PERSPECTIVE BRIEF

3

DeSIRA LIFT

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The future of R&I as driver of agrifood systems transformation and sustainability transitions

Perspectives from

West and Central Africa and Madagascar

This brief presents the outcomes from the regional DeSIRA workshop in West and Central Africa, and Madagascar

The DeSIRA Perspectives Brief Series: a roadmap for research & innovation from stakeholder perspectives inin Africa, Asia-Pacific, the Caribbean and Latin America

The DeSIRA Perspective Briefs present lessons learnt by the community of implementers of the European Commission-funded DeSIRA Initiative and their views on the future of research and innovation (R&I) as drivers of agrifood system transformation and sustainability transitions in their respective regions.

By distilling key lessons from DeSIRA's successes and challenges, these perspectives offer actionable insights into agricultural innovation systems (AIS) for innovation stakeholders, decision makers, policy actors and investors.

Each Perspective Brief focuses on a specific region where the DeSIRA Initiative was deployed (Latin America and the Caribbean, Africa, Asia-Pacific).

In order to capture the joint learning and pending challenges among the DeSIRA community, DeSIRA-LIFT organised a series of four regional workshops entitled the "DeSIRA Connect Days". These gatherings were designed to assess the progress of innovations within DeSIRA projects, foster collaboration among stakeholders, amplify the cross-project impacts within countries, and cultivate peer learning on open and responsible R&I for AIS transformation. Moreover, they serve to strategise the subsequent steps post-DeSIRA. In a nutshell, they were designed to strengthen the Community of Action and Reflection among DeSIRA projects and their stakeholders. These events aimed to facilitate collaboration through regional field and in-person meetings with the following objectives:

- Facilitate discussions among projects aligned with the joint learning agenda, focusing on progress, challenges and developing recommendations to sustain momentum;
- Carry out meetings and roundtables with policy makers, stakeholders, private-sector representatives and regional organisations to promote innovation adoption and strengthen AIS;
- Promote discussions to develop exit strategies, handover processes and pathways for ensuring continuity.

These workshops served as a platform for sharing innovations, research contributions, experiences, good practices and lessons learnt from implementing DeSIRA projects, while fostering stronger engagement with policy makers, regional organisations and private-sector actors. Key themes included scaling agricultural innovation, farmer-led research and fostering enabling environments for innovation scaling. Regional agricultural innovation stakeholders were invited to attend and identify priority actions and key messages for the region, to connect the DeSIRA community to broader initiatives or opportunities for putting at scale the outcomes of the DeSIRA projects.

The workshops facilitated discussions among research, extension and education actors, farmer organisations, advisory service providers, civil society, international organisations, funders and policy actors to evaluate efforts and identify challenges.

The regional workshops took place in Bogotá, Colombia (25-27 June 2024); Kigali, Rwanda (29-31 July 2024); Accra, Ghana (24-26 September 2024); and Hanoi, Vietnam (14-16 January 2025). The three-day events included keynote presentations, two workshops and six thematic panel discussions focusing on three main themes:

- New paradigms in research for innovation – Enhancing the impact of research through participatory and system-based approaches.
- Farmer-led innovations and research – Strengthening farmer organisations as key actors in scaling agroecology and sustainable agriculture.
- Creating a conducive environment for scaling – Addressing food system governance, policies, education and financing to foster sustainability.

These themes structured the workshop discussions and informed the synthesis of insights and recommendations in the Perspective Briefs series.

By engaging in these workshops, DeSIRA-LIFT contributed to building a collective understanding of what it takes to co-develop innovations for sustainability transitions through international R&I partnerships and public investments.

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Key messages

The Connect Days workshop emphasised the key contributions of DeSIRA projects to inclusive, sustainable and climate-resilient agricultural transformations through participatory action-research, capacity development for agricultural innovation systems (AIS) and improved data systems for decision making. Several key insights emerged as lessons for future action and broader impacts.

Outcomes of DeSIRA projects are visible at three levels:

- **Technological and agricultural** practices addressing challenges affecting agriculture in the region;
- **Knowledge attitudes and mindsets** of a variety of stakeholders that allow ownership of technological and practical innovations;
- **The broader AIS,** at national and regional levels, including policy innovations and research governance.

These outcomes result in:

- Enhanced research capacity, research and innovation (R&I) development, and formation or reinforcement of research networks;
- Economic empowerment, enhanced capacities for national AIS to address agrifood system challenges of sustainable intensification;
- Institutional changes, increased regional policy coordination and new resource allocation frameworks.

The key success factors of project strategies for innovation co-creation and scaling are:

- Multistakeholder mechanisms for the co-creation of innovation with farmers and farmer organisations, and engagement of private-sector and policy actors in the early phase of the innovation project;
- The strengthening of R&I project linkages between national, regional and continental research and education organisations;
- The strengthening of farmer organisations' capacities to address the food and nutritional insecurity challenges in the region;
- Building upon and ensuring continuity of innovation trajectories combining existing organisations and emerging ones, particularly for policy and institutionalisation purposes.

The key recommendations that were formulated by the participants aim to:

- Deepen and institutionalise research outcomes;
- Sustain community gains through better access to resources and generational involvement;
- Institutionalise successful policy changes and create sustainable funding mechanisms.

These recommendations consist in:

- Improved R&I project design with more robust methods and strategies with private-sector and policy actors, complementary financing instruments, upgraded managerial capacities in projects, and transversal mechanism to learn and synergise between R&I projects working on the same topics;
- Additional investments and long-term programmes to address systemic gaps in AIS, in particular in research, extension and education organisations so that the knowledge and technical infrastructures for innovation are more conducive and enabling for short-term R&I projects.

Detailed recommendations are provided on p 15.

DeSIRA in West and Central Africa, and Madagascar

1. Challenges of agrifood systems transformation in Western and Central Africa, and Madagascar

Despite having ample arable land, Western and Central Africa, along with Madagascar, face significant food production challenges. The projected average annual production gains will remain slower than expected population growth, leading to a decline in production value per capita, consistent with trends observed over the last decade[1]. The yield gap is tied to deficiencies in infrastructure, markets and policies. Currently, less than 10% of Africa's cultivated land is irrigated, while in the Sahel it's less than 3%[2]. Low fertiliser usage contributes to reduced yields and depleted soil nutrients. Farmers cite credit constraints as a major barrier to increasing production, while high processing costs hinder their ability to compete with imports. The lack of value addition is a pressing issue[3]. Factors such as Covid-19, soaring global food prices, climate shocks and regional conflicts have intensified food insecurity, particularly in the Sahel, with countries like Burkina Faso, Chad, Mali, Niger and Nigeria identified in 2024 as hunger hotspots by the World Food Programme[4].

Climate change poses a significant challenge to the transformation of agrifood systems. Over-reliance on rainfed agriculture increases vulnerability to prolonged droughts, unpredictable rainfall and rising temperatures, leading to decreased yields for staple crops and livestock production. Climate change also accelerates ecosystem degradation, soil erosion, and the loss of soil fertility and biodiversity, especially in areas dominated by conventional agriculture and monoculture. Extreme weather events, such as droughts and floods, disrupt agricultural activities, worsen crop losses, damage pastures, limit water availability for livestock and destroy critical farming infrastructure[5].

As for the whole continent, the region's dependence on food imports remains concerning. Almost all countries in the region (Côte d'Ivoire and Ghana being among the few exceptions) have a negative agricultural trade balance. Africa's trade deficit of USD 50 billion annually exposes countries to fluctuations in international markets and supply chain disruptions[6]. This reliance on external context influences domestic prices for goods, including food and production factors, with rising fuel and fertiliser costs driving up agricultural expenses.

Significant post-harvest losses, a deteriorating infrastructure and an unsupportive policy environment hinder markets and value chains, which are often fragmented. Opportunities for youth and women to transform food systems are limited[7]. Credit constraints create substantial challenges for smallholder farmers, trapping them in subsistence farming rather than enabling them to transition to commercial agriculture. High processing costs and low levels of value addition represent missed opportunities for growth.

Geopolitical conflicts and armed violence have a profound impact on agrifood systems in the region, exacerbating food insecurity through various mechanisms. Conflicts displace communities, disrupt traditional trade routes and agricultural practices, confine populations and force the abandonment of productive farmland. The consequences extend beyond food production and availability, as geopolitical tensions also increase the financial burdens on affected nations, elevating the costs of servicing external debt and importing essential food supplies and agricultural inputs[8].

Animal pests and diseases, including transboundary issues, pose additional threats to crop production and pastures, diminishing yields and raising health concerns. These challenges can decimate agricultural livelihoods, resulting in livestock losses and heightened food insecurity[9].

1] OECD/FAO (2023), OECD-FAO Agricultural Outlook 2023-2032, OECD Publishing, Paris, https://doi.org/10.1787/08801ab7-en.
2] The World Bank. Bringing forth water to combat food insecurity and climate change in the Sahel
3] African Development Bank. The Ten-Year Strategy 2024 – 2033. Seizing Africa's opportunities for a prosperous, inclusive, resilient, and integrated continent.
4] WFP and FAO. 2024. Hunger Hotspots. FAO–WFP early warnings on acute food insecurity: November 2024 to May 2025 outlook. Rome. https://doi.org/10.4060/cd2995en
5] FAO Regional Conference for Africa 2024. Foresight Analysis: Drivers and Triggers of Agrifood Systems Transformation in AfricaNovember 2024 to May 2025 outlook. Rome. https://doi.org/10.4060/cd2995en
6] African Development Bank. The Ten-Year Strategy 2024 – 2033. Seizing Africa's opportunities for a prosperous, inclusive, resilient, and integrated continent.
7] Transforming AgriFood Systems in West and Central Africa (TAFS-WCA), 23 November 2021.
8] FAO Regional Conference for Africa 2024. Building resilience through agrifood systems transformation.
9] Idem.

2. A brief look at the cluster of DeSIRA projects in West and Central Africa, and Madagascar

There is a large cluster of DeSIRA projects in West and Central Africa, and Madagascar, with 40 projects in over 20 countries. Many of these projects operate in multiple countries within the region (and a few beyond) and many countries host several DeSIRA projects. The most significant number of DeSIRA projects is in Burkina Faso (14), followed by Mali (8) and Senegal (8), Benin (7) and Niger (6), while Burundi, Cape Verde, Gabon, Gambia and Mauritania host one project each.

Many of these countries are located in the Sahel region, highly vulnerable to land degradation and climate change. The DeSIRA projects seek to address these challenges, covering various thematic areas, including risk management and surveillance systems, agricultural and rural transformation, agroecology transition, nutrition and food security, and sustainable livestock and pastoralism.

When it comes to geographical coverage, the Economic Community of West African States (ECOWAS) leads the SyRIMAO project in 15 countries, and the West and Central African Council for Agricultural Research and Development (CORAF/WECARD) leads the BIORISKS project in 10 countries. The strong presence of CIRAD as a leading organisation can be noted, with 12 projects in 8 countries.

Country projects

Project acronym	Country/ies of implementation	Leader organization	Themes
OBSYDYA	Benin	**CIRAD**	Quality data production on agricultural systems and landscapes to support advisory services
ProSilience	Benin	**GIZ**	Agroecology transition, soil health
TAERA	Benin	**ENABEL**	Agroecology transition
TAP-AIS -1	Burkina Faso	**FAO**	Strengthening innovation support services and innovation policies
IRRINN	Burkina Faso	**CIRAD**	Intensification of agricultural production, irrigation technologies
AcceSS	Burkina Faso	**CIRAD**	Strengthening innovation support services and innovation policies
FO-RI – 1	Burkina Faso	**AgriCord/Afdi/ UNAPOB**	Agroecology and sustainable food systems
FO-RI – 5	Burundi	**AgriCord/CSA/ CAPAD**	Agroecology and sustainable food systems
ReSI-NoC	Cameroon	**CIFOR/ICRAF**	Strengthening AIS, agro-sylvo-pastoral production systems
FO-RI – 4	Cameroon	**AgriCord/Afdi/ CNOP-CAM**	Agroecology and sustainable food systems
INNOVACC	Cameroon	**CIFOR/ICRAF**	Climate change resilience, agro-sylvo-pastoral production systems
ACCEPT	Chad	**IRED**	Livestock management and pastoralism
MARIGO	Côte d'Ivoire	**CIRAD**	Agroecology and sustainable agriculture, nutrition
Sankuru Agroforest	Democratic Republic of the Congo	**Enabel**	Agroecology and sustainable agriculture, agroforestry
FO-RI – 6	Democratic Republic of the Congo	**AgriCord/CSA/ LOFEPACO**	Agroecology and sustainable food systems
ReDIAL	Ghana	**Friends of the Nation**	Agricultural and food systems transformation, soil fertility

Project acronym	Country/ies of implementation	Leader organization	Themes
Malmon	Guinea-Bissau	**ISA**	Agricultural and food systems transformation, strengthening agricultural knowledge and innovation systems, mangrove swamp rice cultivation
MAKIS	Madagascar	**CIRAD**	Strengthening innovation support services and innovation policies
FO-RI - 7	Madagascar	**AgriCord/Fifata/ Ceffel**	Agroecology and sustainable food systems
DINAAMICC	Madagascar	**CIRAD**	Agroecology and sustainable agriculture
FO-RI - 2	Mali	**AgriCord/Afdi/ CNOP-UNCPM**	Agroecology and sustainable food systems
AMINATA	Mali	**CIRAD**	Strengthening innovation support services and innovation policies, agroecology transition
APSAN	Mali	**ICRISAT**	Climate change resilience, crop productivity
INV-NIGER	Niger	**AECID**	Climate change resilience, irrigation system governance
LIDISKI	Nigeria	**CIRAD**	Livestock management and pastoralism, livestock disease surveillance
GIAE NG-InACC	Nigeria	**GIZ**	Climate change resilience
FO-RI - 3	Senegal	**AgriCord/Asprodeb/ AJAC**	Agroecology and sustainable food systems
TAP-AIS -2	Senegal	**FAO**	Strengthening innovation support services and innovation policies

Regional projects

Project acronym	Country/ies of implementation	Leader organization	Themes
ABEE	Burkina Faso, Niger, Senegal	**CORAF**	Strengthening West African breeding networks
BIORISKS	Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Gabon, Ghana, Nigeria, Sierra Leone, Togo	**CORAF**	Biological risk management
	Benin	**ENABEL**	Agroecology transition
BIOSTAR	Burkina Faso, Senegal	**CIRAD**	Sustainable bioenergy
	Burkina Faso	**CIRAD**	Intensification of agricultural production, irrigation technologies
Cocoa4Future	Côte d'Ivoire, Ghana	**CIRAD**	Agroecology and sustainable food systems, cocoa cropping systems
CASSECS	Burkina Faso, Chad, Mali, Mauritania, Niger, Senegal	**ISRA**	Livestock management and pastoralism
FAIR-Sahel	Burkina Faso, Mali, Senegal	**CIRAD**	Agroecology transition
PRISMA	Burkina Faso, Mali, Niger	**ENABEL, AECID, LUXDEV**	Livestock management and pastoralism, livestock disease surveillance

Project acronym	Country/ies of implementation	Leader organization	Themes
SAFEVEG	Benin, Burkina Faso, Mali	**WorldVeg**	Agroecology and sustainable food systems, vegetable value chains, nutrition
	Benin	**ENABEL**	Agroecology transition
Santés &Territoires	Benin, Senegal	**CIRAD**	Agroecology and sustainable agriculture, One Health
SyRIMAO	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo	**ECOWAS via ARAA**	Biological risk management, pest control (fruit fly)
	Côte d'Ivoire, Ghana	**CIRAD**	Agroecology and sustainable food systems, cocoa cropping systems
SUSTLIVES	Burkina Faso, Niger	**AICS & CIHEAM**	Agroecology and sustainable agriculture, neglected and underutilised species, strengthening agricultural knowledge and innovation systems
TRANSITIONS P1	Burkina Faso, Ghana	**ICRAF/FTA**	Metrics for agriculture and food systems
	Burkina Faso, Mali, Niger	**ENABEL, AECID, LUXDEV**	Livestock management and pastoralism, livestock disease surveillance
SAFEVEG	Benin, Burkina Faso, Mali	**WorldVeg**	Agroecology and sustainable food systems, vegetable value chains, nutrition
	Cameroon	**CIFOR/ICRAF**	Climate change resilience, agro-sylvo-pastoral production systems
Santés &Territoires	Benin, Senegal	**CIRAD**	Agroecology and sustainable agriculture, One Health
SyRIMAO	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo	**ECOWAS via ARAA**	Biological risk management, pest control (fruit fly)
	Democratic Republic of the Congo	**Enabel**	Agroecology and sustainable agriculture, agroforestry
SUSTLIVES	Burkina Faso, Niger	**AICS & CIHEAM**	Agroecology and sustainable agriculture, neglected and underutilised species, strengthening agricultural knowledge and innovation systems
TRANSITIONS P1	Burkina Faso, Ghana	**ICRAF/FTA**	Metrics for agriculture and food systems

3. Objectives and challenges of the DeSIRA projects

The projects work towards change at all levels of AIS: niche, innovation support services and policy environment. They target a large array of innovations, from technical to organisational.

DeSIRA projects in this region employ a variety of strategies: they engage with farmers or farmer organisations to jointly define research topics, conduct farm experiments or undertake farmer-led research; they use multistakeholder innovation facilities, such as innovation platforms or living labs (choosing to either strengthen existing platforms or create new ones); they conduct policy dialogue or advocacy activities. Their entry points also vary; they include technological innovations such as agroecological practices, climate-smart technologies, biohazard mitigation, as well as capacity building and community governance, value chains development or policy development.

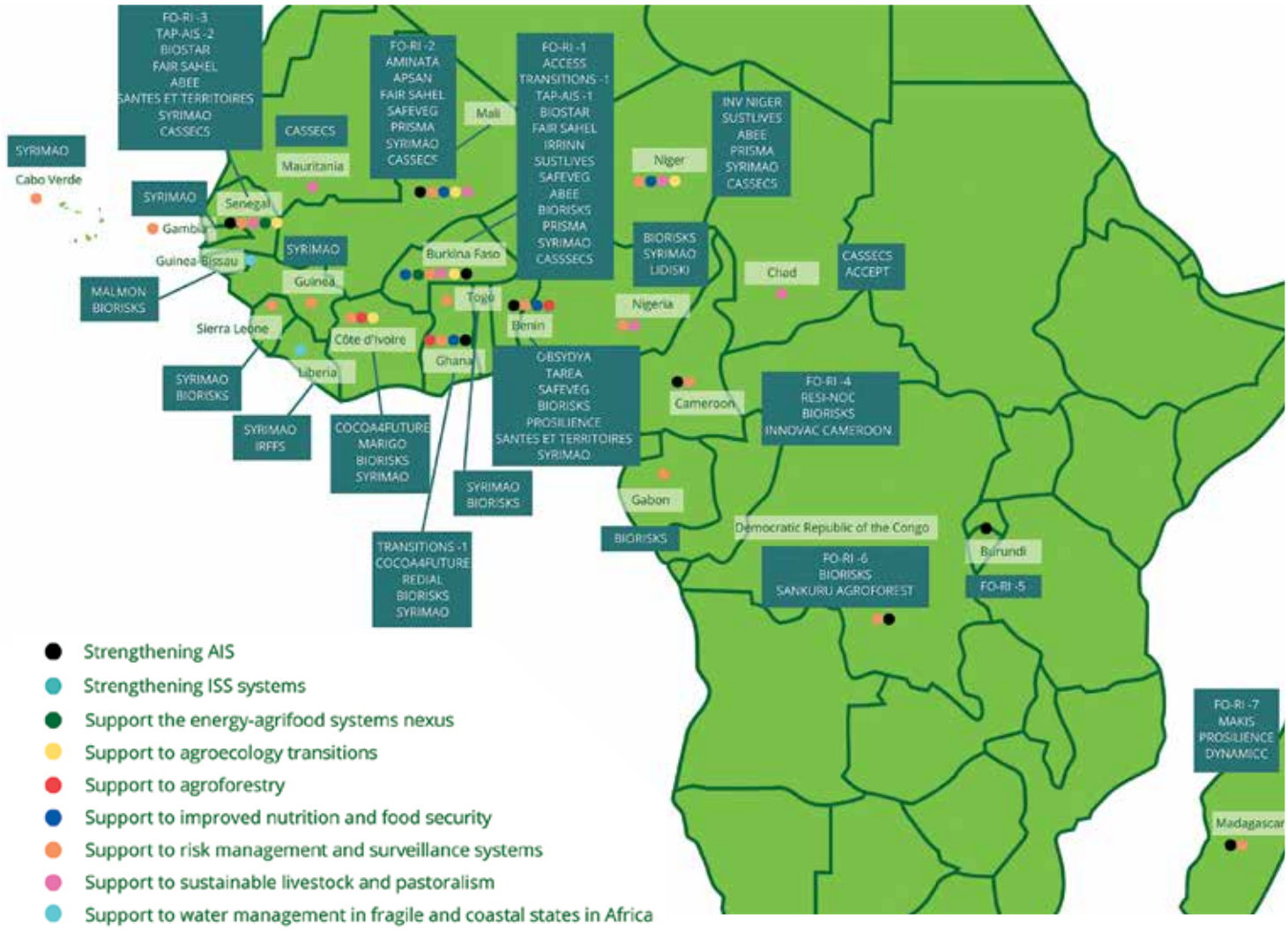
There have been challenges to project implementation in the region. The Covid-19 pandemic hampered the timely set-up of many projects. Instability due to conflicts has posed serious security issues that limited access to the field, thus forcing projects to regularly - and sometimes entirely - review their strategy which resulted in interruptions and possible deviations from original objectives.

Some projects have been in need of support in developing their monitoring, evaluation and learning systems and conceptual understanding of participatory research/ innovation trajectories, as well as conducting an open innovation process and engaging in work with non-academic stakeholders. Managing multistakeholder partnerships often proved challenging.

Furthermore, projects expressed a need for capacity building in facilitating innovation processes in multistakeholder settings. This need was addressed by tailor-made training in innovation facilitation provided by DeSIRA-LIFT in Benin, Cameroon and Madagascar.

A strong demand for setting up a community of practice was identified to get to know the other DeSIRA projects and partners better.

Map of DeSIRA projects in West and Central Africa, and Madagascar



4. DeSIRA stakeholders at the regional workshop

The DeSIRA Connect Days workshop for West and Central Africa, and Madagascar took place in Accra, Ghana, from 24 to 26 September 2024. The event brought together over 120 participants from national (CNRST, Burkina Faso; National Veterinary Research Institute, Nigeria; IER, Mali; IRAD, Cameroun) and international research organisations (CIFOR-ICRAF, IWMI, World Vegetable Center, CIRAD), universities (University of Ghana; Université Nangui Abrogoua, Côte d'Ivoire; Abdou Moumouni University, Niger), regional organisations (FARA, CCARDESA, CORAF, RUFORUM, AFAAS, ARAA), regional and national farmer organisations (ROPPA; PROPAC; CNOP-CAM, Cameroun; CAPAD, Burundi), non-governmental organisations (Friends of the Nation, Ghana; ENDA PRONAT, Senegal; APESI, Burkina Faso; Fac'Innov, Burkina Faso; NITIDAE, France; CERAF, Cameroun; APDRA, France), networks (DyTAES, Senegal), expert groups (IPES Food), municipalities (Techiman, Ghana), private companies (Greenspace, ARDA, AGRi'IN, Horus), as well as representatives of international networks and alliances (Agrinatura, COLEAD, AgriCord), national development agencies (GIZ, ENABEL) and donors (European Union (EU)/DG INTPA; EU Delegation in Ghana, EU Delegation in Burkina Faso).

DeSIRA Connect Days participants

Main lessons learned in the DeSIRA community

The main lessons that were shared and created convergence among the DeSIRA community cover sixareas:

1. **Multistakeholder platforms are critical**
   Platforms connecting researchers, farmers, policy makers and experts create dynamic spaces for monitoring, feedback and collaborative innovation development, building trust and improving adoption across agricultural sectors.

2. **Flexible implementation and bottom-up strategies are key**
   Success in agricultural innovation requires adaptable approaches that respond to local needs, manage power dynamics and allow teams to modify strategies based on emerging opportunities.

3. **Partnerships with non-research actors are decisive**
   Engaging farmers, the private sector and civil society organisations transforms traditional research approaches into practical solutions that create sustainable pathways for innovation adoption and market integration.

4. **Food systems integration is desirable**
   Agricultural innovation must connect with market dynamics, resource governance and value chains, while synchronising upstream and downstream factors for effective implementation and scaling.

5. **Innovation support services should be developed and nurtured**
   Support services bridge research-practice gaps while modernising agriculture's image, facilitating knowledge transfer and attracting youth through professional development and capacity building.

6. **Policy outcomes build over long-term trajectories**
   Continuous engagement with policy makers through structured platforms strengthens institutional frameworks and creates sustainable mechanisms for innovation adoption and regional coordination.

These are detailed and packaged below with reference to three areas of joint leaning within the DeSIRA community: new paradigms in research and innovation, innovations in agrifood systems, innovation policies and policy innovation.

1. New paradigms in research and innovation

Whether based on their initial design or emerged as a way of overcoming challenges and ensuring successful implementation and results, DeSIRA projects developed and tested novel ways of doing research and of articulating research with a vast array of partners. This led project teams to tap into multiple disciplines - including valorising expertise from project partners or additional ones - and develop adapted skills (in particular facilitation) that they sometimes had to build or reinforce.

1.1 Successful project designs and strategies for innovation co-creation and scaling in DeSIRA

In addition to innovation products, several elements of design and strategies appeared as critical success factors for the production of innovations. Ensuring that these factors remain in operation or are scaled is a condition for the scaling of DeSIRA innovations.

Design, the key role of multistakeholder platforms

Scoping study: understanding the scope of a research problem is crucial for effectively addressing farmers' challenges. DeSIRA projects conducted scoping studies, ensuring that interventions were based on real needs. This process also helped in identifying the necessary human and technical resources to drive meaningful innovation and achieve desired outcomes.

Experiential learning was fundamental to successful DeSIRA projects, which often used participatory action-research with hands-on demonstrations. Panel members from the African Forum for Agricultural Advisory Services (AFAAS) and the Forum for Agricultural Research in Africa (FARA) emphasised the unparalleled effectiveness of experiential learning through field schools.

Multistakeholder platforms connected researchers, experts, farmers and policy makers. Platforms had various functions in the projects. They were used to monitor project outcomes, provide feedback, disseminate project findings, discuss problems, align interventions with other actors and provide space to co-develop innovations.

A continuous learning approach facilitated knowledge sharing – in which multistakeholder platforms played a key role - and capacity building. This not only expanded stakeholders' knowledge but also provided them with opportunities to contribute actively to innovation processes.Setting up well-structured feedback mechanisms (including through multistakeholder platforms) enabled iterative development of projects and allowed improvements based on input from various stakeholders.

Strategies

Flexible project implementation: panel discussions and project presentations highlighted the importance of flexibility in implementation. Many project teams allowed themselves to adapt their approaches to integrate relevant actions that were not initially included in the project design. Lessons from across countries demonstrated that flexibility not only enhanced project legitimacy but also improved outcomes of interventions.

DeSIRA projects predominantly embraced bottom-up strategies and partnerships, with 95% operating through collaborative networks. Notable examples like Coco4future (Côte d'Ivoire and Ghana), FO-RI and ReSI-NoC (Cameroon) and Santés & Territoires (Benin) demonstrated successful co-construction approaches. Key success factors included creating safe exchange spaces, defining clear partner roles, managing power dynamics and building partner capacities, as exemplified by CORAF's specialisation centres work.

DeSIRA projects embraced a system approach and actively engaged state institutions by assigning them key roles and responsibilities. Combined with continuous learning and structured feedback, this institutionalisation process – including through memoranda of understanding with state institutions and key private-sector organisations - sought to ensure sustainable innovation adoption across agricultural stakeholder networks.

1.2. Research in partnership with farmer organisations, civil society and the private sector

A great deal of multistakeholder approaches had to do with establishing partnerships with non-research actors and organisations who took part - and sometimes the lead - in the design and implementation of research activities. This led researchers to change postures and allowed these non-research partners to reinforce their capacities and own both the results and processes that contributed to achieving them.

Co-creation of innovations with farmers and farmer organisations

Engaging with farmer organisations, involving them in decision-making and coordination activities encouraged participation and increased their ownership of the projects. Working with farmers in field schools, involving them in the work of innovation platforms and building their capacity through co-creation of innovations contributed to innovation co-development and adoption, as examples from projects such as ReSI-NoC or ReDIAL show.

From a wider perspective, strengthening farmer organisations would help to address the food and nutrition security challenges in the region. ECOWAS intends to train farmer organisations and youth in innovative agricultural technologies through a partnership with 20 training centres in member states.

ECOWAS has formed the West Africa Initiative for Climate-Smart Agriculture to provide technical and financial assistance to farmer organisations in member states.

Private-sector engagement

Involving private-sector actors had several positive effects. It supported innovation adoption among farmers through facilitating market access and providing financial services. It also played a role in shaping agricultural policies through advocacy efforts.

Private-sector involvement contributed to project funding, helping to bridge financial gaps. Most importantly, it increased the potential for scaling up projects, ensuring broader reach and long-term sustainability.

2. Innovations in agrifood systems

2.1 Connecting agricultural innovation with food systems

To effectively support food systems, R&I for agriculture needs to integrate, connect and synchronise with upstream and downstream factors such as geopolitical context, ownership and governance of resources, post-harvest handling, marketing and processing of agricultural products, consumption and recycling into circular schemes.

In this regard, involvement of the private sector from the early stages of projects can help them understand the innovation process and assess its usefulness. Clarifying the project's objectives and specifying the role to be played by the private sector (where thinking in terms of food systems rather than food production expands the possible scope of their involvement) can contribute to creating conditions for scaling, including mobilising private funding.

Market hubs, such as the one in Techiman in Ghana, and their interconnection with trade corridors, including those established in the region or further into Africa with the African Continental Free Trade Agreement, and processing areas can provide avenues for agricultural innovations to scale.

Ensuring a food system perspective, however, requires addressing some gaps and inoperative mechanisms such as seed banks, that are either non-functional or poorly managed, reducing their effectiveness in supporting agricultural development. Participants also noted difficulties in identifying reliable suppliers and establishing strong linkages between suppliers and producers, further complicating value chain development.

2.2 Developing resources for agricultural innovation

ECOWAS is partnering with 20 training centres across the member states that seek to train farmer-based organisations and youth in innovative technologies to address the food and nutritional insecurity challenges in the region. A strong collaboration with five selected universities across the member states to train people using innovative tools in agricultural research contributed to agricultural policy reforms that have enhanced agricultural development and address challenges posed by climate change in the region.

AFAAS, FARA, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), CORAF and the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) have formed the Africa Agricultural Research Innovation and Education Institutions that seek to connect research, extension and education as part of the Comprehensive Africa Agricultural Development (CAAPD) programme. This mechanism seeks to further streamline and set synergies to address the critical challenge of attracting younger generations to farming, necessitating a fundamental shift in how it is perceived and taught. Media platforms can play a pivotal role in reshaping agriculture's image, moving away from traditional stereotypes of manual labour to showcase modern technological integration, innovation and entrepreneurial opportunities. This rebranding effort should highlight successful young farmers, agri-tech startups and sustainable farming practices.

DeSIRA projects also highlight the need and emergence of innovation support services and professions to ensure the establishment and facilitation of linkages across various players – farmers, researchers, policy makers, etc. - and levels from innovation niches to the AIS. Innovation facilitators play a key role in the implementation of research projects but also in ensuring their embeddedness in their broader ecosystems.

At the national level, the University of Ghana, through its involvement in the Cocoa4Future project, has consolidated its collaboration with key regional research bodies in Africa.

2.3 Scaling DeSIRA innovations

Scaling DeSIRA innovations remains a challenge induced by the cut-off effect of projects' ends. All actors advocated for conditions ensuring continuity. Embeddedness of project partners into their respective local, national and regional ecosystems is critical. Many of the organisations involved in DeSIRA projects or in their direct environment have been operating for a long time in the regions. This provided a basis for current projects to build upon and, since DeSIRA project teams and partners are both implementers and owners of the innovations, it can also provide a carry forward option for many innovation products and processes.

With a majority of projects targeting the provision of solutions with a technological component, including novel and agroecological practices, the question of the economic viability of those underlies that of their scaling. The workshop allowed to distinguish between two components of innovations that could be scaled and two specific ways of funding:

- Innovations with economic value (value additions, new products, supply or value chains, etc.) could benefit from early involvement of the private sector and from building business development capacities that are still too often detached from research-led agricultural innovation, or for which research does not have a mandate. Projects should equip themselves with strategies to ensure this from the onset.

- Innovations with non-economic value, but high value nonetheless, particularly from a societal and common goods point of view, should be scaled with further public funding. They mainly refer to capacity building, network building and development, organisational innovation and policy making, all conducive of co-design processes and uptake of innovation products or processes with economic value. As such, they need to be combined and coordinated in future projects. Partner organisations and governmental institutions, including at regional level, should also ensure their continuity.

3. Innovation policies and policy innovation

Several DeSIRA projects in the region included a process to inform or influence policies and policy-making with a view to increase knowledge of agricultural R&I by policy makers, enhance the governance and performance of national AIS, and improve policies that enable agricultural R&I with the assumption that AIS are conduits for sustainability of research efforts and the results of innovation projects. Such an enabling environment can also help to set bridges and synergies across sectors (farmers, private sector, finance, etc.) and tackle broader challenges of food security, nutrition and climate change in a food systems perspective.

At the national level, inviting national authorities to join multistakeholder platforms allowed to continuously inform them about project findings, advocate for policy adoption and discuss cross-cutting issues affecting farmers. With this, policy makers could own outcomes of projects, change their attitude vis-à-vis other stakeholders and design administrative and legal mechanisms that would sustain innovations.

In Burkina Faso, the continuous engagement of the national research centre (CNRST) and ministerial bodies has informed decision-making processes to establish perennial coordination mechanisms. In Ghana, establishing linkages between national and international research, as well as integrating indigenous knowledge, and ensuring policy makers are informed about research results and how they can be applied in the country, helped fill institutional gaps and improve coordination. It also allowed to feed the discussion with civil society organisations with objective evidence and into finding pathways for policies.

With regards to the agroecological transition, multistakeholder mechanisms and dialogue with or through civil society organisations allow for consideration of socio-economic factors that help discuss the usefulness of technological innovations and their adoption in a territorial management and governance perspective that help co-design future scenarios.

DeSIRA has allowed for the strengthening of the synergies between national, regional and continental research and education organisations by enticing between linkages with apex organisations active in research, extension and education such as AFAAS, ASARECA, CCARDESA, CORAF, FARA and RUFORUM. This not only allowed these organisations to share knowledge but also reinforced their capacity to establish connections between DeSIRA processes and outcomes and continental strategies such as CAADP.

DeSIRA projects, however, identified several gaps that hinder their outcomes:

- a critical challenge was the lack of both human and financial resources in national laboratories, limiting their ability to support R&I effectively;
- poor technological infrastructure posed a barrier to the adoption and scaling of innovations, restricting progress in key agricultural advancements;
- sociocultural and religious factors also played a role in inhibiting innovation uptake and co-creation, highlighting the need for context-specific approaches to engagement;
- low commitment levels from some actors further weakened collaboration and slowed project implementation.

Participants in group work, discussing outcomes and challenges of DeSIRA projects.

Recommendations on the way forward

The DeSIRA Connect Days workshop provided a rich set of actionable ideas and suggestions for key stakeholders that will contribute to enhancing the impact of R&I.

The recommendations aim to not only sustain existing outcomes but also create frameworks for expanding and replicating successful initiatives across the region, particularly through a broader food systems perspective.

From this perspective, agricultural innovation should not operate in isolation but map its influence by asking what it is intended for, whom it is useful to and how it is done. This induces considering its sustainability from a multifunctional perspective that entails multidisciplinary approaches and the question of ownership and responsibility.

Sustainability is also based on the assessment of usefulness of innovations, and how they can create value through markets.

Recommendations building logically from the discussions of the workshop aim to:

1. address identified gaps and challenges;
2. propose ways to scale successful initiatives;
3. suggest mechanisms for sustainability;
4. emphasise institutional embedding of successful approaches;
5. promote cross-level integration and coordination.

They are grouped and organised in two sets: a first set directed at stakeholders of the AIS: research system, innovation communities, policy makers and development partners; and a second set directed at project partners targets the design and strategies of future R&I projects in the region.

1 Recommendation to stakeholders

1.1 Research system

National agricultural research organisations
National agricultural research organisations should further shift from traditional research approaches to applied innovations that directly address national agricultural challenges. This transition requires establishing and maintaining centralised databases and repositories to ensure research findings are accessible across the continent. Indigenous knowledge should be systematically integrated into R&I processes, while research design and implementation must maintain flexibility to accommodate unexpected events and local contexts. National agricultural research organisations should strengthen their collaboration with extension services to ensure effective knowledge transfer to farmers, creating a robust bridge between research and practical application.

International research organisations
To enhance research visibility and impact, international research consortiums should be established with a focus on cross-border initiatives addressing shared regional challenges. These organisations should develop standardised research methodologies while maintaining flexibility for local adaptation. Technical capacity building programmes must be implemented to strengthen national research systems, supported by comprehensive knowledge management systems that facilitate regional learning and innovation sharing. This approach ensures a coordinated response to common agricultural challenges while respecting local contexts.

1.2 Innovation communities

Innovation communities include farmer organisations as direct innovators and, in a broader food systems perspective, include other actors that come as innovation support services or as vehicles for the scaling of innovations beyond the strict agricultural aspect. They are key to establishing the sustainability of the agroecological transition from an economic and social angle.

Farmer organisations
Farmer participation must be strengthened in decision-making processes at local, national and regional levels, with stakeholder platforms co-designed to ensure farmers' needs are addressed. Support should be provided to build farmers' capacity to access funding before project completion, while establishing peer-to-peer learning networks among farmer organisations. Indigenous knowledge systems should be documented and integrated into innovation processes, ensuring that agricultural research and development remain grounded in local realities and practical needs.

Educational organisations
Educational institutions need to transform their approach to agricultural education by moving beyond theoretical teaching to build strong technical competencies. Curricula should integrate hands-on field learning demonstrations from basic education through university level, with agriculture introduced as an independent subject at the basic education level. Competency and experiential learning, including coaching, must be integrated into research processes. Educational institutions should establish strong linkages with farmer organisations and research centres to ensure practical relevance of their programmes and create pathways for knowledge transfer.

Innovation support professions, including extension services, also need to be promoted, reinforced and developed, as they offer a reservoir of jobs while at the same time helping innovation processes to be better embedded and supported to a longer term.

Extension services
Extension services should adopt participatory and bottom-up approaches in innovation dissemination, with facilitators involved throughout all innovation processes and multistakeholder platforms. Indigenous knowledge must be integrated into extension methodologies, supported by regular feedback mechanisms between farmers and researchers. Extension services should maintain strong connections with local community structures to ensure sustained impact and adoption of innovations. This comprehensive approach ensures that research outcomes effectively reach and benefit farming communities.

Civil society organisations
Civil society organisations should take a leading role in facilitating community engagement in R&I processes, ensuring that rural communities, youth and women are at the heart of innovation strategies. Bottom-up approaches should be adopted in project implementation to induce change and adoption, while community structures are trained to sustain multistakeholder platforms. Regular dialogue between communities and other stakeholders must be maintained to ensure continued relevance and effectiveness of agricultural innovations.

Private sector
Private-sector involvement should begin at the onset of projects to deepen understanding and facilitate scaling up, with business mechanism components incorporated in project design to achieve sustainability. Private-sector actors should be empowered to manage multistakeholder platforms, supported by funding to scale up their engagement in research and development. Market linkages and financial services should be developed to support innovation adoption, ensuring commercial viability and sustainable scaling of agricultural innovations.

1.3 Policy makers

National policy makers
To support agricultural innovation, countries should establish dedicated innovation funds and policy dialogue platforms that create awareness and mobilise support for innovations. R&I agendas must align with national agricultural development plans, while project design should incorporate funding mechanisms at the mid-term stage for scaling up. Institutional frameworks should be established to sustain successful innovations, ensuring long-term impact of research investments. This systematic approach to policy support creates an enabling environment for agricultural innovation.

Regional policy bodies
Regional investment must be increased to address shared challenges such as climate change and conflicts, with strengthened coordination mechanisms enhancing knowledge sharing and collective action. Dedicated funding mechanisms should support cross-border research initiatives, while agricultural innovation policies are harmonised across member states. Projects in the sub-region should integrate stakeholders from multiple member states to maximise spillover benefits and regional impact. This coordinated approach ensures an effective response to common challenges while promoting regional integration.

1.4 Development partners (EU and other donors)

Development partners should establish structured funding mechanisms at the mid-term stage of projects while supporting capacity building initiatives across the innovation system. International collaboration and knowledge sharing must be facilitated, supported by strengthened monitoring and evaluation systems to track innovation impacts. Long-term support should be provided for transitioning from projects to programmes, ensuring sustainable impact of development investments in agricultural innovation.

Cross-actor collaboration requirements
Multistakeholder platforms must be established at local, national and regional levels with clear operational rules and careful management of power dynamics to ensure equality among actors. Partnerships should be formalised through agreements such as memoranda of understanding, with resources allocated to strengthen platforms through cross-learning activities. Both virtual and physical collaboration mechanisms should be established with active private-sector participation, supported by innovation mediators who facilitate coordination. Regular policy dialogue forums must be maintained to ensure continued stakeholder engagement, while knowledge management systems support collaborative learning. This comprehensive approach to collaboration ensures effective coordination and sustainable impact of agricultural innovation initiatives.

2 Recommendations for the design and strategy of future projects

2.1 Project design principles

Multi-actor consortium structure
The consortium should be structured to include:
- all actors relevant for the innovation process, based on a preliminary analysis/mapping;
- farmer organisations, policy actors and the private sector, to ensure relevance of innovations and prepare conditions for scaling.

Partnership agreements must specify:
- decision-making processes, involving farmer organisations;
- resource allocation ensuring equitable distribution;
- knowledge management systems integrating traditional and scientific knowledge;
- clear communication channels between partners;
- mechanisms for conflict resolution and power balance.

Integrated funding mechanisms
Project design should incorporate:
- initial funding for farmer organisation capacity building;
- mid-term funding mechanisms for scaling successful innovations;
- support for transition to self-sustaining agroecological enterprises;
- resources for knowledge management and sharing;
- dedicated funds for multistakeholder platform maintenance.

2.2 Implementation strategy

Foundation building
Initial project phases should focus on establishing strong foundations through mapping of existing practices already meeting the innovation objective, such as agroecological ones, and knowledge systems. Build comprehensive baseline assessments in conjunction with project management and research capabilities. Research partners should provide methodological support and documentation expertise, while helping establish accessible knowledge management systems that integrate traditional and scientific approaches.

Innovation co-development
Local and regional innovation platforms are established to engage stakeholders, develop market connections and foster peer learning networks. Research priorities should emerge from farmer needs and traditional knowledge, complemented by scientific methodologies and regional exchange opportunities.

Scaling and institutionalisation
This phase should be thought of from the onset and all actions should seek to ensure it, particularly farmer-to-farmer dissemination, sustainable market systems for products. Involved farmer organisations should transition to managing innovation platforms independently, with research partners providing targeted technical support. Emphasis shifts to institutionalising successful approaches, strengthening regional networks and establishing sustainable funding mechanisms.

Success factors
Project success depends on clear governance protocols that prioritise farmer leadership while ensuring effective resource management and conflict resolution. Knowledge management systems must seamlessly integrate traditional and scientific knowledge through accessible platforms and regular exchange events. An early focus on business model development, coupled with clear exit strategies and policy engagement, ensures long-term sustainability through permanent local institutions.

Risk mitigation
Regular partnership health checks and balanced resource allocation help manage power dynamics, supported by clear dispute resolution procedures. Technical support remains flexible and responsive to emerging needs, with peer networks providing additional assistance. Resource sustainability is secured through diverse funding sources, market integration and community mobilisation, while maintaining strong policy support.

Monitoring and evaluation
Monitoring and evaluation systems should be user-focused and developmental. Regular reflection events and robust documentation processes should capture emerging practices and lessons learnt. Such a framework emphasises adaptive management, allowing for continuous improvement based on field experiences and stakeholder feedback.

Policy engagement
Strategic policy influence begins with early engagement of decision makers and evidence-based advocacy across multiple levels. Projects anchor their initiatives within permanent local institutions while supporting policy implementation and regulatory framework adaptation. Regular policy dialogue ensures continuous alignment between project outcomes and broader agricultural development goals.

Publications from the ReSI-NoC project, highlighting the importance of capacity building and facilitation.

Conclusion

The DeSIRA Connect Days in West and Central Africa, and Madagascar highlighted the common threads linking DeSIRA projects across the region and generated a comprehensive set of recommendations to enhance the impact of R&I.

The DeSIRA Initiative demonstrates that successful agricultural transformation requires a carefully balanced approach combining bottom-up farmer engagement, strong multistakeholder platforms and systematic policy support, while maintaining implementation flexibility and commitment to AIS thinking throughout all project phases and stakeholder interactions.

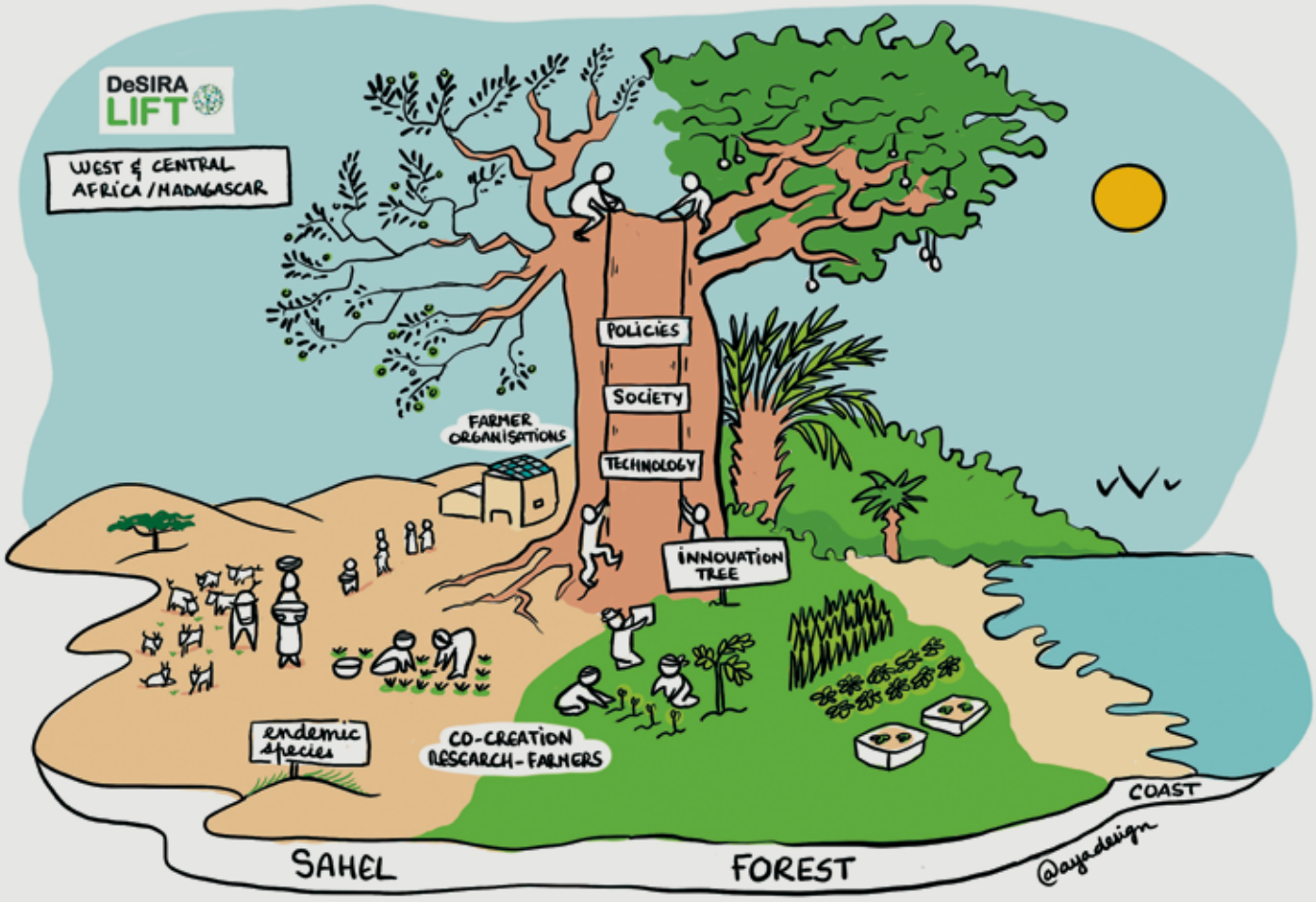
Building robust innovation support services and knowledge management systems is crucial for bridging research-practice gaps, with a particular emphasis on integrating local knowledge, mobilising youth through targeted education and training, and establishing centralised research databases that inform regional innovation policies and facilitate knowledge sharing at local, national and regional level.

Agricultural innovation must go beyond purely technological solutions to address broader social and economic impacts within food systems, requiring multidisciplinary approaches and strong partnerships between research institutions, political actors and local stakeholders to create lasting systemic change and sustainable agricultural transformation across the region.

Building a conducive policy environment and enhanced governance of research requires carefully balancing local leadership with regional coordination through institutionalised policy changes and sustainable funding mechanisms that include upstream and downstream non-research actors, including the private sector, while ensuring research efforts align with national priorities, broader development goals and the specific needs of farming communities across different contexts.

Conditions for scaling innovations require integrating comprehensive funding mechanisms with public funding targeting the development of networks, capacity building programmes, facilitation of innovation and policy making, while robust market linkages actively involving private-sector actors in multistakeholder platforms can create clear pathways for ensuring long-term economic viability of innovations within the broader framework of food systems.

Key takeways in a picture



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This Perspective Brief forms part of a collection of knowledge products, building on combined activities of the DeSIRA-LIFT Service Area 1 team that has been providing support to the 70 DeSIRA projects of DeSIRA pillar 1 in their various contexts. These knowledge products were developed in close interaction and with the inputs of the DeSIRA project teams.

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