihoods and dream farms

As expected, we found that youth were coping with structural, non-youth specific constraints; a lack of broader economic opportunities for agriculture manifesting as limited access to land, credit, information and markets amongst others. Gender was a key factor in determining how these constraints affected youth. For instance, young women attached much importance to support systems when it came to what enables them to farm. This is consistent with literature on women's capacity to innovate in agriculture, where support from the husband and/or other male relatives is often described as crucial in strengthening women's (limited) agency (Badstue et al. 2018; Rietveld 2024). It is also consistent with ideas about power and "power through" – the idea that women may gain power by association with others that are more powerful (Galiè and Farnworth 2019). We did not find that all youths were uninterested in farming or preferred other non-farm livelihoods and careers. We found that the profitability of farming was considered essential but that many youths had additional motivations to farm.

Across the research sites, a future (dream) farm, as imagined by young women and men, generates a living income. Most emphasized the importance of producing food for household consumption as well. Many youths spoke of their desire to produce a diversity of fruits for their family to eat, to produce foods without using synthetic chemicals for healthy diets and to be self-sufficient for food. Gender norms played a significant role in shaping these aspirations. This is unsurprising as it has been abundantly evidenced across the world that gender norms tend to steer men in the direction of cash-crop production and women in that of food crops (Rietveld et al. 2023). Nonetheless, up to half of the young men across sites, versus most young

women, expressed a desire for producing food products for home consumption.

Most youth described mixed farming systems as ideal. All dream farms included a diversity of crops and, commonly, fruit trees and usually one or more species of livestock or fish. Apart from food provision for the household, this diversity was motivated by risk aversion and a desire for more evenly distributed income over the year. Only a few of the young women's and men's dream farms entertained specialization or included large-scale monocropping or industrial animal husbandry.

Additional motivations to farm were sometimes difficult to disentangle from life in a close-knit rural farming community. Youth regularly described working together and spending time with family (all sites), enjoying the "togetherness" of being in a self-help group (Kenya and Zimbabwe) and feeling close to the land and "at place" as a farmer (all sites). These more experiential motivations, "sense of place" and "relationality" (Figure 1), could be pivotal in sustaining youth's interest in agriculture (Murillo-López et al. 2022; McCarthy et al. 2023; Hassen et al. 2025). For some youth, these motivations extended into a desire to take good care of the land. In Peru, for instance, almost half of the interviewees wished for forest on their dream farm. In Zimbabwe, quite a few youths emphasized the importance of preserving natural resources for next generations.

Youth, agrarian change, and the political economy of agroecology

Our finding shows a considerable gap between both more academic and social activist understandings of agroecology and the understanding of the young women and men we interviewed. Their understanding was often limited to the techno-scientific dimension of agroecology, which "*focuses on ecological approaches to agriculture at the plot or farm scale with the aim to minimize environmental damage for long-term resilience of the food system*" (Bezner Kerr et al. 2022, 1). Most young people did not associate agroecology with anything other than "farming practices" and especially with practices that replaced external, synthetic farm inputs for crop production with natural and local alternatives. This technical rendering of agroecology omits broader political economy aspects such as autonomy, collective action, quality of life and economic and political change. Adriaensen et al. (2025) refer to this focus on farming practices as the "agronomic gaze on agroecology" and argue that it lacks a transdisciplinary approach. It is likely that in youth's sources of knowledge on agroecology a similar gaze prevails. Such a narrow understanding of agroecology ultimately translates into limiting potential for the social transformation of food systems (Adriaensen et al. 2025).

In conversations around farming and imagined futures, additional meanings of agroecology were raised by youths, without them always making

a conscious link to agroecology. We argue that these issues, relating to human health, relationality, social values, and a sense of place, signify *socio-political* and *experiential dimensions* of agroecology. This underscores that, at least for some youth, the multidimensional benefits of agroecology do resonate with their motivations, values, and preferences, and that these may act as incentives for them to invest in rural, farming, and agroecological livelihoods.

Within the techno-scientific dimension of agroecology dominated by the agronomic gaze, youth's interest in and (sometimes) engagements with agroecology were mostly motivated by the opportunity to reduce input costs while maintaining or even improving crop productivity and soil health. In contexts where farmers, and perhaps young and women farmers even more so, have limited access to credit to invest in farm inputs, agroecology provides a solution to at least this structural constraint. In Tunisia and Zimbabwe, both semi-arid areas prone to drought, agroecology was also believed to benefit soil water retention, thus responding to structural water constraints.

Other incentives for young women and men to practice agroecology, which venture beyond the techno-scientific dimension (Bezner Kerr et al. 2022), were to target premium markets (Kenya, Peru, Tunisia); and to benefit from participation in farmer groups and projects (Kenya, Zimbabwe). In other sites, youths expressed interest in participating (more) in (youth-specific) groups (Tunisia, India). The benefits of group participation, as experienced by these youths, reached far beyond direct economic gain from collective marketing or access to finance; they were about strengthening self-efficacy, learning, social capital, and about a sense of place. Especially for young women, participation in groups created a pathway to increase their individual agency. Although groups may not remove structural constraints, we found that they can mitigate their effects through their saving and micro-finance function (see also Flynn and Sumberg 2018) or by contributing to the empowerment of marginalized groups in society (see also Huyer et al. 2023; Ume et al. 2025).

Many of the youth acknowledged and valued practicing agroecology on their farm for its potential to accrue benefits beyond the immediate future and beyond their own farm in terms of improving soil health and preserving the environment. Some youth expressed commitment and passion for agrarian life, or what Hannah Wittman (2009) calls "agrarian citizenship" – or environmental stewardship, local food production, and a connection to the land. Linked to this was the desire, expressed by a majority of the youth participating in this study, toward being self-sufficient, food-secure and having access to diverse healthy foods. Since in our research sites, diverse food markets are often either distant, unaffordable, volatile, or a combination of these, and income is subject to fluctuations, subsistence production is a sensible strategy for (young) women and men in terms of improving food security and nutrition (Tittonell 2023).

Agroecology, as grounded in principles of connectivity (short chains), food sovereignty, food traditions, biodiversity, and human health, provides a theoretical and ideological framework which responds to these desires. Evidence on agroecology supports that implementation of agroecological practices tends to benefit food security and nutrition outcomes (Bezner Kerr et al. 2021). Focusing on food sovereignty in policy and in development projects; going beyond access to food, to rights and autonomy over food with an emphasis on local production and consumption is a promising direction to stimulate agroecological transition (Ume et al. 2025). This does require organizations and policies supporting agroecological transitions, to include men as well in their attention to food production for the household, as this currently tends to be directed exclusively to women (Rietveld et al. 2023).

In all sites, but particularly in Kenya and India, many young women and men imagined futures in which farming was one of the multiple economic activities making up their diversified livelihood. Livelihood diversification is hardly a new phenomenon (Ellis 1998) and has often been observed in relation to youth, especially in Africa (Djurfeldt et al. 2019; Schmidt and Woldeyes 2019; Okali and Sumberg 2012; Rietveld et al. 2020). It is not always clear if youth's de facto or imagined diversified livelihoods are in line with their aspirations or rather resulting from a lack of (farming and non-farm) opportunities to build viable livelihoods (Schmidt and Woldeyes 2019; Kafle et al. 2024; Sumberg et al. 2024; Thorsen et al. 2024). Whichever it is, there seems to be little research on how young women and men can efficiently combine farm and non-farming activities in a sustainable and resilient livelihood nor on what supporting policies would look like (Larue et al. 2021). Whilst economic diversification is a principle of agroecology as proposed by the HLPE (2019), this refers to on-farm diversification and not to diversifying livelihoods to include both farm and non-farm activities. Documentation on how youth build diversified, agroecological (farm and non-farm) livelihoods in rural areas is scarce (Tilahun and Holden 2023). The same accounts for studies about what these livelihoods look like, how they can be supported and how they might contribute to agroecological transitions. Yet these very common, diversified livelihoods may be an important piece in the puzzle of revitalizing rural landscapes and transitioning to a more sustainable, equitable, and resilient food system.

Conclusion

In this paper, we provided evidence and discussed the question of how agroecology may attract youth to farming and rural-based livelihoods, and what then are their motivations, enablers, opportunities, and constraints. We found in our research sites that agroecology provides a perceived opportunity for some youth but, in its local materialization as well as in the understandings of youth, was not a game-changer yet.

Young women's and men's own understanding of agroecology tended to be limited to the techno-scientific dimension and were specifically centered around agronomic practices. These practices, such as input recycling using local materials, did respond to some of young women's and men's needs in a context of rural structural constraint and depletion because they supported the viability of the farm in terms of providing sufficient income and food for home consumption.

Two findings from this study solicitate specific attention from agroecology research, development, and policy professionals. Firstly, we found that many youths, women, and men desired optimizing food production for household consumption to secure affordable access to healthier and more diverse food. This beckons the question to what extent food sovereignty as a guiding principle for agroecological policies, interventions, and projects would be useful/succeed both in attracting youth and in improving their autonomy and diets. Secondly, many youths aspired to a future diversified livelihood consisting of both (agroecological) farm and non-farm activities. Understanding what conditions best support "part-time" agroecological farming in specific contexts would be a good basis to provide concrete support to rural youth.

Notes

1. https://www.cgiar.org/initiative/agroecology/.
2. https://timesofagriculture.in/pm-pranam-scheme-aim-feature-of-scheme/.

Acknowledgments

We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund: www.cgiar.org/funders. We would also like to express our gratitude to the young women and men that participated in this study and in the following dialogues with policy-makers and other stakeholders.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the CGIAR trust fund through the CGIAR research initiative on Agroecology and the CGIAR Science Program on Multifunctional Landscapes.

ORCID

A.M. Rietveld http://orcid.org/0000-0002-9400-9473
N. Guettou-Djurfeldt http://orcid.org/0009-0007-9300-5458
S. Gupta http://orcid.org/0000-0001-6381-6857

M. Tristán http://orcid.org/0000-0002-3378-154X
V.G.P. Chimonyo http://orcid.org/0000-0001-9912-9848
R. Nehring http://orcid.org/0000-0002-0867-7820
Z. Idoudi http://orcid.org/0000-0003-2717-7845

References

Adriaensens J, Dessein J, Adam J. 2025. Science as a territory in dispute: an analysis of power and paradigms in the conceptualization of agroecology. Agric Hum Values. 42:1757–1771. https://doi.org/10.1007/s10460-025-10723-2

Alliance for Food Sovereignty in Africa (AFSA). 2024. Addis Ababa declaration: First thousand African youth summit on food systems and agroecology; African youth united for agroecology: Leading Africa's food system transformation. [accessed 2025 Mar 3]. https://afsafrica.org/addis-ababa-declaration-first-thousand-african-youth-summit-on-food-systems-and-agroecology/

Altieri MA. 1989. Agroecology: A new research and development paradigm for world agriculture. Agr Ecosyst Environ. 27(1–4):37–46. https://doi.org/10.1016/0167-8809(89)90070-4

Altieri MA. 2018. Agroecology: the science of sustainable agriculture. 2nd ed. CRC Press.

Alvarado F. 2003. Balance de la agricultura ecológica en el Perú 1980 – 2003. En: Perú: El problema Agrario en Debate, Sepia X, Mesa Especial.

Ambarwati A, Chazali C. 2024. The long road to becoming a farmer in Kebumen, Central Java, Indonesia. In: Srinivasan S, editor. Becoming a young farmer. Rethinking rural. Palgrave Macmillan. pp 361–382. https://doi.org/10.1007/978-3-031-15233-7_13

Ambarwati A, Chazali C, Sadoko I, White B. 2024. Youth and agriculture in Indonesia. In: Srinivasan S, editor. Becoming a young farmer. Rethinking rural. Palgrave Macmillan. pp 303–335. https://doi.org/10.1007/978-3-031-15233-7_11

Arslan A, Tschirley DL, Di Nucci C, Winters P. 2020. Youth inclusion in rural transformation. J Devel Stud. 57(4):537–543. https://doi.org/10.1080/00220388.2020.1808199

Badstue L et al. 2018. What drives capacity to innovate? Insights from rural women and men in Africa, Asia, and Latin America. GENNOVATE Spec Issue, J Gend, Agriculture and Food Secur. https://doi.org/10.22004/ag.econ.293588

Barman B, Girish CE, Das A, Munshi SA. 2023. Retaining and encouraging rural youth to choose agriculture as a profession. Just Agric. 3(7):263–271.

Bezner Kerr R et al. 2021. Can agroecology improve food security and nutrition? A review. Global Food Secur. 29:100540. https://doi.org/10.1016/j.gfs.2021.100540

Bezner Kerr R, Liebert J, Kansanga M, Kpienbaareh D. 2022. Human and social values in agroecology: A review. Elementa: Sci Anth. 10(1):0090. https://doi.org/10.1525/elementa.2021.00090

CGIAR. 2023. The agroecology transition: Different pathways to a single destination - eight country experiences. 32. https://hdl.handle.net/10568/138124

Chiduwa M, Marenya P, Ngoma H, Ngowenani N, Chimonyo V. 2022. Assessing the opportunities for agroecological transition in Zimbabwe: a policy review. CGIAR. https://hdl.handle.net/10568/135751

Daum T. 2019. Of bulls and bulbs: Aspirations, opinions and perceptions of rural adolescents and youth in Zambia. Devel Pract. 29(7):882–897. https://doi.org/10.1080/09614524.2019.1646209

Djurfeldt A, Andersson A, Kalindi K, Lindsjö M, Wamulume. 2019. Yearning to farm – youth, agricultural intensification and land in Mkushi, Zambia. J Rural Stud. 71:85–93. https://doi.org/10.1016/j.jrurstud.2019.08.010

Ellis F. 1998. Household strategies and rural livelihood diversification. J Devel Stud. 35(1):1–38. https://doi.org/10.1080/00220389808422553

Flynn J, Sumberg J. 2018. Are savings groups a livelihoods game changer for young people in Africa? Devel Pract. 28(1):51–64. https://doi.org/10.1080/09614524.2018.1397102

Francis C et al. 2003. Agroecology: The ecology of food systems. J Sustain Agriculture. 22 (3):99–118. https://doi.org/10.1300/J064v22n03_10

Galiè A, Farnworth CR. 2019. Power through: A new concept in the empowerment discourse. Global Food Secur. 21:13–17. https://doi.org/10.1016/j.gfs.2019.07.001

Girard P. 2023. From family to markets. How institutional determinants of rural youth transitions have changed in Senegal and Zambia over time. J Rural Stud. 101:103040. https://doi.org/10.1016/j.jrurstud.2023.103040

Giuliani A et al. 2017. Realities, perceptions, challenges and aspirations of rural youth in dryland agriculture in the Midelt Province, Morocco. Sustainability. 9(6):871. https://doi.org/10.3390/su9060871

Gliessman S. 2011. Transforming food systems to sustainability with agroecology. J Sustain Agric. 35(8):823–825. https://doi.org/10.1080/10440046.2011.611585

Gliessman S. 2016. Transforming food systems with agroecology. Agroecol Sustain Food Syst. 40(3):187–189. https://doi.org/10.1080/21683565.2015.1130765

Glover D, Sumberg J. 2020. Youth and food systems transformation. Front Sustain Food Syst. 4. https://doi.org/10.3389/fsufs.2020.00101

Goris M et al. 2019. Resignification practices of youth in Zona da Mata, Brazil in the transition toward agroecology. Sustainability. 11(1):197. https://doi.org/10.3390/su11010197

Griffin C et al. 2024. The persistence of precarity: Youth livelihood struggles and aspirations in the context of truncated agrarian change, South Sulawesi, Indonesia. Agric Hum Values. 41 (1):293–311. https://doi.org/10.1007/s10460-023-10489-5

Hassen JY et al. 2025. Taking youth aspirations in agriculture seriously: Implications for livelihood programming in a fragile ecosystem. Cogent Soc Sci. 11(1). https://doi.org/10.1080/23311886.2025.2473641

HLPE. 2019. Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.

Huyer S et al. 2023. Organising for change: Empowerment for farmers, women, youth, and communities. In: Campbell B, Thornton P, Loboguerrero A, Dinesh D, Nowak A, editors. Transforming food systems under climate change through innovation. Cambridge University Press; pp 144–155. https://doi.org/10.1017/9781009227216.013

Jiménez-Moreno M, Lazos-Chavero E, Balvanera P. 2023. (Dis)connections between youth migration and food security in a rural community of the Sierra de Santa Marta, Veracruz, Mexico. J Rural Stud. 100:100. https://doi.org/10.1016/j.jrurstud.2023.103028

Jothilakshmi M, Thirunavukkarasu D, Sudeepkumar NK. 2014. Exit of youths and feminization of smallholder livestock production–a field study in India. Renewable Agric Food Syst. 29(2):146–150. https://doi.org/10.1017/S174217051300001X

Kafle K, Paliwal N, Benfica R. 2024. Do youth work in agriculture? Short-term dynamics of on-farm rural youth employment in Tanzania and Malawi. J Devel Stud. 61(5):748–775. https://doi.org/10.1080/00220388.2024.2420019

Khadse A, Rosset P, Morales H, Ferguson B. 2017. Taking agroecology to scale: The zero budget natural farming peasant movement in Karnataka, India. The J Peasant Stud. 45 (1):192–219. https://doi.org/10.1080/03066150.2016.1276450

Khurana A, Kumar V. 2020. State of organic and natural farming in India: challenges and possibilities. Centre for science and environment, New Delhi. Arthshastra Indian J Econ & Res.

Kodom M et al. 2022. Changing the perceptions and attitudes of rural Ghanaian youth towards cocoa farming. Devel Pract. 32(7):958–967. https://doi.org/10.1080/09614524.2022.2086218

Larue K, Daum T, Mausch K, Harris D. 2021. Who wants to farm? Answers depend on how you ask: A case study on youth aspirations in Kenya. Eur J Dev Res. 33(4):885–909. https://doi.org/10.1057/s41287-020-00352-2

Laske E, Michel S. 2022. What contribution of agroecology to job creation in sub-Saharan Africa? The case of horticulture in the Niayes, Senegal. Agroecol Sustain Food Syst. 46 (9):1360–1385. https://doi.org/10.1080/21683565.2022.2107595

Leippert F, Darmaun M, Bernoux M, Mpheshea M. 2020. The potential of agroecology to build climate-resilient livelihoods and food systems. Rome. FAO and Biovision. https://doi.org/10.4060/cb0438en

Lestrelin G et al. 2023. Behaviour change in agri-food systems transformation: a review of past initiatives in Tunisia. International Center for Agricultural Research in the Dry Areas (ICARDA). https://hdl.handle.net/20.500.11766/68997

McCarthy J, Meredith D, Bonnin C. 2023. 'You have to keep it going': relational values and social sustainability in upland agriculture. Sociologia Ruralis. 63(3):588–610. https://doi.org/10.1111/soru.12402

Mercado KMP, Osbahr H. 2023. "Feeding the future: Knowledge and perceptions of the Filipino youth toward agriculture. Asian J Agric Devel. 20(2):31–50. https://doi.org/10.37801/ajad2023.20.2.3

Murillo-López BE, Castro AJ, Feijoo-Martínez A. 2022. Nature's contributions to people shape sense of place in the coffee cultural landscape of Colombia. Agriculture. 12(4):457. https://doi.org/10.3390/agriculture12040457

Narayanan S. 2024. "I had to bear this burden": youth transcending constraints to become farmers in Madhya Pradesh, India. In: Srinivasan S, editor. Becoming a young farmer. Rethinking rural. Palgrave Macmillan. pp 277–301. https://doi.org/10.1007/978-3-031-15233-7_10

Nyawira SS et al. 2023. Kenya context assessment report: A desk-top review of the context of agroecological principles of Kiambu and Makueni counties. 48.

Ohanwusi E, Adenmosun A, Woomer PL, Atta-Krah Kwesi A. 2018. Forging collaboration between the African Union Commission and the International Institute of Tropical Agriculture in the interest of Africa's increasingly marginalized youth p 10. International Institute of Tropical Agriculture.

Okali C, Sumberg J. 2012. Quick money and Power: tomatoes and Livelihood Building in rural brong ahafo, Ghana*. IDS Bull. 43:44–57. https://doi.org/10.1111/j.1759-5436.2012.00378.x

Ouko KO et al. 2024. A review of the landscape of agroecology policies towards transforming food systems in Sub-Saharan Africa. Cogent Soc Sci. 10(1). https://doi.org/10.1080/23311886.2024.2363491

Peña-Torres JA, Reina-Rozo JD. 2022. Agroecology and communal innovation: LabCampesino, a pedagogical experience from the rural youth in Sumapaz Colombia. Curr Res Environ Sustain. 4:100162. https://doi.org/10.1016/j.crsust.2022.100162

Petruzzella D, Antonelli A, Brunori G, Jawhar J, Roma R. 2020. Innovation ecosystems for youth agrifood entrepreneurship in the Mediterranean region. New Medit. 19(4):99. https://doi.org/10.30682/nm2004g

Pfammatter P, Jongerden J. 2023. Beyond farming women: Queering gender, work and family farms. Agric Hum Values. 40(4):1639–1651. https://doi.org/10.1007/s10460-023-10449-z

Rietveld AM. 2024. On gender norms, innovation and smallholder farming; patterns and processes of change in rural Uganda [PhD thesis]. Wageningen University. https://doi.org/10.18174/670274

Rietveld AM et al. 2023. An evidence synthesis of gender norms in agrifood systems: pathways towards improved women's economic resilience to climate change. Bioversity International. https://hdl.handle.net/10568/136053

Rietveld AM, Van der Burg M, Groot JCJ. 2020. Bridging youth and gender studies to analyse rural young women and men's livelihood pathways in central Uganda. J Rural Stud. 75:152–163. https://doi.org/10.1016/j.jrurstud.2020.01.020

Ripoll S et al. 2017. Rural transformation, cereals and youth in Africa: What role for international agricultural research? Outlook Agric. 46(3):168–177. https://doi.org/10.1177/0030727017724669

Ruiz Salvago M, Phiboon K, Faysse N, Nguyen TPL. 2019. Young people's willingness to farm under present and improved conditions in Thailand. Outlook Agric. 48(4):282–291. https://doi.org/10.1177/0030727019880189

Schmidt E, Woldeyes FB. 2019. Rural youth and employment in Ethiopia. In youth and jobs in rural Africa: Beyond stylized facts. In: Mueller V, Thurlow J, editors. Chapter 5. International Food Policy Research Institute (IFPRI) and Oxford University Press; pp 109–136. https://doi.org/10.1093/oso/9780198848059.003.0005

Srinivasan S, White B. 2024. Introduction: Young people's pathways into farming. In: Srinivasan S, editor. Becoming a young farmer. Rethinking rural. Palgrave Macmillan. pp 1–22. https://doi.org/10.1007/978-3-031-15233-7_1

Sumberg J et al. 2021. African youth and the rural economy: Points of departure. Youth Rural Econ Africa: Hard Work Hazard. 1–22. https://doi.org/10.1079/9781789245011.0001

Sumberg J et al. 2024. Young people, livelihood building and the transformation of African agriculture: a reality check. Global Food Secur. 41:100759. https://doi.org/10.1016/j.gfs.2024.100759

Thorsen D, Glover D, Cabral L. 2024. Youth in international agricultural research for development: A background paper. Cgiar gender impact platform background paper. Nairobi, Kenya: CGIAR GENDER Impact Platform.

Tilahun M, Holden ST. 2023. Livelihood diversification and migration intentions among land-poor youth in Tigray, Northern Ethiopia: Do they correlate with livestock assets, trust, and trustworthiness? Front Sustain Food Syst. 7:1175572. https://doi.org/10.3389/fsufs.2023.1175572

Tittonell P. 2023. A systems approach to agroecology. Springer. https://doi.org/10.1007/978-3-031-42939-2

Ume C, Wahlen S, Nuppenau EA, Domptail S. 2025. Women smallholders build an agroecology food system: The construction of empowerment and food sovereignty. J Peasant Stud. 1–21. https://doi.org/10.1080/03066150.2025.2462760

United Nations. 2015. Youth population trends and sustainable development, population facts no. 2015/1. [accessed 2025 Mar 11]. https://www.un.org/development/desa/pd/content/adolescents-and-youth

Voss RC, Zingwena T. 2024. Understanding the drivers and determinants of agency in agri-food systems in Zimbabwe. CGIAR. https://hdl.handle.net/10883/35049

Wezel A et al. 2009. Agroecology as a science, a movement and a practice. A review. Agron Sustain Devel. 29(4):503–515. https://doi.org/10.1051/agro/2009004

White B. 2012. Agriculture and the generation problem: rural youth, employment and the future of farming. IDS Bull. 43:9–19. https://doi.org/10.1111/j.1759-5436.2012.00375.x

Wittman H. 2009. Reframing agrarian citizenship: Land, life and power in Brazil. J Rural Stud. 25(1):120–130. https://doi.org/10.1016/j.jrurstud.2008.07.002

Yeboah FK, Jayne TS. 2018. Africa's evolving employment trends. J Devel Stud. 54(5):803–832. https://doi.org/10.1080/00220388.2018.1430767

Zaremba H, Elias M, Rietveld A, Bergamini N. 2021. Toward a feminist agroecology. Sustainability. 13(20):11244. https://doi.org/10.3390/su132011244

Annexices

Annex A. Photovoice prompts and elaborations

Topic	Question
Dream farm	What does your dream farm look like? Create a photo that signifies (an element of) your dream farm.
Collective groups	Are there any farming associations/self-help groups/cooperatives that aim to support farming in your area? Create a photo that signifies (an element of) your relationship with such organizations (Do this only if you have a relationship with such an organization).
Environment	You live in this area which you might enjoy or not. Create a photo that signifies (an element of) why you do or do not enjoy living here.
Agency and action	You are doing all kinds of things to make a living. Create a photo that demonstrates (an element of) something you are doing or have achieved, in terms of making your livelihood, that you are proud of or happy with.
Agroecology	What do you know about or think of Agroecology? How is it relevant for you? Create a photo that signifies (an element of) what agroecology (could) mean for you.

Annex B. Summary tables of selected variables from ISSI/country

Table B1. Socio-economic characteristics of ISSI respondents in Kenya.

Characteristics	Man	Woman	Total
Number of observations	12	12	24
Age (years) -Mean (SD)	27.42 (3.73)	27.92 (4.15)	27.67 (3.95)
Age (years) -Max	35	33	35
Age (years)- Min	22	20	20
No. of respondents who are married	6	6	12
No. of respondents who have children	4	5	9
No. of children reported- Mean (SD)	1 (0.5)	2 (0.8)	2 (0.68)
Family size (including self) – Mean (SD)	5 (2.53)	5 (2.86)	5(2.71)
No. of respondents living with parents/parents-in law	6	5	11
No. of respondents living with a dependent	7	6	13
No. of respondents who are self-dependent for food	12	8	20
Years of schooling- Mean (SD)	**13.75 (3.37)**	**13.75 (1.69)**	**13.75 (2.67)**
No. of respondents working for income inside the village	11	9	20
If working, then no. of respondents with agriculture as primary occupation	5	3	8
Household owns a land	4	2	6
Land owned (acres)- Mean (SD)	0.11 (0.08)	N/A	N/A
No. of respondent knowing what is agroecology/or other forms of nature friendly farming practices	11	12	23
No. of respondents who are member of a group	11	11	22

Table B2. Socio-economic characteristics of ISSI respondents in India.

Characteristics	Man	Woman	Total
Number of observations	10	10	20
Age (years) -Mean (SD)	25.1 (2.6)	25.2 (3.2)	25.15 (2.83)
Age (years) -Max	29	29	29
Age (years)- Min	21	20	20
No. of respondents who are married	7	7	14
No. of respondents who have children	6	7	13
No. of children reported- Mean (SD)	1 (0.83)	2 (1)	2 (0.92)
Family size (including self) – Mean (SD)	6 (1.81)	5 (1.55)	5 (1.72)
No. of respondents living with parents/parents-in law	9	7	16
No. of respondents living with a dependent	4	2	6
No. of respondents who are self-dependent for food	4	0	4
Years of schooling- Mean (SD)	12.6 (1.65)	12.9 (2.96)	12.75 (2.34)
No. of respondents working for income inside the village	10	8	18
If working, then no. of respondents with agriculture as primary occupation	9	5	14
Household owns a land	10	9	19
Land owned (acres)- Mean (SD)	5 (5)	3 (2.3)	4.05 (4)
No. of respondent knowing what is agroecology/or other forms of nature friendly farming practices	7	4	11
No. of respondents who are member of a group	2	4	6

Note: SD = Standard Deviation.

Table B3. Socio-economic characteristics of ISSI respondents in Peru.

Characteristics	Man	Woman	Total
Number of observations	11	12	23
Age (years) -Mean (SD)	25.6 (4.03)	22.4 (4.7)	23.9 (4.6)
Age (years) -Max	30	32	32
Age (years)- Min	19	18	18
No. of respondents who are married	3	4	7
No. of respondents who have children	3	3	6
No. of children reported- Mean (SD)	1 (0.84)	1 (0.76)	1 (0.77)
Family size (including self) – Mean (SD)	3 (1.86)	4 (1.56)	3 (1.7)
No. of respondents living with parents/parents-in law	5	6	11
No. of respondents living with a dependent	8	7	15
No. of respondents who are self-dependent for food	10	9	19
Years of schooling- Mean (SD)	**11.1 (1.83)**	**11.8 (1.52)**	**11.4 (1.63)**
No. of respondents working for income inside the village	11	8	19
If working, then no. of respondents with agriculture as primary occupation	8	7	15
Household owns a land	9	8	17
Land owned (acres)- Mean (SD)	34.3 (82.6)	8.1 (4.54)	21.2 (58.3)
No. of respondent knowing what is agroecology/or other forms of nature friendly farming practices	10	11	21
No. of respondents who are member of a group	4	4	8

Note: SD = Standard Deviation.

Table B4. Socio-economic characteristics of ISSI respondents in Tunisia.

Characteristics	Man	Woman	Total
Number of observations	15	12	27
Age (years) -Mean (SD)	26.53 (3.55)	25.92 (2.68)	26.48 (3.12)
Age (years) -Max	32	30	32
Age (years)- Min	21	21	21
No. of respondents who are married	2	1	3
No. of respondents who have children	2	1	3
No. of children reported- Mean (SD)	**2**	**2**	**2**
Family size (including self) – Mean (SD)	5 (1.79)	5 (0.79)	5 (1.41)
No. of respondents living with parents/parents-in law	13	11	24
No. of respondents living with a dependent	7	4	11
No. of respondents who are self-dependent for food	12	4	16
Years of schooling- Mean (SD)	**11.47 (2.72)**	**13.42 (4.17)**	**12.33 (3.51)**
No. of respondents working for income inside the village	14	8	22
If working, then no. of respondents with agriculture as primary occupation	8	4	12
Household owns a land	14	10	24
Land owned (acres)- Mean (SD)	24.31 (33.60)	14.21 (14.37)	19.92 (26.95)
No. of respondent knowing what is agroecology/or other forms of nature friendly farming practices	14	11	25
No. of respondents who are member of a group	3	5	8

Note: SD = Standard Deviation.

Table B5. Socio-economic characteristics of ISSI respondents in Zimbabwe.

Characteristics	Man	Woman	Total
Number of observations	7	16	23
Age (years) -Mean	35.71 (3.68)	30.75 (5.90)	32.26 (5.73)
Age (years) -Max	40	38	40
Age (years)- Min	33	20	20
Married	6	9	15
Has children	6	16	22
Number of children reported	3 (1.46)	2 (1.01)	2 (1.16)
Family size (including self) – Mean (SD)	6 (1.71)	5 (1.71)	6 (1.64)
No. of respondents living with parents/parents-in law	2	10	12
No. of respondents living with a dependent	3	8	11
No. of respondents who are self-dependent for food	6	12	18
Years of schooling- Mean (SD)	**13 (2.19)**	**14 (2.2)**	**14 (2.2)**
No. of respondents working for income inside the village	7	16	23
If working, then no. of respondents with agriculture as primary occupation	5	16	21
Household owns a land	7	16	23
Land owned (acres)- Mean (SD)	9.25 (7.02)	6.5 (4.32)	10.8 (8.75)
No. of respondent knowing what is agroecology/or other forms of nature friendly farming practices	7	16	23
No. of respondents who are member of a group	6	16	22

Note: SD = Standard Deviation.