

The DeSIRAs in Senegal, a response to the challenges of the NAIS

Analytical note on the DISSEM-INN Senegal national workshop,
held from 20 to 22 June 2023 in Dakar

DISSEM-INN IN A NUTSHELL

Funded by **AFD** and coordinated by **CIRAD**, the project “Dissemination of innovations in the Sahel region (**DISSEM-INN**)” concerns a set of **nine projects** launched under the European **DeSIRA** initiative and implemented in the Sahel region. These projects contribute to the development of sustainable, climate-resilient agri-food systems by focusing on innovation processes, each in a specific field. DISSEM-INN aims to capitalise on the practices of these nine projects and invites them to collectively reflect on how to scale up their innovations.

The first regional DISSEM-INN workshop was the opportunity to characterise the innovation approach specific to these projects – known as **DeSI** (Development Smart Innovation) – according to principles they share to obtain impact, in other words, **a multi-stakeholder, co-construction, multi-dimensional approach**. This analysis served as a basis for the organisation of a national workshop in Senegal, described in this note, the aim of which was to identify avenues for scaling up this **DeSI approach** at the national level. The perspective chosen was to study the contribution of the DeSIRA projects implemented in Senegal¹ to the National Agricultural Innovation System (NAIS)².

DISSEM-INN partnered with the DeSIRA TAP-AIS project, coordinated by MAERSA whose goal is structuring the NAIS and strengthening its support services. The discussions held during the workshop were based on the results of the **analysis conducted by TAP-AIS on the Senegalese NAIS**, which revealed two main **systemic obstacles**: support services for innovation functioning in silos and focusing primarily on the intermediate phase of innovation to the detriment of the initial phase of identifying innovative ideas with farmers and the final phase of maintaining the innovation over time, beyond the projects’ duration.

Given this situation, how does the implementation of the DeSIRA innovation approach in Senegal respond to the SNIA's challenges ?

About the DeSIRA initiative

Launched at the One Planet Summit in Paris in 2017, the **DeSIRA initiative** is supported by the European Commission Directorate for International Partnerships (DG INTPA). Funding more than 60 projects worldwide, this programme aims to promote innovation in agriculture and the transformation of partner countries’ agri-food systems to make them more resilient to the effects of climate change.

¹ These include five projects directly concerned by the DISSEM-INN activities, ABEE, BIOSTAR, CASSECS, FAIR and Health & Territories (H&T), and three other projects not directly concerned, TAP-AIS, SyRIMAO and FO4RI.

² It can be defined as the set of stakeholders involved in agricultural innovation at the national level, divided into three sub-systems depending on whether they participate in agricultural production, knowledge production or support services. An effective NAIS implies the existence of an institutional and policy framework that guides the articulation between these three key sub-elements.

AN INCLUSIVE, DECOMPARTMENTALISED PROCESS

In Senegal, the DeSIRAs are part of a multi-disciplinary, multi-stakeholder approach, which gives rise to several noticeable difficulties, such as the shared understanding of concepts due to the heterogeneity of stakeholders involved, the importance of their power relations or competition for access to donor funding.

In response to these obstacles, these projects typically conduct a mapping exercise that helps to better understand the environment in which the innovation will take place and to facilitate the inclusion of key stakeholders and resource persons in the process. This then enables them to deploy **governance models that guarantee a balance** and the representation of all parties, in particular

agricultural organisations, and within which stakeholders agree on **common frames of reference** (living lab - H&T). The transdisciplinarity appears to be a key competence of project coordinators in this respect

The DeSIRA projects thus strive to **structure stakeholders**, or even to institutionalise their collaborations (sub-regional data sharing charter - ABEE), the success of which is based on the historical nature of the trust relationships built between partners.

To address the first challenge of the NAIS – the functioning in silos – the DeSIRAs in Senegal pursue thus an **inclusive, decompartmentalised approach**.

INTEGRATION FROM THE DESIGN STAGE

In line with the DeSI process, the DeSIRA projects adopt a co-construction approach, in other words they place **beneficiaries at the heart of the innovation process**, right from the design stage. This presents the challenge of co-developing something new starting from scratch.

To address this, the projects start with identifying the concerns of beneficiaries along with their local knowledge. Within the innovation platforms (central fields - FAIR), they work with them to **co-design models or build on existing practices to co-define the experiments to be implemented**. The local stakeholders are involved in order to assess and adjust the innovations in line with their needs, or are supported so that they can directly conduct the trials under their own conditions

(combustion furnaces in SMEs - BIOSTAR).

The second major challenge of this approach is its innovative nature, which the project teams face at the methodological level. To this end, they take advantage of the multi-disciplinarity and diversity of competences available to implement internal training, and set up communities of practice that capitalise on the ongoing process and train local actors in its monitoring and evaluation.

Faced with the second challenge – the lack of support in the innovation design phase –, the DeSIRA co-construction approach helps to **improve the actual quality of the design process underlying the innovation**, since it is defined on the basis of the needs and knowledge of local stakeholders and refined with them.

INNOVATIONS IN THREE DIMENSIONS

The cross-cutting capitalisation process conducted by DISSEM-INN on the achievements of the DeSIRA projects has shown that each innovation can be understood in the light of three dimensions: **technical** or physical, such as new varieties or tools (hardware); **organisational**, relating to stakeholders' modes of organisation (orgware); and **sociocultural**, focusing on ways of thinking and behaving (software) (see Table 1 below).

The CASSECS project, for example, develops technical tools to measure the carbon balance, supports the networking of national greenhouse gas inventory managers, and provides a new approach to livestock farming in the Sahel as a vector of soil carbon sequestration and therefore of climate change mitigation.

While the NAIS suffers from a lack of support in the

final phase to maintain the innovation over time, the DeSIRAs **innovate simultaneously in the technical, organisational and sociocultural**

dimensions to foster impact and the **perpetuation of the changes induced** by their DeSI innovations (see figure 1/A p.4).

Table 1. Illustration of the achievements of the DeSIRAs in Senegal according to the different dimensions of the innovation

DeSIRA project	Innovation	Dimensions of the innovation		
		Technical	Organisational	Sociocultural
ABEE	Modernisation of plant breeding practices	Improvements to the BMS ³ tool	“E-Chain” digital platform connecting value chain stakeholders	Systematic use of the BMS by national teams
BIOSTAR	Production of bioenergies	Prototypes of combustion furnaces	Consultations between bioenergy sector stakeholders	Crop residues as an energy source
CASSECS	Improvement of greenhouse gas (GHG) measurements	Systems to measure GHGs	Networks of national GHG inventory managers	Livestock farming as a practice contributing to GHG mitigation
FAIR	Dissemination of agroecological cropping systems	Ideotypes of agroecological cropping systems	Support for structuring of DyTAELs ⁴	Mobilisation of the future to plan the territorialisation of agroecology
S&T	Establishment of living labs	Co-definition of research subjects on health	“Living Labs” innovation platforms	One Health and agroecology prisms

INNOVATIONS THAT DRIVE CHANGES OF SCALE ?

Although the DeSIRAs aim to achieve impact, their dimensioning as pilot projects seems to prevent them from driving large-scale change (at least at their level). They nevertheless plan and implement strategies to work towards scaling up their innovations, in other words increasing the direct and indirect effects they generate.

To analyse these strategies, DISSEM-INN has used the framework by Moore et al. (2015), which distinguishes three modalities (see. figure 1/B p. 4).

The first, termed **horizontal** (scaling out), consists in the replication of innovations to other populations and contexts that are broader than the initial ones.

For this component, the DeSIRAs implement activities to build local capacities and skills through training for both researchers and beneficiaries (ComMod⁵ methodology - CASSECS, H&T), in order for them to become autonomous in the transmission of knowledge linked to the innovation.

The second, termed **vertical** (scaling up), aims to transform systems structurally to make them conducive to innovation deployment. To achieve this, the DeSIRAs raise awareness among policy-makers through direct interviews with decision-making bodies or the identification of resource persons to provide advocacy, or through analysis of the institutional frameworks in place (Report on the integration of agroecology into public policy in Senegal - FAIR).

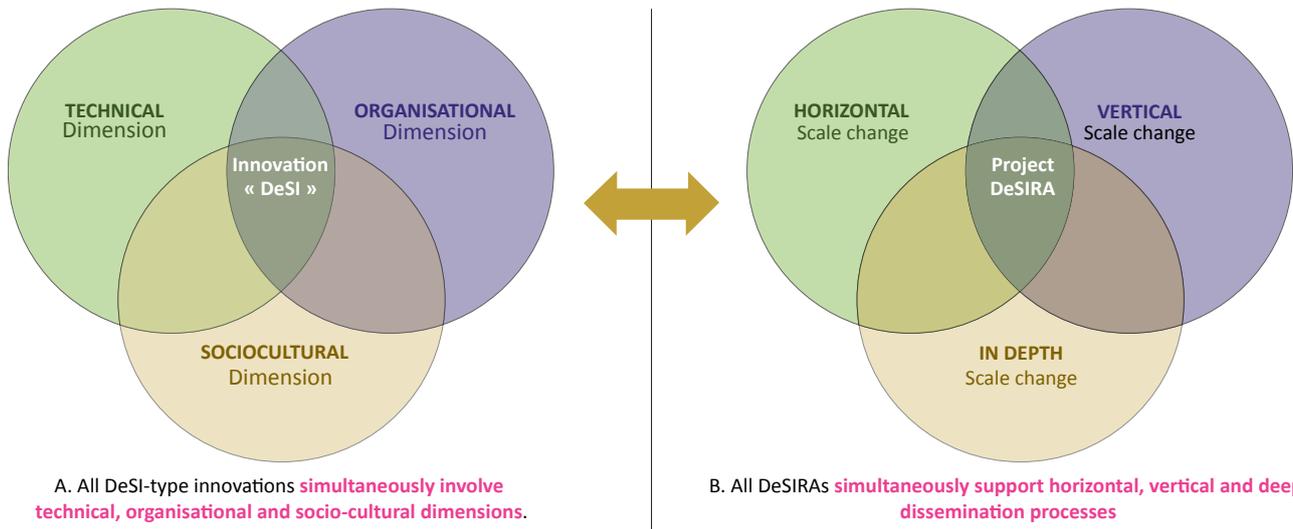
The last, termed scaling **deep**, aims to ensure profound changes to systems of representation, values, or beliefs of individuals and, consequently, their behaviours. The goal here for the DeSIRAs is to ensure a far-reaching transmission of the messages delivered by their innovations. Examples include the BIOSTAR project, which has enabled a shift from crop residues being perceived as waste to being seen as a source of energy, or the ABEE project, which has led to a systemic change in behaviours of national plant breeding teams, which now all use the BMS.

³ The Breeding Management System (BMS) is a modernised system to assist data management at all stages of the crop improvement cycle, from programme planning to decision making.

⁴ Local branches of the Dynamic for an Agroecological Transition in Senegal (DyTAES), a national multi-stakeholder network promoting agroecology through advocacy, awareness and support for territories.

⁵ The COMpanion MODelling approach is a tool to support stakeholders in the construction of a shared vision around issues concerning the sustainable management of natural resources and the collective development of solutions that are acceptable to all.

Figure 1. Illustration of the hypothesis of a correspondence between the dimensions of the DeSI innovation and those of the scale change



During the workshop, a hypothesis was made concerning a possible correspondence between the technical dimension of the innovation, to which horizontal dissemination could apply, the organisational dimension, for which support for the networks backed by the projects could be enabled by more conducive institutional frameworks (or a vertical scale change), and the sociocultural dimension, which ties in with the deep changes to systems of thinking and acting (see figure 1 above).

Based on this assumption, the innovations developed by the DeSIRAs already carry the seeds of scale changes in the different dimensions that characterise them, and which they could further develop by comparing them to the types of associated scale changes, as proposed (technical/horizontal; organisational/vertical; sociocultural/deep). In summary, this assumption supports the idea that the DeSI approach

incorporates the continuation of the changes it induces.

With respect to the expectations formulated by MAERSA concerning the results of this workshop, in view of its goal of supporting the NAIS, the DISSEM-INN cross-cutting analysis shows that the intervention methods of the DeSIRAs in Senegal provide responses to most of the structural challenges of the NAIS identified by the analysis conducted by the TAP-AIS project.

It therefore seems important to envisage **incorporating this impact-oriented “DeSI” approach into the institutional frameworks governing rural development and agricultural innovation in Senegal**, a process that MAERSA, as coordinator of TAP-AIS, could pursue in the light of the policy dialogue launched on the consolidation of the Senegalese NAIS in the context of this project.

References

- MOORE M.-L., RIDDELL D., VOCISANO D., 2015, *Scaling out, scaling up, scaling deep: strategies of non-profits in advancing systemic social innovation*, *Journal of Corporate Citizenship*, n° 58, p. 67-84.
- Rapport d’atelier, Sénégal, *La contribution des projets DeSIRA au système national d’innovation agricole*, DISSEM-INN projet, 2023. Find it by scanning the following qr code

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