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Agroecology in Africa: Lessons from interventions and stakeholders' perceptions in Ghana, Kenya, Malawi, Senegal and Uganda



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Agroecology in Africa

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Table of Contents

Abstract	i
Acknowledgements	ii
1 Introduction	1
2 Materials and methods	3
3 Results	5
3.1 Status of agroecology-related policies in the research countries	5
3.2 Agroecology-related projects and coordinators' perceptions	6
3.2.1 Overview of agroecology-related projects	6
3.2.2 Coordinators' perceptions on challenges and success of agroecology-related projects	10
3.2.3 Coordinators' perceptions on impacts of agroecology-related projects	12
3.3 Stakeholder perceptions on agroecology in Uganda and Senegal	14
3.3.1 Understandings of Agroecology in Senegal and Uganda	16
3.3.2 Perceived challenges and impacts of agroecology	18
4 Conclusions	21
References	23
Appendix	25

Abstract

Agroecology is gaining traction as a possible strategy for enhancing the sustainability and resilience of food systems, prompting increased support from some governments, donors, development organizations and civil society. However, the scope, design and impact of agroecology-related projects in Africa, as well as the perspectives of African stakeholders on agroecology, remain insufficiently understood. This study seeks to address these knowledge gaps by mapping and analysing agroecology-related projects in Ghana, Kenya, Malawi, Senegal, and Uganda, drawing on insights from project coordinators, and by exploring the perceptions of a broader group of food system stakeholders in Senegal and Uganda. The findings show that most projects are led by national NGOs and predominantly funded by international donors, primarily European governments. For the most part, the projects demonstrate a high degree of diversification in both design and focus, offering a range of services and promoting a variety of crops and agroecological practices. Both coordinators and stakeholders highlight the environmental benefits of agroecology—especially improvements in soil health, biodiversity, and reductions in chemical input use—while also acknowledging socio-economic linkages, such as impacts on food security, income, yields, and the development of local markets. Insights on economic sustainability and profitability are lacking. Products from agroecological production did not benefit from a price premium. Key barriers to implementation and scaling include limited stakeholder engagement, inadequate political support, insufficient financial resources, and gaps in technical skills and knowledge. Overcoming these obstacles will require strong local leadership, early stakeholder involvement, integrated training and advisory services and sustained funding. Consistent with existing research, the results also suggest that agroecology is largely perceived as dependent on external expertise and initiative, rather than emerging as a bottom-up movement, highlighting the need to strengthen co-creation and foster greater local ownership.

Keywords: Agroecology, Africa, perception, stakeholders, environmental sustainability, skill development, co-creation

JEL codes: Q01, Q10, Q13, Q15

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1 Introduction

Agroecology is considered a possible approach for transforming food systems to become more sustainable and resilient (FAO, 2018; HLPE, 2019). The term “agroecology” dates back to the early 20th century when it was used to describe the application of ecological methods and principles in agricultural sciences (Wezel et al., 2020). The definition has evolved over time. Agroecology is associated with a set of principles, for instance those identified by the High Level Panel of Experts on Food Security and Nutrition (HLPE) that relate to improving resource efficiency, strengthening resilience and securing social equity/responsibility (HLPE, 2019; Wezel et al., 2020) (see Table 1).

Simultaneously applying the principles is complex, involving different scales of implementation and different ecological, social, economic and political dimensions. Therefore, practical applications of the concept tend to focus on agroecological practices, i.e. “practices or techniques that contribute to a more environmentally friendly, ecological, organic or alternative agriculture” (Wezel et al., 2009, p. 511). While there is no commonly agreed list of such practices, they are often understood to include processes such as: nutrient cycling; biological nitrogen fixation; improvement of soil structure and health; water conservation; biodiversity conservation and habitat management techniques for crop-associated biodiversity; carbon sequestration; biological pest control and natural regulation of diseases; diversification, mixed cultivation, intercropping, and cultivar mixtures; and waste management, reuse and recycling as inputs to the production process, for example use of manure and compost (HLPE, 2019). Implementation of these processes is at the field and farm level, largely involving the application of ecological principles (Gliessman, 2018).

Agroecology's expected potential to improve food systems sustainability has driven interest among some governments, development organizations, private sector organizations, and civil society groups. In recent years, there has been an increase in advocacy and initiatives that aim at upscaling agroecology in Africa and globally (AFSA, 2016; Madsen et al., 2025; Nieskens et al., 2023). Some donors are shifting funding resources to promote agroecological research and activities (se e.g. Adhikari et al., 2021; Agroecology Fund and Stats4SD, 2023; CGIAR, 2021; Olivera and Popusoi, 2021; Quintero et al., 2023; Sirdey et al., 2023). Some governments are also increasing their commitments to integrate agroecology into their national policies, for instance in France, Belgium, Switzerland, Germany, Mexico, and Senegal (Bottazzi and Boillat, 2021; Lampkin et al., 2020; Niggli et al., 2023; Toledo and Barrera-Bassols, 2017; Wezel and David, 2020). These developments have led some critical voices suggest that the international community is pushing their agroecology agenda on African farmers (e.g. Bullivant, 2019; Mugwanya, 2019; Muhamuza, 2023).

Despite apparent shifts in priority setting towards agroecology among some development partners, governments and NGOs, the actual extent and impact of agroecology-related projects in Africa remains poorly understood. Similarly, systematic evidence on the perceptions of African stakeholders on the definition and related benefits and challenges of agroecology remains scarce. Only one study has to date sought to gather agroecology-related perspectives among food system actors in multiple African countries (Madsen et al., 2025). The study finds that most interviewees define agroecology as a form of agriculture that does not harm the environment or associate it with specific agroecological practices. The authors identify three common narratives. Most frequently, agroecology is seen as a set of agricultural techniques that can complement industrial agriculture. A second narrative regards agroecology as practices for poor farmers who are unable to afford advanced technologies while a third and least common narrative views agroecology as an alternative path to development that is superior to industrial intensification. Common across narratives, interviewees feel that agroecology requires external initiative and expertise to be expanded in Africa rather than being co-created by and with local farmers.

Table 1: Thirteen principles of Agroecology as defined by the HLPE

1. Recycling	Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass.
2. Input reduction	Reduce or eliminate dependency on purchased inputs.
3. Soil health	Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and by enhancing soil biological activity.
4. Animal health	Ensure animal health and welfare.
5. Biodiversity	Maintain and enhance diversity of species, functional diversity and genetic resources and maintain biodiversity in the agroecosystem over time and space at field, farm and landscape scales.
6. Synergy	Enhance positive ecological interaction, synergy, integration, and complementarity amongst the elements of agroecosystems (plants, animals, trees, soil, water).
7. Economic diversification	Diversify on-farm incomes by ensuring small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.
8. Co-creation of knowledge	Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.
9. Social values and diets	Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets.
10. Fairness	Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment and fair treatment of intellectual property rights.
11. Connectivity	Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies.
12. Land and natural resource governance	Recognize and support the needs and interests of family farmers, smallholders and peasant food producers as sustainable managers and guardians of natural and genetic resources.
13. Participation	Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems.

Source: HLPE (2019)

To address the identified knowledge gaps, the paper addresses the following research questions:

1. What is the status of agroecology-related projects in selected countries in Africa?
2. How do the African coordinators of agroecology-related projects perceive their benefits and challenges?
3. How do African food systems stakeholders understand and perceive agroecology and its impacts?

The remaining paper is structured as follows. Section 2 details the study's methodology, focusing on data collection and analytical methods. Section 3 presents the results of the analysis. First, the section gives a brief overview of agroecology-related policies in the five African research countries. It then presents the results of a mapping of agroecology-related projects in these countries and analyses the impacts and challenges of selected projects as perceived by the project coordinators. Third, it discusses the general understanding of the concept of agroecology and its potential risks and benefits among food system actors in Senegal and Uganda. Section 4 concludes by summarizing the findings and highlighting policy lessons.

2 Materials and methods

Ghana, Kenya, Malawi, Senegal and Uganda were chosen as the focus countries for the study. The countries were selected to ensure a broad coverage of geographical regions in Africa (i.e. West, East and Southern Africa). Three sets of data were collected in cooperation with local partners¹:

2.1 Mapping of agroecology-related projects in Ghana, Kenya, Malawi, Senegal and Uganda (“project mapping”)

Between June and September 2022, each national research partner undertook a comprehensive desk review of agroecology-related projects in their respective country, with an explicit focus on projects that engage producers and assist in improving production processes.² Purely advocacy, policy or marketing-related projects were excluded from the mapping. Both completed and ongoing projects were included. In addition, the projects had to meet at least one of the following criteria: (1) the term “agroecology” is mentioned in the title and/or project description, or (2) the project’s scope aligns to at least two of the first six principles identified by the HLPE (HLPE, 2019). Following Romero Antonio et al. (2024), we use the first six principles of the HLPE as selection criteria because they are directly applied at the production (field) level. Using this approach, projects were also included if they did not refer explicitly to agroecology, but pursued agroecology-related objectives.

A total of 138 projects were identified (Table 2). The project mapping gathered basic information about the location, duration, beneficiaries, agroecological practices, coordinating institution and funding. The partners contacted the respective coordinating agency by email and phone to complete information about the projects that could not be obtained through the desktop review.

Table 2: Sample size

	Senegal	Uganda	Ghana	Kenya	Malawi	Total
Project mapping	22	18	25	42	31	138
Project analysis	17	17	18	13	17	82
Perception survey	177	107			284	

2.2 In-depth survey of project coordinators’ perceptions on success factors, implementation challenges and impacts of selected projects (“project analysis”)

Of the 138 projects identified in the project mapping, 82 projects were included in the follow-up survey between January and July 2023 based on the availability of project coordinators (Table 2). The local partners contacted the coordinators by email, phone and personal visits to collect the data, including more detailed information about the project (on beneficiaries, practices promoted and other

¹ Council for Scientific and Industrial Research – Science and Technology Policy Research Institute (CSIR-STEPRI) in Ghana, Université Cheikh Anta Diop de Dakar (UCAD) in Senegal, Kenya Agricultural and Livestock Research Organization (KALRO) in Kenya, Lilongwe University of Agriculture & Natural Resources (LUANAR) in Malawi and the College of Agricultural & Environmental Sciences at Makerere University in Uganda.

² This study does not cover no-input agriculture that may be common in subsistence agriculture systems in Africa, which is sometimes described as ‘agroecology by default’ (discussed e.g. by Falconnier et al., 2023; Hebinck and Kiaka, 2024).

supporting activities) as well as perceived success factors, implementation challenges and outcomes. The questionnaire included both open-ended and closed questions. Responses to open-ended questions were coded through several rounds of revisions by four researchers.

2.3 Online survey on stakeholders' general understanding of agroecology and perceptions on agroecology-related impacts and challenges in Senegal and Uganda ("perception survey")

The online survey was conducted between January and April 2024 in Uganda and Senegal. The countries were selected to represent an East African and West African case. Following a food systems approach, the research partners jointly developed a sampling strategy by mapping the different groups of value chain actors that should be included in the survey (see Table A1 in the Appendix). The focus was on higher-level actors e.g. farmer organizations rather than farmers. The country partners then built the sampling frame by searching for the key stakeholders within each of the identified groups through a web search and their network of collaborators.

A total of 632 email invitations were sent to the identified respondents. To ensure a sample that is as representative as possible, follow up calls were made to members of different groups to encourage participation. Multiple responses from the same organization were included, provided that the respondents belonged to different departments. In total, 284 people responded to the online survey: 177 from Senegal and 107 from Uganda (Table 2). Of those, 228 respondents had previously heard about agroecology (138 in Senegal, 90 in Uganda) and 56 had not (39 in Senegal, 17 in Uganda).

Although the research approach is systematic, we note that it has case study character, as the purposive sampling procedure might lead to potential bias in the composition of the sample, given that we partly relied on country partners' networks. Looking at the composition of the sample shows that research institutions/Universities are more strongly represented in Senegal while in Uganda a larger share of respondents came from private sector and NGOs/civil society groups (Figure 5).

Respondents were invited to complete the questionnaire irrespective of whether they had heard of the term "agroecology" or not (without providing them with a definition upfront). Questions to the respondent who were familiar with the term focused on the respondents' definition of agroecology, their involvement in agroecology-related activities and perceived impacts and challenges related to agroecology. To cross-validate the given definitions, we provided respondents with a list of keywords based on the 13 HLPE principles along with other keywords and asked them to choose the ones they associate with agroecology. The full list of keywords is included in the Appendix. Because of the online nature of this survey, we further ran a plagiarism check which showed that respondents for the most part did not copy the definition from online sources. The responses to open-ended questions were coded using Atlas.ti.

Respondents not familiar with the term agroecology were asked to select keywords that they would associate with the word "agroecology" and to provide information about their organization. We acknowledge, however, that the sample may be biased since respondents unfamiliar with the topic may have been more reluctant to participate in the survey. We therefore do not draw any conclusions about the general level of awareness of the term "agroecology" among food systems actors in the two countries.

3 Results

3.1 Status of agroecology-related policies in the research countries

Ghana does not have a dedicated agroecology policy and the topic is currently not high on the political agenda. Nevertheless, various policies and plans integrate initiatives that advocate for climate change mitigation and adaptation strategies (ActionAid, 2019), thereby addressing agroecological elements indirectly. For instance, some policies focus on scaling up sustainable land management practices to increase agricultural productivity and environmental resilience while others seek to promote climate-smart agriculture.³

Kenya launched a “National Agroecology for Food System Transformation Strategy 2024–2033” in November 2024 that seeks to “promote a sustainable transformation of the food system in Kenya to ensure food nutrition and security, climate resilient livelihoods and social inclusion for all” (Ministry of Agriculture and Livestock Development, 2024). The implementation of the strategy will be led by an Agroecology Strategy Implementation Summit consisting of various government departments, Council of Governors, farmers’ association and private sector actors. In addition, counties are free to design their own policies (Awiti and Ndiwa, 2024). Murang’ a county, for instance, has adopted the “Murang’ a Agro-ecology Policy 2022-2032” and the “Murang’ a County Agroecology Development Act 2022”.

In **Malawi**, agroecology-related principles are not widely reflected in national policies and laws. According to an review of related policies and regulations by Bezner Kerr et al. (2024), the highest level of alignment can be found in the National Resilience Strategy, National Agriculture Policy 2016 and the Malawi Vision 2063, in particular with regard to principles on social values and diets, biodiversity and economic diversification. The least supported principles relate to recycling, input reduction and animal health. Conservation agriculture has not been a priority among policy-makers in Malawi where policies have instead mainly focused on supporting maize monocultures and intensive application of synthetic (subsidized) inputs.

In **Senegal**, partial institutionalization of agroecology was initiated in 2015 when Senegal became the pilot country for agroecological transition in West Africa (Boillat et al., 2022). This development was led by the UN Food and Agriculture Organization (FAO), which hosted the Multistakeholder Consultation on Agroecology for Sub-Saharan Africa in Senegal, with the support of the Senegalese government, bilateral donors (in particular France through French Agricultural Research Centre for International Development CIRAD and the French Research Institute for Development IRD) and several NGOs. The national advocacy platform "Dynamic for an AgroEcological Transition in Senegal" (DYTAES) was set up in 2019 at the initiative of NGOs, farmers' unions, research bodies and existing platforms to strengthen advocacy on this topic. DYTAEs has played an important role in advocating for the integration of agroecology in national policies (Milhorance et al., 2023). An analysis of policy strategies showed that issues of food self-sufficiency and increasing/modernizing agricultural production are central to these documents. References to agroecological practices are present but not very visible, and agroecology is mainly promoted through sustainable land management (Milhorance et al., 2023).

In **Uganda**, agroecology is being advocated by civil society groups as a possible solution to social and environmental challenges in agriculture. Following the first “National Agroecology Actors Symposium” convened by the civil society network Participatory Ecological Land Use Management (PELUM) Uganda in 2019, the government started a consultation process to develop a National Agroecology Strategy

³ Related policies include: the Food and Agriculture Sector Development Policy (FASDEP I & II), National Environment Policy 2014, the National Climate Change Policy (NCCP) 2014, Medium-Term Agriculture Sector Investment Plan (METASIP) 2009-2015, Medium Term Agricultural Sector Investment Plan (METASIP) II (2014-2017), Ghana Shared Growth and Development Agenda (GSGDA) II (2014-2017), Ghana National Climate Change Master Plan Action Programmes for Implementation (2015-2020), and the Climate-Smart Agriculture and Food Security Action Plan (2016-2020) (ActionAid, 2019; PARI and CSIR-STEPRI, 2024).

(NAS) to serve as a framework to enhance the production and marketing of food and non-food products using agroecological principles and practices (Biovision, 2024). Besides the planned NAS, agroecology-related principles are implicitly embedded in key strategies, including the National Agricultural Policy (NAP), National Organic Agriculture Policy (NAOP) and climate-related frameworks.

3.2 Agroecology-related projects and coordinators' perceptions

3.2.1 Overview of agroecology-related projects

Project mapping (138 projects)

Project objectives: The project objectives reported by the coordinators were broad, with some projects having several sub-objectives. A comprehensive classification of these objectives was performed based on overarching themes to identify the primary objective of the projects (Table 3). Improving food security and nutrition emerged as a top priority among the agroecology-related projects, particularly in Uganda and Malawi. Moreover, 41% of all projects focus on promoting agroecology or related approaches. In Senegal, half of the projects in the country primarily aim to promote agroecology, while, in Kenya and Ghana, there is a greater inclination towards promoting approaches related to agroecology (e.g., sustainable intensification, agroforestry, and climate smart agriculture).

Table 3: Primary objective of the projects⁴

Overall objective	Share of projects within each country (%)					
	Ghana	Kenya	Malawi	Senegal	Uganda	Total
Improve food security and nutrition	12	26	32	9	33	23
Promotion of agroecology-related approaches	28	29	16	5	22	21
Promotion of agroecology	24	7	13	50	22	20
Skill development	8	14	16	5	6	11
Increase land productivity	12	10	3	18	11	10
Strengthening value chain	8	7	3	5	6	6
Environment protection	0	5	10	5	0	4
Improve soil health	8	2	6	5	0	4
<i>Observations</i>	25	42	31	22	18	138

Note: For each objective, the share of projects per country corresponds to the number of projects over the sample size of each specific country.

Coordination: Most of the 138 agroecology-related projects identified in the mapping are coordinated by (primarily national) NGOs, especially in Ghana and Uganda (Table 2) with financial support from international donors (see below). International organisations also account for a sizeable share of coordinators in Kenya, but less so in the other countries. Government agencies coordinate less than 10% of projects overall, with some variations between countries. While in Senegal none of the coordinators were housed in government agencies, national research institutions play a relatively important role, more so than in the other research countries.

⁴ Projects that indicate the term "agroecology" or "agroecology practices" in their objectives are classified as "promotion of agroecology." Projects that promote an agroecology-related approach (e.g., climate smart agriculture, conservation agriculture, etc.) without mentioning the terms of "agroecology" or "agroecology practices" are classified as "agroecology-related approaches".

Table 4: Characteristics of agroecology-related projects (percentages)

	Ghana	Kenya	Malawi	Senegal	Uganda	Total
Coordination						
Government agencies	12	10	13	0	6	9
National research institutions	8	10	6	32	6	12
International organizations (development, environment, research)	0	31	13	5	11	14
NGOs (international, national, regional)	80	50	68	64	78	65
<i>Observations</i>	25	42	31	22	18	138
Geographical scope						
National	84	86	81	82	78	83
Multi-country (share of projects)	16	14	19	18	22	17
<i>Observations</i>	25	42	31	22	18	138
Project duration (completed projects)						
< 5 years	58	31	62	90	56	58
between 5 and 10 years	29	38	31	10	44	31
> 10 years	4	14	0	0	0	4
No data	8	17	7	0	0	8
<i>Observations</i>	24	29	29	20	16	118
Project duration (ongoing projects)						
< 5 years	33	17	25	100	100	31
between 5 and 10 years	0	17	0	0	0	10
> 10 years	0	39	25	0	0	28
No data	67	28	50	0	0	31
<i>Observations</i>	3	18	4	2	2	29

Note: The table shows the share of projects within the respective country and overall (percentages).

Geographical scope: The majority of projects are implemented only within the respective country (Table 2). Multi-country projects are only 17% of projects, meaning they are generally implemented in at least two African countries and a few also in other countries in Asia or Latin America. One example of a multi-country project is the Sustainable Intensification for Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) which is led by the International Maize and Wheat Improvement Center (CIMMYT), but coordinated by local partners in eleven different countries (including Kenya and Uganda).

Project duration: Most of the projects run for less than five years. Short-term projects are particularly prevalent in Senegal while Kenya hosts the largest share of longer-term projects, including several exceeding 10 years. Given that the positive outcomes of agroecological practices often take a longer time to manifest themselves (Corbeels et al., 2015), short duration could be sub-optimal for the projects' outcome. However, short project duration was not seen as a major challenge by most of the respondents in the project analysis (see Section 3.2.2).

Funding sources: Of the 122 agroecology-related projects for which information on the source of project funding could be obtained, the large majority is financed by international donors, while only 5 projects are jointly funded with African partners and only 4 projects entirely from African sources (Table 5). Non-African governments are the most common donor, in particular Germany (24 projects) and the EU (19). Several projects are also financially supported by other European countries as well as the USA, Japan, Canada and Australia. Besides governments, funding is also provided by

charities/foundations, international NGOs, international organisations and international financial institutions. African funders include mainly governments.

Table 5: Sources of funding for agroecology-related projects

		Share of projects (%)
Overall	Only international funders	93
	Only African funders	3
	African and international funders	4
African	Government	6
	NGO	2
	Network	1
International	Government	68
	NGO	19
	Charity/Foundation	17
	International Organization	16
	Financing institution	13
	Private sector	7
	Network	2

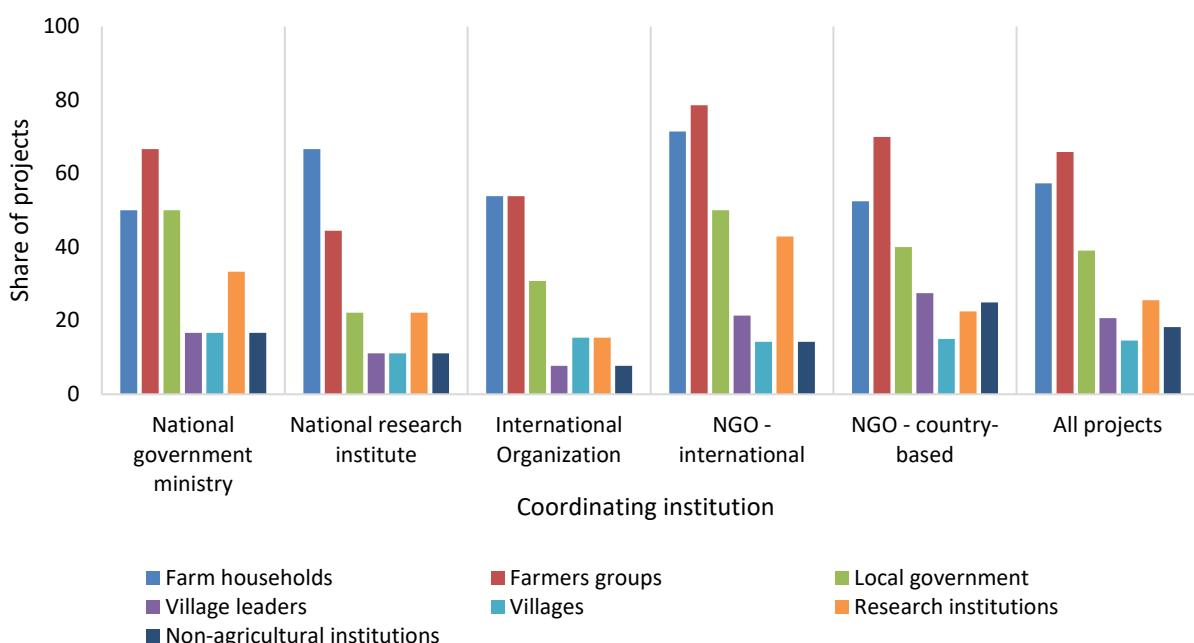
Observations = 122 (i.e. projects for which funding information was available).

Some projects are financed by multiple types of funders.

Project analysis (82 projects)

Participants: Most of the projects directly work with farmers' groups (66%) and/or farm households (57%) while local governments engaged by 39% of projects (Figure 1). The majority include women and youth in their activities, mainly as project beneficiaries (e.g. received training) or in project implementation, notably as trainers (Table 6). A small number of projects work with village leaders, villages, research institutes or non-agricultural institutions. On average, projects coordinated by national research institutes or country-based NGOs engage the most diverse range of participants, followed by international NGOs and organisations while national government-led projects involved the least number of participants' groups.

Figure 1: Engagement of different types of participants by coordinating institution



Services provided: A large majority of projects offer trainings and advice on agroecological practices to farmers (Table 6). About half of the projects also offer services to strengthen market linkages, especially in Kenya and Uganda, and 38% provide farm inputs, particularly in Kenya and Senegal. Access to information platforms is also a priority for many projects in Uganda. Loans are rarely provided or facilitated by the projects, except for Uganda where almost half of the projects do so. Only a small number of projects assist farmers in certifying their products. The few projects that do focus on seed certification or Participatory Guarantee System (PGS)⁵ within an organic farming framework. The diversity of service offerings is greatest in Uganda with 4.5 services per project on average, followed by Kenya and Senegal (around 4), Malawi (3.4) and Ghana (2.4).

Table 6: Services and practices promoted in the projects (in % of projects)

	Ghana	Kenya	Malawi	Senegal	Uganda	Total
Provided services						
Loans or credit	6	8	12	18	47	18
Trainings on agroecological practices	78	100	94	94	100	93
Advice on agroecological practices	78	100	100	100	82	91
Access to farm inputs	6	62	35	53	41	38
Assisting farmers in certifying their products	11	8	6	0	18	9
Strengthening market linkages	44	69	41	24	65	48
Access to information platforms	11	46	12	41	59	33
Providing funding for agricultural entrepreneurship innovations	6	15	24	35	24	21
Agroecological practices promoted						
Cover crop and mulching	94	100	76	65	88	84
Fertilisation management	72	100	47	88	88	78
Water conservation practices	22	46	41	65	47	44
Pest management	72	69	65	71	88	73
Crop rotation	72	85	53	53	53	62
Intercropping	56	85	41	59	47	56
Project engagement of women and youth						
Women	100	92	100	100	94	99
Youth	89	69	88	88	89	87
<i>Observations (project analysis)</i>	18	13	17	17	17	82

Note: The table shows the share of projects within the respective country and overall (percentages).

Agroecological practices promoted: The most commonly promoted practices are cover crops & mulching, fertilization management and pest management (Table 6). In most projects (94%) practices are supported in combination with others. Kenyan projects include the largest number of practices on average (4.8) followed by Ghana, Senegal and Uganda with around 4 and Malawi with 3.2. In the total sample, “cover crops & mulching” and “fertilization management” is the most frequent combination of two practices (57 projects). Where three practices are combined, the most common mix is of “cover crop and mulching,” “fertilization management” and “pest management.” Less than a third of projects

⁵ A Participatory Guarantee System (PGS) is a community-based mechanism for ensuring the quality of organic agricultural products. These systems rely on the active engagement of producers, consumers, and local experts to verify adherence to organic standards (FAO, 2018).

(27%) combine agroecological practices with chemical inputs, including the application of mineral fertilizer (22%), pesticides (20%) and herbicides (18%).

Consumption and marketing: Most of the projects (88%) are promoting the consumption of local and seasonal food production. Where market linkages are part of the service provision, most projects link producers with local traders (74%). Other frequently facilitated linkages include to buyers performing value-adding activities (e.g., processing, post-harvesting, packaging) (59%) and directly to consumers (44%). Only 10% of projects facilitate access to exporters.

Commodities covered: Most of the projects support farmers who produce crops (89%) while only a small share covers livestock, usually as part of crop-livestock systems (15%). The most commonly supported commodity is maize (55% of projects) followed by vegetables (30%), groundnuts (23%), rice (21%) and soybeans (20%). Only a few projects include cash crops, such as coffee, cocoa, sugarcane or cotton. In line with the aim of agroecology to diversify production, most projects (85%) support more than one commodity. Across the study countries, an average number of three commodities are included in the projects. Around half of the projects support between 2-4 commodities, while the rest ranges mostly from 5 to 8 commodities. The diversity of supported commodities is greatest in Malawi (4.4 commodities on average), Uganda (3.7 commodities) and Senegal (2.9), while the average in Kenya and Ghana is around 2.5.

Co-creation: Half of the coordinators stated that participants were involved in the design and early implementation of the project. Projects coordinated by national government ministries and country-based NGOs most frequently involve participants early on (67% and 55% respectively) while less than half did so in the other projects (46% of international organisations, 36% of international NGOs and 11% national research institutes).

Social capital: Just over half of the project set up groups (e.g. cooperative or for resource management) as part of the intervention, but more so in government or national research organisation-run projects (83% and 78% respectively) than in those coordinated by international organizations or NGOs (54% and 57%). The share was lowest among country-based NGOs with 39%. The range of groups established was found to be diverse, including for instance village savings and loans groups, farmers' groups, women's associations, youth groups, resource governance groups, multi-stakeholder platforms, cooperatives and farmer research teams.

Project follow-up: Almost three quarters of the respondents stated that they were planning to implement follow-up activities after the end of the project, e.g. through continued communication with participants via online platforms set up by the project or via the radio, training of trainers who will continue to build necessary skills, follow-up with individual farmers to see they continue to apply the acquired knowledge and project evaluations.

3.2.2 Coordinators' perceptions on challenges and success of agroecology-related projects

The project coordinators were asked about the challenges in the projects' implementation as well as the factors that have contributed to their success (Table 7). Challenges can be grouped into three broad categories: project-related factors, stakeholder engagement and external factors.

Table 7: Reported factors that determine agroecological projects success (in % of projects)

		Ghana	Kenya	Malawi	Senegal	Uganda	Total
Challenges							
Project-related factors	short project duration	0	0	0	0	18	4
	poor market access	0	8	0	0	12	4
	coordination problems	6	8	12	0	12	7
	lack of productive resources	22	8	18	29	18	20
	implementation challenges	6	8	29	53	6	21
Stakeholder engagement	limited financial resources	67	23	35	24	18	34
	skill gaps	0	15	29	12	0	11
	Disagreements	0	15	0	12	53	16
External factors	lack of willingness to engage / change	11	8	41	41	41	29
	weak policy	0	0	12	0	0	2
	Covid-19	0	8	6	0	12	5
	insecure land tenure	50	0	0	6	6	13
	environmental problems	22	46	6	0	12	16
Success factors							
Stakeholder engagement	value chain connections	6	8	12	6	18	10
	political support	67	15	18	18	24	29
	engagement of participants	6	31	6	29	47	23
	commitment of participants	50	0	24	18	41	28
	partnerships	33	46	12	41	24	30
Resource availability	skill development	17	46	47	24	35	33
	organisational capacity	33	15	24	29	0	21
	financial resources	33	8	35	12	18	22
Others	productive resources	11	15	41	29	24	24
	locally appropriate solutions	6	8	0	18	6	7
	positive outcomes	11	15	29	18	24	20
Observations		18	13	17	17	17	82

The table shows the share of respondents within the respective country and overall.

Colour legend: Decreasing from dark green to light green

Limited financing was the most frequently mentioned project-related challenge overall, but more so in Kenya and Malawi. The second-most frequently mentioned project-related factor was challenges in the implementation, especially in Senegal and Malawi, for instance related to project management, monitoring and evaluation or corruption. Lack of productive resources, such as water, land, labour and equipment, were also mentioned, most frequently in Senegal and Ghana.

Stakeholder engagement proved particularly difficult in Uganda, e.g. due to disagreements between project partners and a lack of willingness of stakeholders to engage in the project or change their practices. Reluctance to engage was also mentioned by a sizeable share of respondents in Malawi and Senegal. Skill gaps do not seem to be a major concern, possibly due to the widespread provision of training in the reviewed project (as noted above). Related challenges were most often cited in Malawi.

External factors posed challenges particularly in Ghana (esp. insecure land tenure) and Kenya (esp. environmental problems such as weather and pests & diseases), but less so in the other countries.

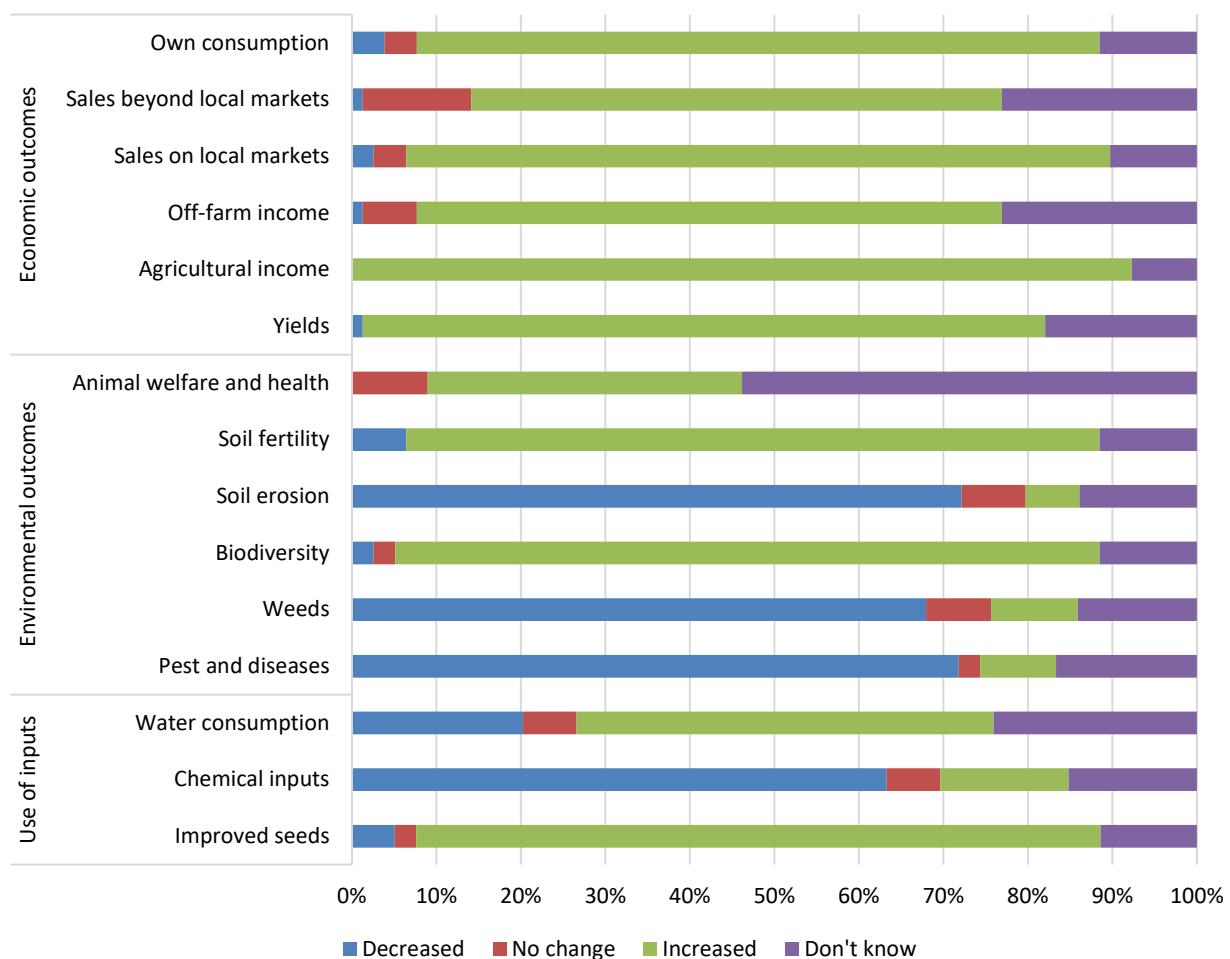
Mirroring these findings, various aspects of stakeholder engagement were highlighted as crucial for the projects' success across all countries. Effective partnerships and skill development were most frequently mentioned overall, as was the commitment of participants (esp. in Ghana and Uganda) and

political support (esp. in Ghana). Access to productive and financial resources were also key as well as organizational capacities of the project partners, e.g. in terms of qualified project staff and timely implementation.

3.2.3 Coordinators' perceptions on impacts of agroecology-related projects

Regarding perceived impacts of agroecology-related projects in input use, the majority of coordinators report that the use of chemical inputs has declined among project participants (Figure 2, country-specific results are provided in the Appendix in Figures A1 to A5). At the same time, the use of improved seeds has mostly increased. Overall, water consumption has reportedly increased, but we observe variations between countries. While in Kenya, Malawi and Uganda, most coordinators report an increase in consumption, responses in Ghana are mixed while in Senegal most respondent report a decrease. The different trend in Senegal could be explained by the comparatively large share of Senegalese projects implementing water conservation practices (64% compared to between 32-45% in the other countries, see Table 6).

Figure 2: Perceived impacts of agroecology-related projects in the five countries



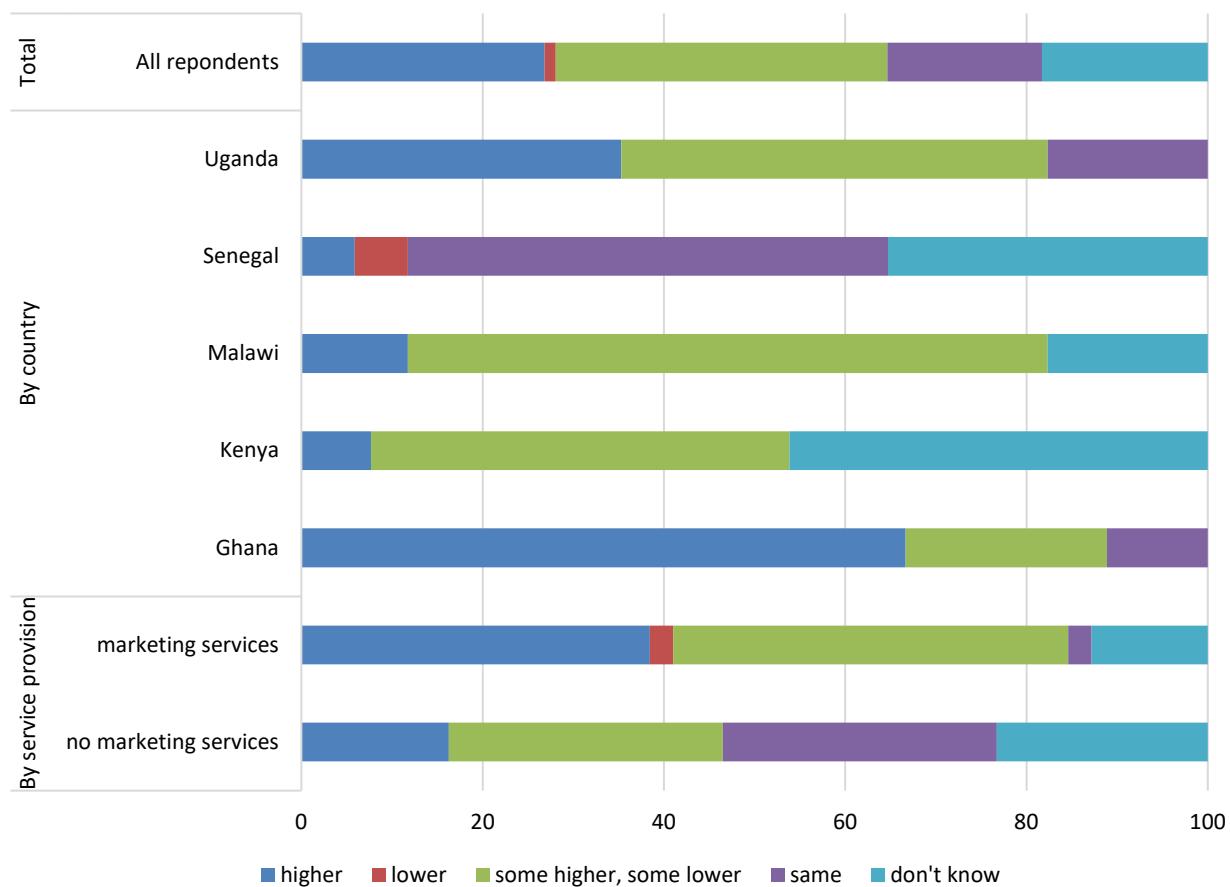
In terms of environmental outcomes, project coordinators reported decreases in pests and diseases, weeds and soil erosion. At the same time, soil fertility and biodiversity on the farm are thought to have increased. While some also note improvements in animal welfare and health, this impact was least frequently mentioned.

Benefits were reported with regard to various economic outcomes, most consistently for increases in agricultural incomes and yields, but also sales (particularly on local markets, but also beyond) as well

as increased consumption of own production. The responses between countries are broadly comparable. Coordinators in Senegal reported economic gains least frequently among the five countries. Off-farm income has either increased or has not changed or only decreased a little.

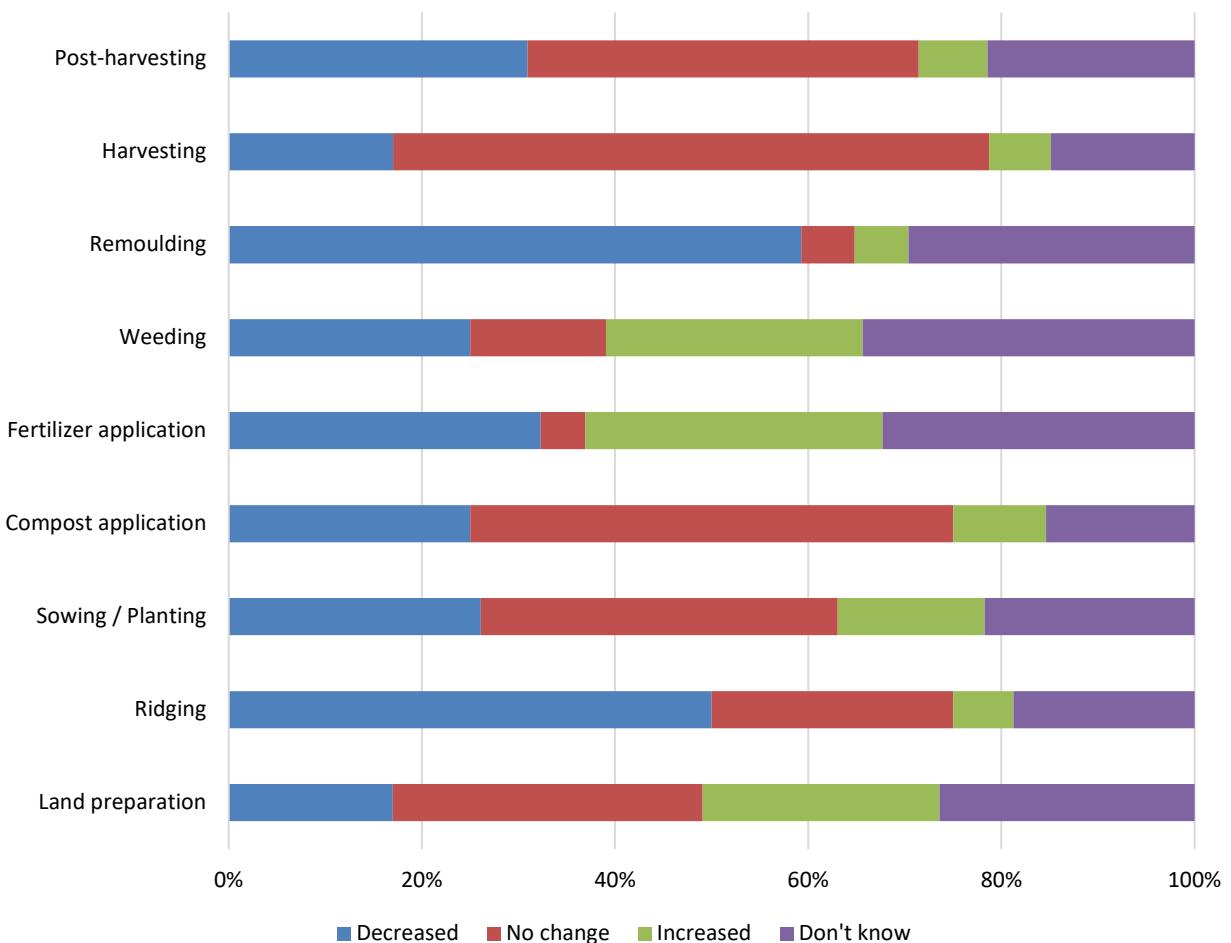
Project coordinators were also asked about prices that project participants receive for their product. Most coordinators (94%) felt that the farmers did not receive a price premium for producing their outputs as part of an agroecological intervention. In the few instances where price premiums were reported, they were attributed to PGS certification, improved packaging and marketing, higher quality of products and storing the harvest until the off-peak season. Nevertheless, a sizeable share stated that participants of the project were able to sell their products at a higher price than non-participants (Figure 3). This was particularly the case in Ghana while in the remaining countries, prices were mostly judged as sometimes higher and sometimes lower while in Senegal prices were thought to be largely the same or were even lower. Perceived price impacts may vary depending on the whether the projects included a marketing-related component to improve producers' access to markets. The results show that coordinators managing projects that offered marketing services more frequently felt that participants were receiving higher prices. The share of coordinators who thought that prices had remained the same was larger among those not providing marketing services.

Figure 3: Selling price of project participants vis-à-vis non-participants



Regarding perceived changes on labour requirements since the start of the agroecology-related project, most coordinators report increases for most labour activities at the different stages of crop production, particularly in harvesting and compost application (Figure 4). In contrast, labour requirements for other activities, such as for weeding and fertilizer, are most frequently reported to have decreased. These results are in line with the discussed perception that there has been a reduction in the use of chemical fertilizers and weeds and an increase in yields.

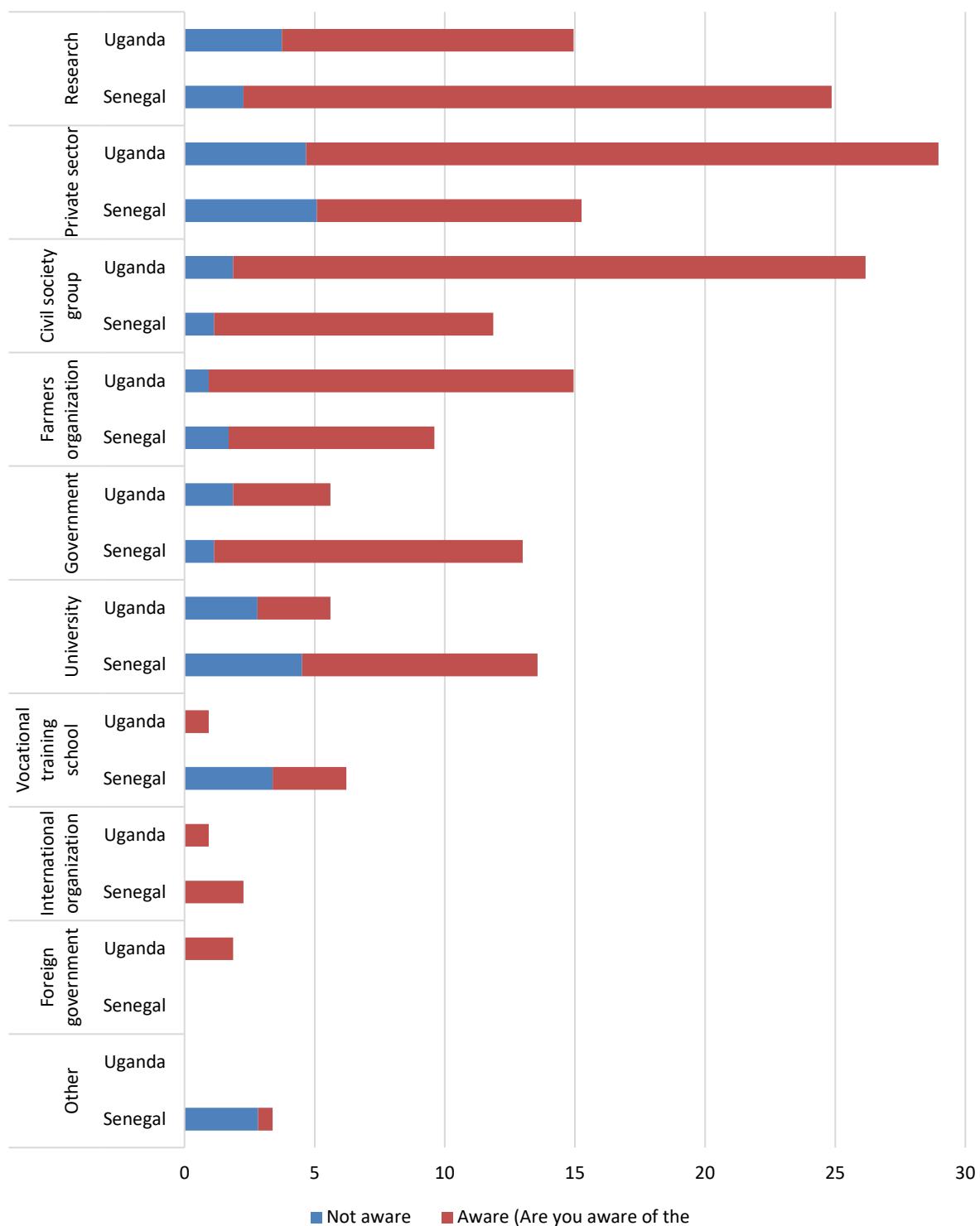
Figure 4: Perceived impacts of agroecological practices on labour in five countries



3.3 Stakeholder perceptions on agroecology in Uganda and Senegal

The following section investigates the perceptions of stakeholders on the definition, impact and challenges related to agroecology who are not necessarily involved in the coordination of agroecology-related projects. In Uganda, representatives from the private sector, civil society and farmers organizations most frequently responded to the online survey while in Senegal, the majority of respondents worked in the research sector, including research organizations and universities, as well as the private sector (Figure 5).

Figure 5: Type of organization of participants in the online survey (share)

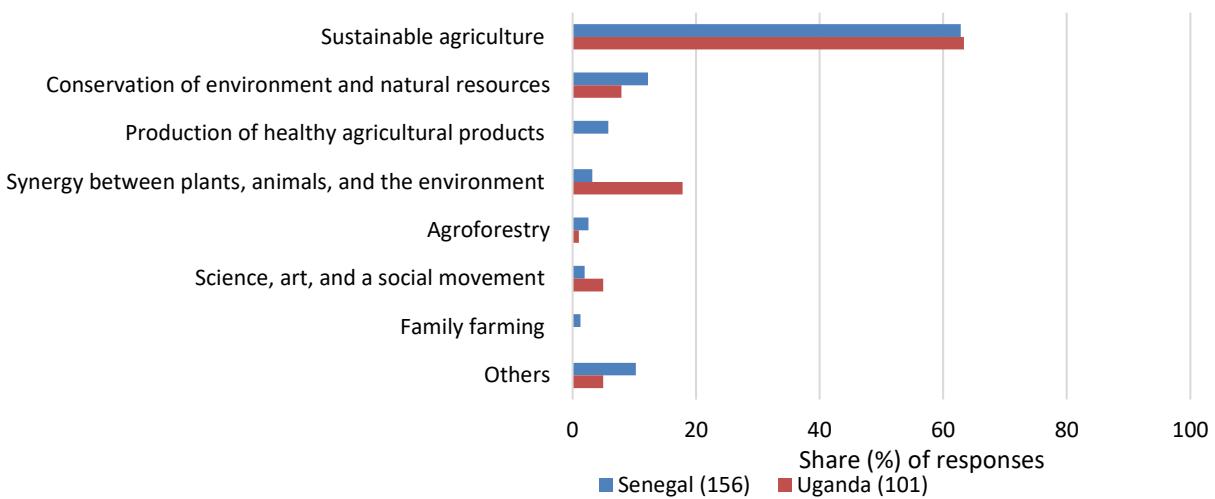


Question: Have you heard about "agroecology"? Observations: 177 (Senegal), 107 (Uganda)

3.3.1 Understandings of Agroecology in Senegal and Uganda⁶

Respondents were asked to provide a definition of agroecology in their own words. For the most part, respondents offered broad definitions which revolved around environmentally conscious agricultural production methods and emphasize the importance of sustainable resource use (Figure 6). Specific aspects commonly associated with agroecology, such as organic farming, reduced use of agrochemicals, biodiversity conservation, enhanced soil health, water conservation, reduced pollution, and using climate-smart practices, were highlighted only by a few respondents. Despite the importance of social values and benefits in agroecology principles, only a small portion of respondents recognize and incorporate the social aspects into their definitions of agroecology. This is further illustrated in word cloud in Figure 7 where “sustainable” and “environment” are the most prominent words in the responses.

Figure 6: Respondents' definitions of agroecology



Open question. Responses coded using Atlas.ti.

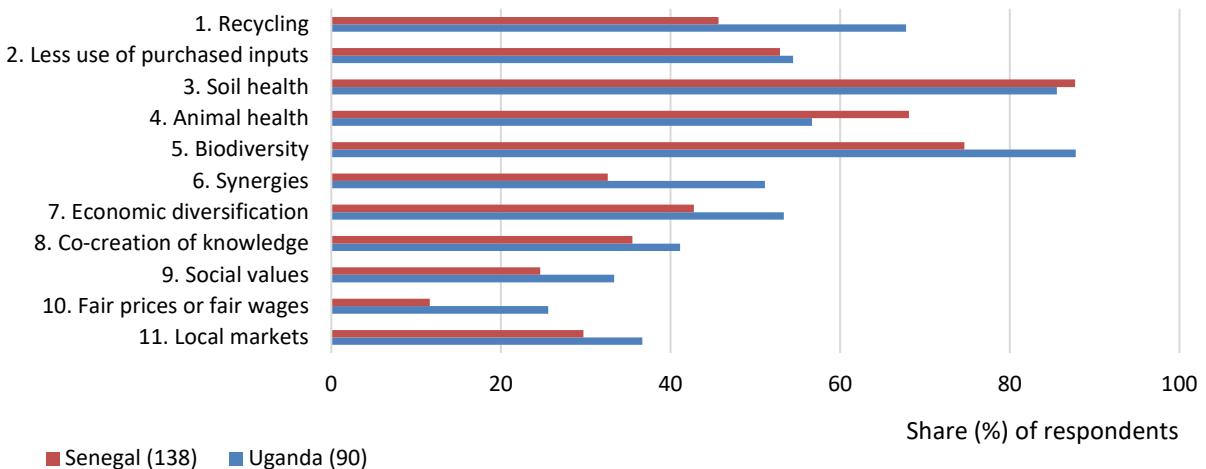
Figure 7: Word cloud for agroecology definitions



⁶ Interviewees provided multiple responses to open ended questions such as questions on the definition or obstacles of AE. For those, we considered the number of responses as the total over which we computed the shares. For instance, in total 393 responses were provided by the 284 interviewees for the question on obstacles. Therefore, the shares of responses are calculated over 393.

To get a better insight into respondents' associations with agroecology, we asked them to select agroecology-related keywords from a list of keywords, irrespective of whether they had heard of agroecology or not. Looking first at respondents who had previously heard of agroecology, the results confirm that respondents largely associate agroecology with the environment-related keywords and less so the socio-economic principles (Figure 8). Biodiversity (75% and 88% of respondents in Senegal and Uganda, respectively) and soil health (88% and 86%) were the most frequently selected keywords. A fairly large percentage of the respondents also associate agroecology with animal health, less use of purchased inputs, and recycling. Fewer respondents associate agroecology with socio-economic keywords. Co-creation of knowledge and local markets were most frequently selected in this context.

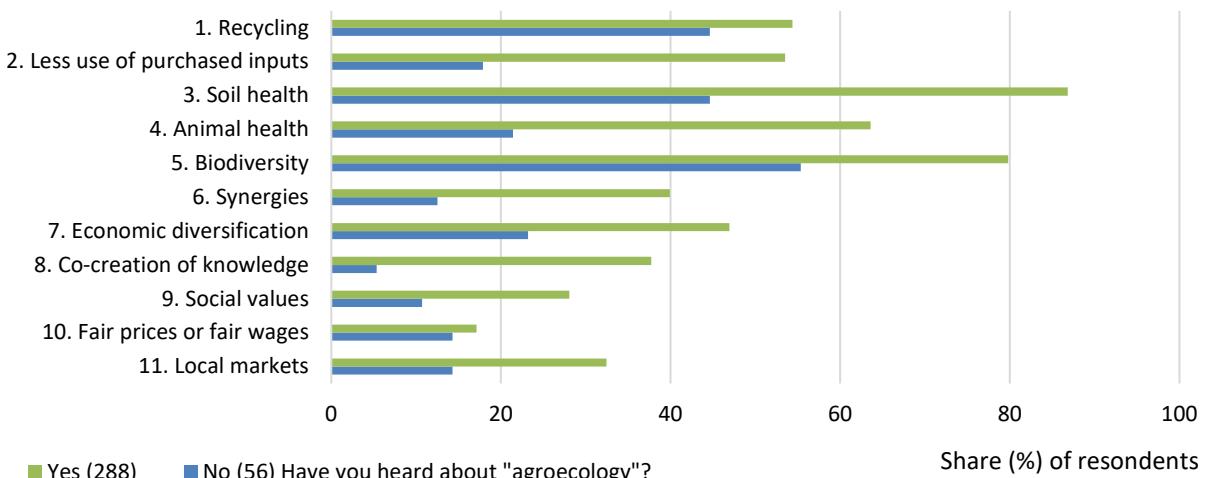
Figure 8: Keywords associated with agroecology (by country)



Note: The keywords were selected to align with the HLPE principles 1-11 (Table 1).

Respondents who were not previously aware of the agroecology most frequently associated the term with recycling, soil health and biodiversity and only rarely with lower input use, animal health or any of the socio-economic keywords (Figure 9). Comparing their responses with those of respondents who were aware of agroecology shows the greatest alignment of responses for the keywords "recycling" (selected similarly frequently) and "fair prices and fair wages" (selected similarly rarely). Respondents differed most when selecting "soil health", "animal health", "less use of purchased inputs" and "co-creation of knowledge" which twice to seven times more of the aware respondents selected as relevant keywords (depending on the keyword).

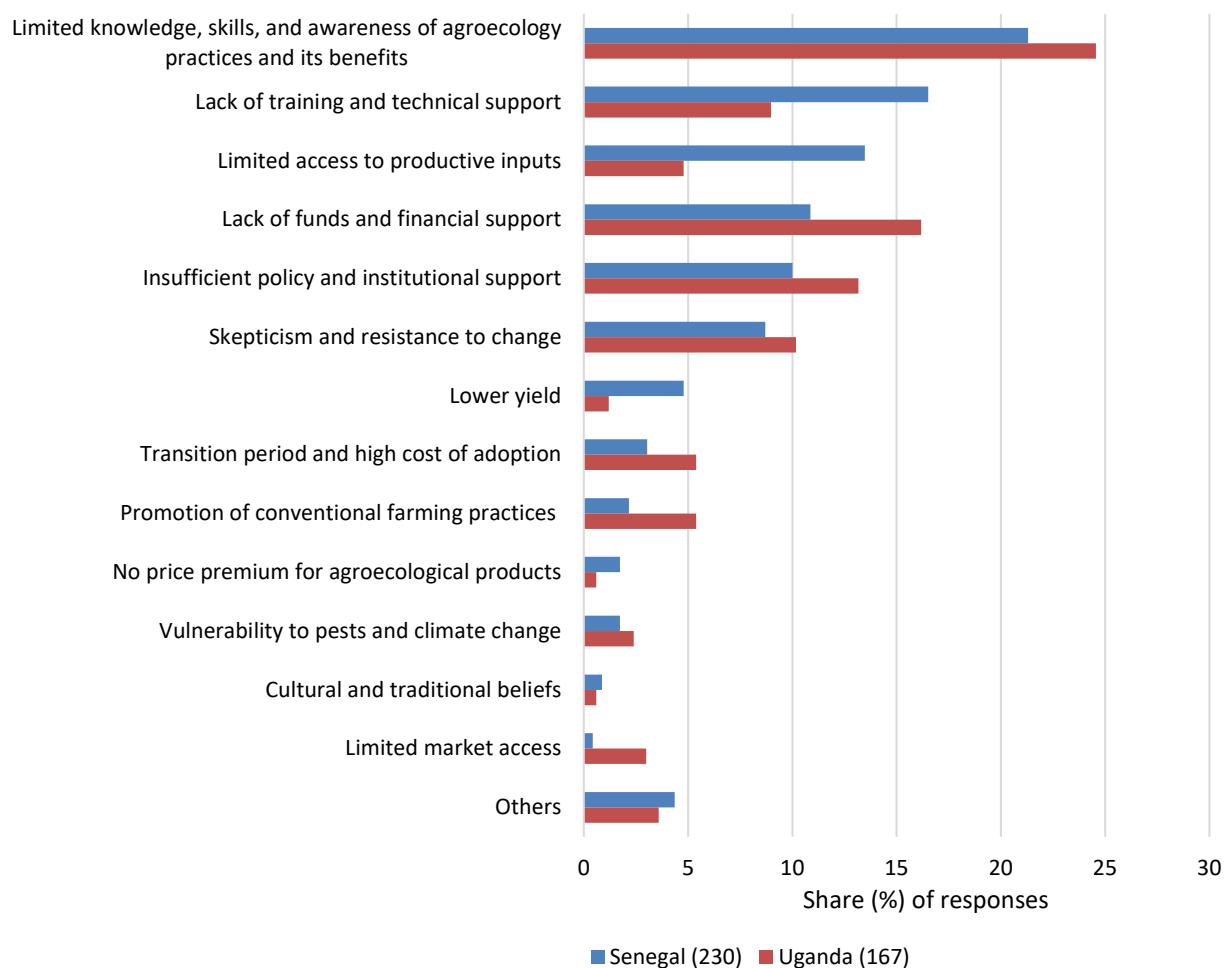
Figure 9: Keywords associated with agroecology (by awareness of agroecology)



3.3.2 Perceived challenges and impacts of agroecology

In both countries, limited knowledge, skills and awareness about agroecological practices and their benefits is most frequently mentioned as an obstacle to the implementation of agroecology (Figure 10). In Senegal, lack of training and technical support is the second most frequently cited obstacle while lack of funds and financial support ranked more prominently among Ugandan respondents. Other important constraints include the lack of access to productive inputs (esp. in Senegal), insufficient political support and resistance to change among farmers. Low yields, a lack of price premium and limited market access are hardly considered as obstacles in either country.

Figure 10: Perceived obstacles to the implementation of agroecology



Open question. Responses coded using Atlas.ti.

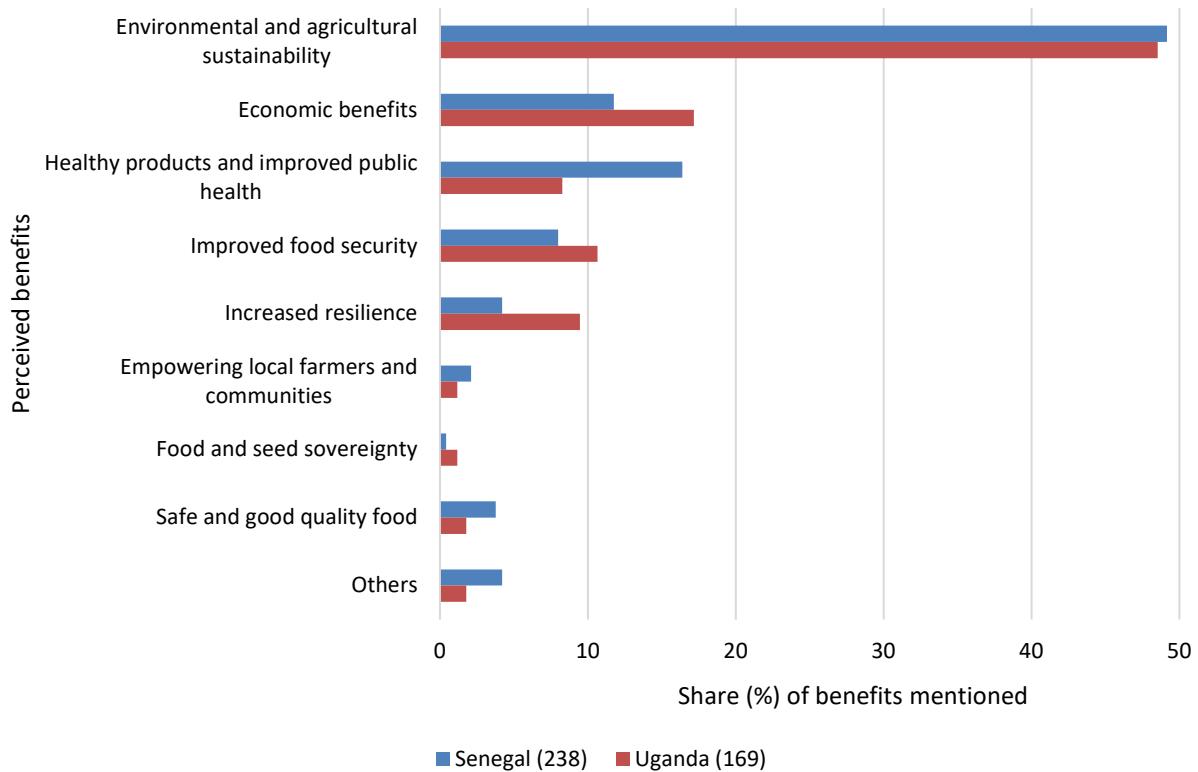
Regarding perceived benefits of agroecology, stakeholders' responses closely align with how they define the concept. In both Senegal and Uganda, nearly half of the responses relate to environmental and agricultural sustainability as the key benefit of adopting agroecology (Figure 11). Within this category, participants most frequently highlighted that agroecology promotes sustainable soil management, reduces chemical use and misuse, conserves biodiversity, and helps mitigate climate change.

Environmental benefits are followed by economic benefits in Uganda and health benefits in Senegal. Regarding economic benefits, respondents consider that agroecology offers livelihood opportunities and helps generate sustainable on-farm income, thereby contributing to poverty alleviation within their communities. Other reported economic benefits include increased crop yields and reduced

production costs, mainly resulting from the reduced use of purchased inputs. Concerning health benefits, in Senegal, respondents perceive that agroecology has the potential to enhance public health through healthier products.

Social benefits including the empowerment of local farmers and communities, and food and seed sovereignty, were least frequently mentioned among the perceived benefits in both countries.

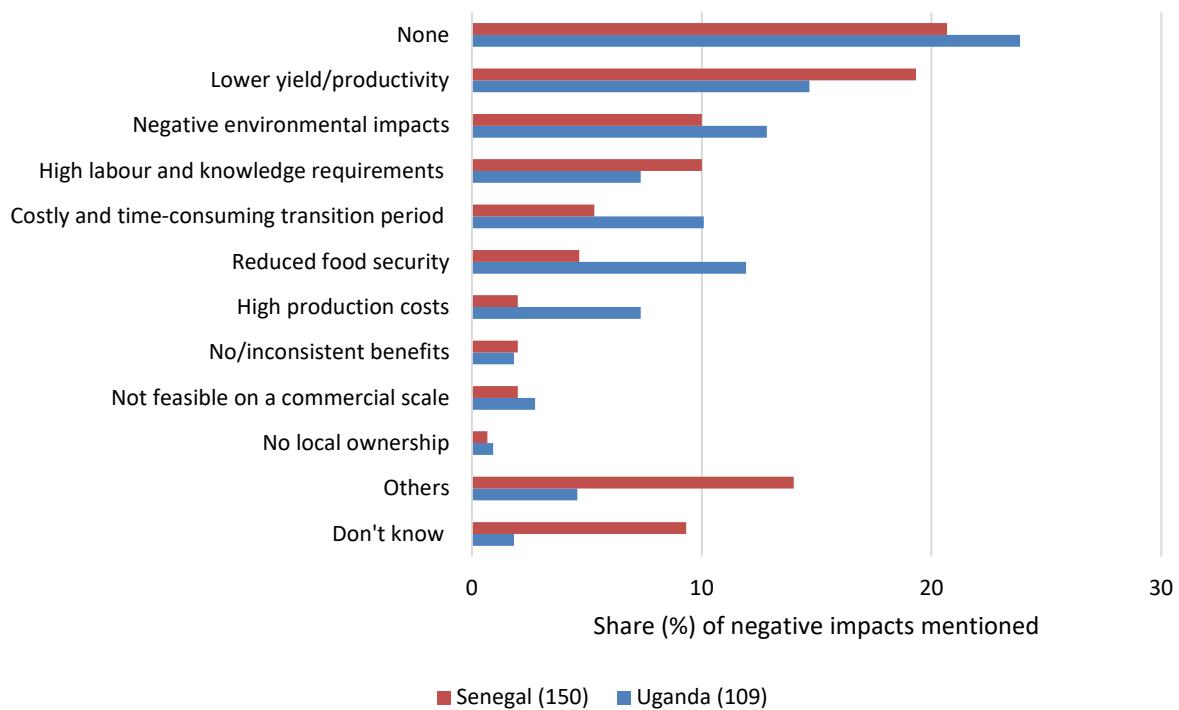
Figure 11: Perceived benefits of agroecology



Open question. Responses coded using Atlas.ti.

Many respondents also believe that agroecology can have negative impacts (Figure 12). Concerns about lower yield/productivity and possible negative environmental consequences are among the most frequently cited potentially negative impacts in both countries. High labour and knowledge requirements also feature highly, but more so in Senegal. Costly transition periods, negative food security impacts and high production costs are more of a concern in Uganda. At the same time, a sizeable share of respondents does not perceive negative impacts (22% in Senegal, 29% in Uganda). Awareness of possible impacts is a little lower in Senegal where 10% of respondents do not know what such impact could be (compared to 2% in Uganda).

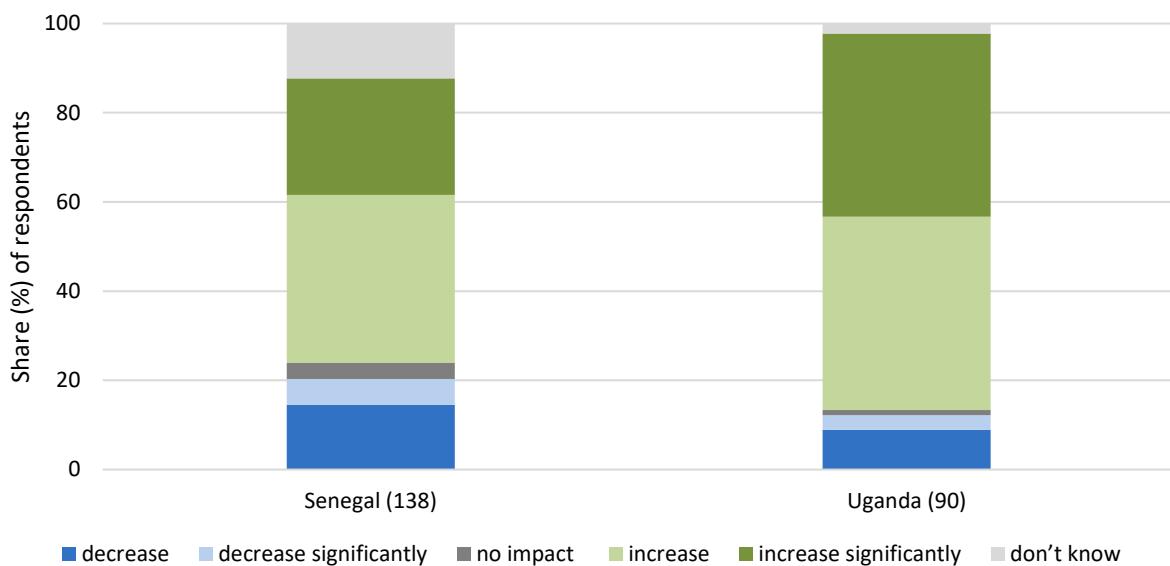
Figure 12: Perceived negative impacts of agroecology



Open question. Responses coded using Atlas.ti.

Most respondents expect that agroecology will increase the income of farmers (72%), in particular in Uganda where many even expect significant increases (Figure 13). Commonly cited reasons for these increases include expectations of price premiums (especially in Senegal), higher productivity (especially in Uganda) and lower production costs. Concerns about income losses from switching to agroecology are greater in Senegal mainly as a result of decreasing yields, but most do not expect significant decreases. At the same time, a larger share of respondents in Senegal is unsure of what the implications for incomes will be (12% compared to 2% in Uganda).

Figure 13: Expected impact of agroecology on farmer's income



4 Conclusions

This study examined the design, perceived challenges, success factors, and impacts of agroecology-related projects from the perspective of project coordinators in Ghana, Kenya, Malawi, Senegal, and Uganda. In addition, it explored the broader perceptions of a diverse range of food systems stakeholders not directly involved in project coordination, using Senegal and Uganda as case study countries. Both groups of respondents included various types of actors, such as farmers' organizations, NGOs, research institutions, private sector actors and government departments.

The mapping of agroecology-related projects in the five study countries shows that

- the projects are mainly coordinated by national NGOs and to a lesser extent by international organisations, national research organisations and national governments,
- they are almost exclusively funded by international donors, in particular governments (esp. from Europe), with very limited co- or sole funding by African funders,
- they are mainly implemented in one country, and
- most work directly with farmers or farmers' groups.

Overall, the projects demonstrate a high degree of diversification in their design and focus, aligning well with agroecological principles. They offer a range of integrated services—including training, advisory support, market linkages, and access to farm inputs—and promote the adoption of multiple agroecological practices. Rather than focusing solely on maize, the primary staple for many African farmers, these projects encourage the cultivation of a wider variety of crops, such as vegetables, groundnuts, rice, and soybeans, often in combination.

Both, project coordinators as well as food system stakeholders place strong emphasis on the environmental benefits of agroecology. Coordinators commonly cite improvements in soil health, biodiversity conservation, and reduced use of chemical inputs as key outcomes of agroecology-related projects—views that are echoed by broader stakeholders in the survey. However, the two groups diverge somewhat in their views on the role of animal health. While livestock is rarely integrated into project activities and many coordinators express uncertainty about the project's impact in this regard, many stakeholders identify animal health as a core component of agroecology.

Stakeholders generally associate agroecology more strongly with environmental benefits than with socio-economic outcomes. Nonetheless, both project coordinators and stakeholders identify several socio-economic linkages:

Perceived benefits and costs: While fewer stakeholders highlight socio-economic benefits compared to environmental ones, many still recognize agroecology's potential to improve economic outcomes, health, and food security. Similarly, a substantial number of projects explicitly pursue objectives such as enhancing food security, strengthening value chains, and increasing productivity. At the same time there are concerns about costs of transition, and hardly any price premiums of agroecologically produced outputs were reported.

Yields: Although lower yields are not seen as a primary barrier to agroecology adoption, some stakeholders view potential yield reductions as a risk. This suggests that agroecology is not inherently perceived as a low-yield approach, but that its productivity depends on how it is implemented. Most project coordinators report yield increases among participating farmers.

Market linkages: About half of the projects include activities aimed at connecting farmers to markets, mainly by encouraging local consumption and sales to local traders—aligned with agroecology's focus on reinforcing local food systems. Very few projects support export markets or cash crops. Most coordinators report increased on-farm consumption and improved sales in local markets, but many also note expanded sales beyond the local markets. While stakeholders do not explicitly cite improved

market opportunities as a potential benefit of agroecology, they also do not consider limited market access to be major barriers to its adoption.

Income effects: A majority of stakeholders expect agroecology to increase farmers' incomes—an expectation echoed by coordinators who observe rising agricultural incomes among participants. While acknowledging that participating farmers do not receive formal price premiums, coordinators believe that they obtained higher prices than non-participating peers, possibly due to improved market linkages facilitated by the projects.

Labour demands: Increased labour requirements are seen by several stakeholders as a potential downside of agroecology. Coordinators confirm that labour demand has risen for certain tasks—such as compost application and harvesting—but has decreased for others, like weeding and applying mineral fertilizers.

Stakeholder buy-in, skill development and sufficient financial resources emerged as critical factors for the scaling of agroecology and agroecology-related projects in Africa. Stakeholder engagement is widely regarded as essential to project success, encompassing participant commitment, effective partnerships, and political support. Similarly, stakeholders cite a lack of political backing and scepticism or resistance to change as key barriers to scaling agroecology. However, maintaining engagement by project participants remains a challenge during implementation. Early involvement of beneficiaries and affiliated actors in the design and initial implementation phases is therefore critical for building broad-based support. This aligns with the principle of co-creation which is central to agroecology. Despite this, only about half of the projects actively engage stakeholders in these early stages. Notably, engagement tends to be stronger in projects led by national NGOs and governments, underscoring the importance of local leadership.

Skill development is recognized as another critical success factor. Unlike stakeholder engagement, a lack of skills does not appear to be a major barrier to project implementation—likely because most projects include training and advisory services as part of their activities. However, among food system stakeholders, limited knowledge, skills, and awareness as well as insufficient training and technical support are frequently cited as key challenges. In addition, limited financial resources are commonly mentioned as a critical success factor and major obstacle by both project coordinators and stakeholders. This emphasis on the need for capacity building and financial assistance aligns with the findings of Madsen et al. (2025), who report that most respondents view agroecology as an approach that requires external expertise and support.

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Appendix

Table A1: List of (potential) respondents - actors across the food systems

Food system actors	Target groups
Input providers	Associations of fertilizer sellers (Organic and conventional)
	Associations of seed seller
Producers	Farmers organizations (including urban farmers)
	Food exporters associations/companies
Consumers	Associations of agro-entrepreneurs
	Agency for the consumer protection
Governance	Ministry of food and agriculture
	Ministry of environment
Agency/ empowerment	Ministry of health
	Agency for food safety
	Agency for urban planning
	Private sector
	Civil Society organizations (NGOs, non-profit organizations, churches organizations)
	International organizations (development, research)
	Youth groups
	Women groups
	Universities
	Vocational training schools
	Banks

List of keywords to cross-validate stakeholders' understandings of agroecology:

1. Less use of purchased inputs
2. Higher yields
3. Soil health
4. Animal health
5. Biodiversity
6. Synergies
7. Higher labour demand
8. Economic diversification
9. Co-creation of knowledge
10. Human health
11. Recycling
12. Social values
13. System approach
14. Fair prices/fair wages
15. Resilience
16. Local markets
17. Justice
18. Planting trees
19. Carbon markets
20. Organic farming
21. Other (specify)

Figure A1: Perceived impacts of agroecological projects in Ghana

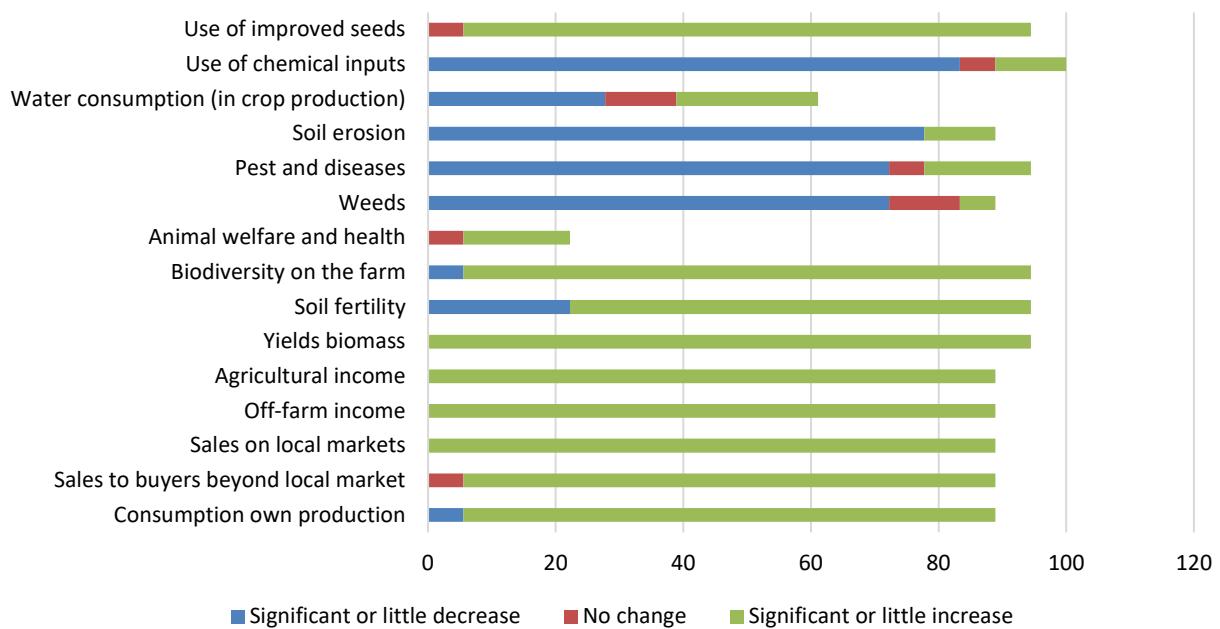


Figure A2: Perceived impacts of agroecological projects in Kenya

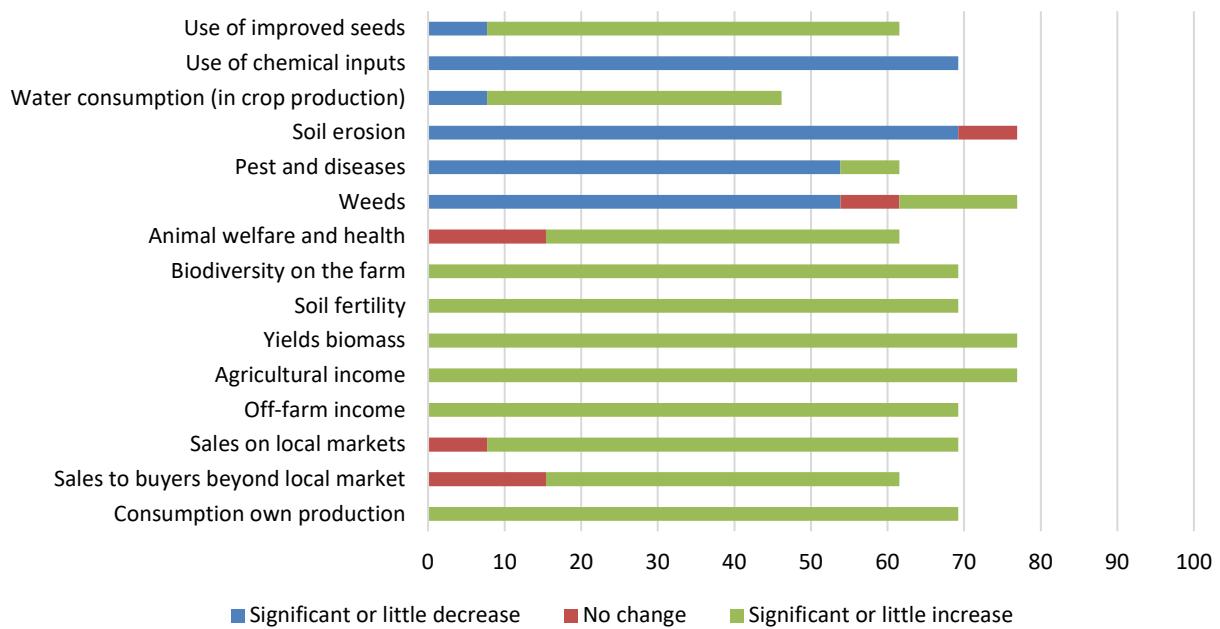


Figure A3: Perceived impacts of agroecological projects in Malawi

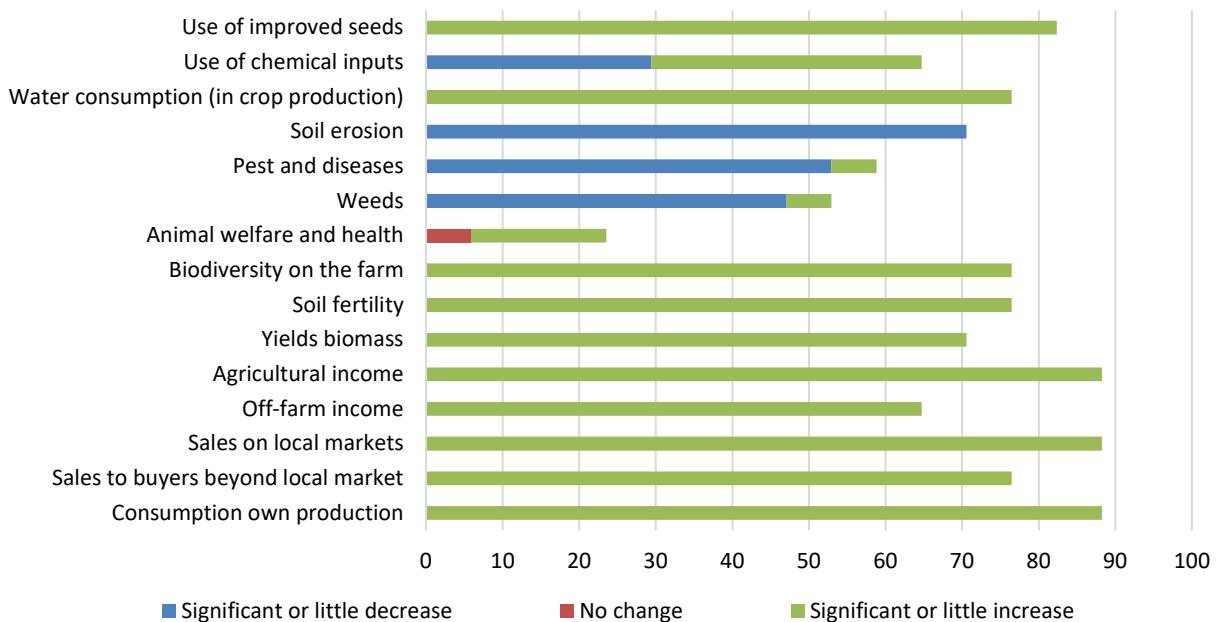


Figure A4: Perceived impacts of agroecological projects in Senegal

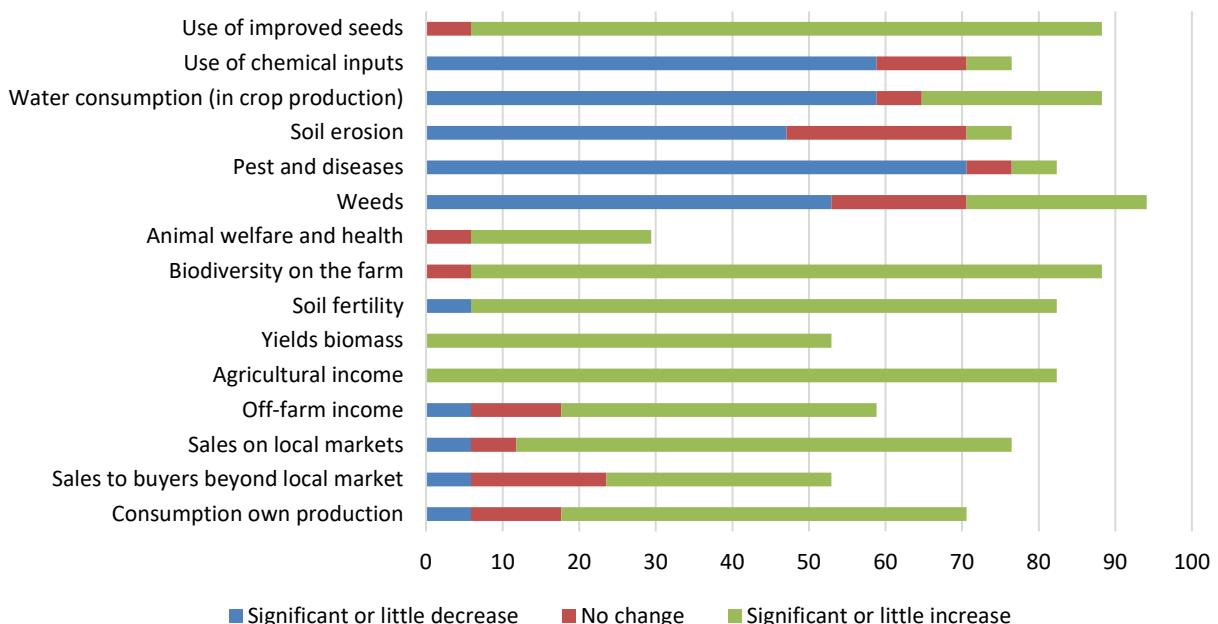
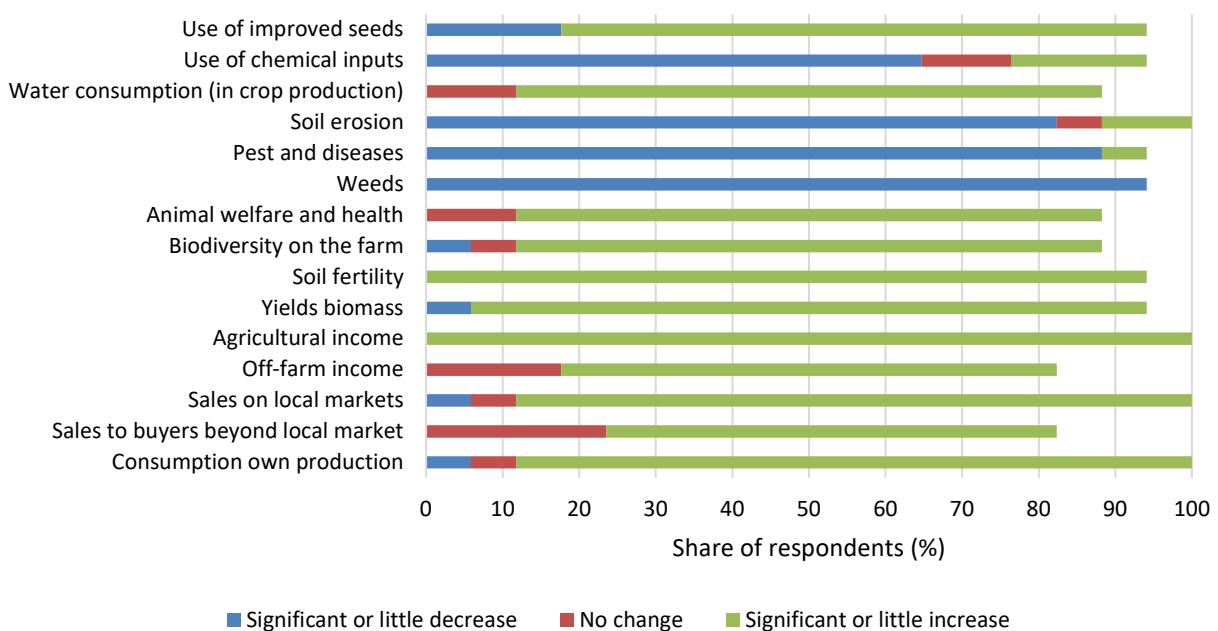


Figure A5: Perceived impacts of agroecological projects in Uganda





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