Sustainable Animal Productivity

For Livelihoods, Nutrition and Gender Inclusion (SAPLING)

Technical Report

Stakeholder Analysis

Prospects for Effective and Sustainable Implementation of Innovation Packages, Achieving Initiative's Immediate Results and Outcomes in Mali

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About SAPLING

CGIAR's Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING) is working in seven countries focusing on livestock value chains to package and scale out tried-and-tested, as well as new, innovations in livestock health, genetics, feed, and market systems. SAPLING aims to demonstrate that improvements in livestock productivity can offer a triple win: generating improved livelihoods and nutritional outcomes; contributing to women's empowerment; and reducing impacts on climate and the environment. Its seven focus countries are Ethiopia, Kenya, Mali, Nepal, Tanzania, Uganda, and Vietnam

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Trader and Animals at the Weekly Sheep & Goats Market. Sikasso, Mali (Photo: Zied Idoudi, ICARDA) – November 2023

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Introduction

This report aims to provide a structured analysis of a stakeholder assessment related to sustainable animal productivity for livelihoods, nutrition, and Gender Inclusion in Mali. This analysis is part of the CGIAR initiative SAPLING, with the primary goal of understanding and identifying the role of various stakeholders, their potential contributions, and avenues for collaboration to ensure the successful implementation of SAPLING's innovation packages (IP) and the desired outcomes of the initiative. This work aims at: i) Identifying wich relevant Stakeholders are closely associated with each innovation package and the key actors capable of contributing effectively at different levels and scales, ii) outlining how existing platforms are evolving to incorporate new participants who can support the implementation of the Multi-Stakeholder Innovation Platforms (MSIPs), Core of SAPLING' ToC in Mali, and iii) supporting the design of the Behavior Change Communication (BCC) plan through tailoring specific capacity development initiatives.

To conduct this stakeholder analysis, we employed the MACTOR methodological framework, which is designed to assess stakeholders' strategies and their power dynamics (Balance of power) in decision-making. This framework is particularly relevant for the complex issue of sustainable animal productivity for livelihoods, nutrition, and gender inclusion, which requires significant collective action. Our data collection method involved a series of focus group discussions with primary stakeholders involved directly and indirectly in the small ruminant value chain. During these discussions, we gathered stakeholders' perceptions concerning the implementation of six innovation packages. These perceptions were assessed and analyzed across different decision scales, taking into account roles, interests, influence, balance of power, objectives, and stakeholders' strategies.

The findings from this analysis are expected to suggest pathways and strategies to foster collaboration and partnerships among stakeholders and catalyze potential alliances that can drive the effective implementation of innovation packages, aligning with the overarching outcomes of the SAPLING initiative in Mali.

Methodological Framework

Stakeholder Analysis Approach & Relevance for the Activity

Stakeholder analysis is an increasingly popular approach in various fields and academic disciplines, including environmental management and governance (Friedman and Miles, 2006; Reed et al., 2009; Fetoui et al. 2020). It was developed in response to the challenge of multiple interests and objectives, and particularly the search for efficient, equitable and environmentally sustainable development strategies (Grimble and Wellard, 1997). It can be considered as a holistic approach for gaining an understanding of a system and changes in it, by identifying the key stakeholders, assessing their respective interests in the system, analyzing conflicts and social stakeholders' perspectives, and suggesting areas of complementarities (Grimble and Wellard, 1997). This is particularly relevant for the study of collective action and strategic behavior of agents involved in the management of common resources.

There are many methods that can support decision-making in the case of conflicting objectives, or for addressing policy disputes (Grimble and Wellard, 1997; Hermans and Thissen, 2009), including the Social Network Analysis approach. This approach quantitatively analyzes environmental policy and collaborative processes and considers complex types of interactions of actors at different hierarchical levels (Kenis and Schneider, 1991; Lienert et al., 2013).

Stakeholder analysis is performed to understand how stakeholders from different decision levels and sectors are represented, who plays an important role, who is dominant and who is dominated, and which convergence or divergence of objectives, related to the same resource, can exist (Godet, 1991; Grimble and Wellard, 1997; Lienert et al., 2013). It can, thus, provide information on the position, interest, influence, interrelation, networks, and other characteristics of stakeholders, which make it particularly relevant for the study of pastoral management and implementation of new technologies or processes (Brugha and Varvasovszky, 2000), the subject of our investigation. Such information on stakeholder relationships is particularly crucial for problem analysis, especially in the early phases of the decision-making process (Weimer and Vining, 1989; Hermans and Thissen, 2009).

The MACTOR Method for Stakeholder Analysis

This study uses the MACTOR methodology (Method of ACTors, Objectives, strength Reports) developed by Godet (1991). The aim of this method is to define a "matrix of alliances, conflicts, tactics and objectives" between different actors, as well as the resulting recommendations that could be suggested based on this analysis. It is a tool for multi-actor multi-objective stakeholder analysis, used to analyze actors' strategies and characterize the balance of power between them while studying their convergences and divergences in relation to a certain number of associated stakes and objectives. The choice of MACTOR is justified by the fact that it is considered as an integrated method mainly focused on characterizing stakeholders along four dimensions cited by Hermans and Thissen (2009): networks, perceptions, values, and resources. It also can generate descriptive, normative, and instrumental outputs (Reed et al., 2009). From an operational point of view, MACTOR also has a user-friendly interface. In the case of this activity, the MACTOR tool focuses on (1) revealing the type of relationships between stakeholders concerning pastoral management decisions, specifically in term of sustainable animal productivity in small ruminant value-chain in Mali and (2) defining the potential alliances and conflicts (across actors) that affect the implementation of diverse innovation packages under different decision scales.

Implementation of MACTOR Analysis

The MACTOR method applied in this activity includes two main steps. The first step is mapping all relevant stakeholders involved in the small ruminant value chain and charactering their missions, strategies, and objectives in relation to sustainable animal productivity for livelihoods, nutrition, and gender inclusion. This step is based on expert knowledge and multi-stakeholder focus groups and discussions. The second step deals with analyzing stakeholders' relationships in MACTOR. This includes the elaboration of an "influences and dependencies plan", in addition to a "correspondence map of stakeholders/objectives" which can help depict alliances to better promote collective action.

Elaboration of the Influences and Dependencies Plan

The "influences and dependencies plan" provides a graphical representation of the positioning of the stakeholders according to their direct influences and dependencies on each other.

This plan for influences versus dependences is based on a stakeholder/stakeholder matrix called the "MIDI matrix" in which five levels of relationships among stakeholders are classified according to the degree of influence/dependence:

- The selected stakeholder has little or no influence on "stakeholder x" (a score of 0),
- The selected stakeholder is capable of jeopardizing the management processes of stakeholder x to some extent in time and space (a score of 1),
- The selected stakeholder is capable of jeopardizing the success of projects undertaken by stakeholder x (a score of 2),
- The selected stakeholder is capable of preventing stakeholder x from carrying out his/her mission (a score of 3),
- The selected stakeholder is capable of jeopardizing the very existence of stakeholder x or is vital to his/her existence (a score of 4).

Stakeholders' positions were plotted in two dimensions with the two axes representing influence (I) versus dependence (D), respectively. This analysis highlights the dominance of each actor, as well as possibilities for serious conflicts. The plot of I versus D reveals four position types: dominant stakeholders (very influential and little dependent), dominated stakeholders (little influence and highly dependent), intermediate or relay stakeholders (both influential and dependent) and autonomous stakeholders (neither influential nor dependent) (Godet, 1991; Elmsalmi and Hachicha, 2014; Fetoui et al. 2021).

Based on the MIDI matrix, a "histogram of relation powers" is elaborated, taking into account other information related to the indirect influences that a stakeholder i has on a stakeholder j (MIDI)ij, which is channeled through a relay stakeholder called feedback (MIDI)ii.

The MACTOR method generates a "balance of power" indicator (R) reflecting the relative strength of each stakeholder based on their influence and direct dependence. High values of R suggest that a stakeholder is in a strong position in terms of decisions. The balance of power of a stakeholder will be high if his/her influence is high and dependence and feedback are weak (Godet and Durance, 2011).

Elaboration of the Correspondence Map of Stakeholders/Objectives

In this step, the strategic stakes and associated goals and position of each stakeholder according to each Innovation Package (IP) and SAPLING initiative outcomes are identified based on a stakeholder/objective matrix called the "MAO matrix". With this matrix, attitudes of each actor with respect to a given IP and its importance are indicated by agreement (from +1 to +4), disagreement (from −1 to -4) or neutrality (0). The method allows visualizing groups of stakeholders sharing the same interests, to evaluate the degree of their apparent independence, identify stakeholders who are potentially threatened by others and analyze stability of the overall social system.

Data collection

Data were mainly gathered through three multi-stakeholder workshops (focus group discussions) organized in Bamako, Sikasso, and Ségou (Mali), which drew approximately 66

participants from 123 national, regional, and local institutions and organization closely associated with the small ruminant value chain including Government, Advanced research institutions, financial and development organizations, NGOs, CBOs, private sector, and local entities, as well as livestock producers and associations. These workshops were carried out to see how actors/stakeholders perceive the Theory of change (ToC) with its three blocks (toward implementation of Innovation Packages (IP), their Immediate Results (IR) and the End-of-Initiative Outcomes (EoI/O)).

It's important to highlight that the actors' identification (Annex-1) showcases 115 actors. This adjustment stems from the fact that certain actors are depicted at distinct levels of intervention (National, Regional), such as IER (national) and IER Sikasso, etc. To accurately reflect their participation, these actors have been accounted for separately in both matrices based on their geographical scope of intervention.

All defined actors (123) were finally included in both matrices, even those who didn't participate in the multi-stakeholders' workshops but were referenced and mentioned by other attending actors in the tool's snowball sampling part and the MID section of a designed stakeholder mapping tool. To evaluate their influence, power dynamics, and alignment with the initiative's objectives (IP-IR-EoI/O), direct consultations were combined with workshop participants, information gathering, and desk research. This assessment considers factors like the actor's primary mission relative to the initiative's offerings, their administrative hierarchy, and their category, etc. This evaluation process has been integral in forming the activity's rationale and approach.

Stakeholder Analysis' Results

Stakeholders, Challenges, and Objectives

The starting point of the stakeholder analysis is to build an initial map of relevant stakeholders closely associated with the small ruminant value chain in Mali (Annex-1). The 123 stakeholders represent a diverse range of stakeholders and encompass various groups and categories, including: i) Government (32%), ii) Advanced research institutions including national research and academic institutions (Universities) (6 %), iii) Community-based organizations (CBOs), farmers' cooperatives & associations, individual livestock producers, socio-interprofessional organizations, NGOs, and INGOs (31%), iv) International development organizations (including development programs/projects) (6%), v) Financing institutions (including foundations) (5%), and vi) Private sector (20%).

Focus group discussions (FGDs) allowed identifying issues and challenges based on stakeholders' local experience, but also their perceptions and positions towards defined IP, IR and EoI.

The defined IPs are:

- IP1: Production and distribution of thermostable vaccines against PPR taking into account the gender dimension,
- IP2: Integrated gender-responsive herd health packages through behavior change communication (BCC) to improve sheep and goat productivity,
- IP3: Inclusive Smart Marketing to promote a dynamic market information system and strengthen collective action for the marketing of small ruminants,

- IP4: Community schemes for the genetic improvement of animal farm, integrating gender and youth issues and artificial insemination (AI) in order to improve the production performance of sheep and goats,
- IP5: Drought-tolerant and adapted forage cultivars and hybrids to improve the productivity, incomes and livelihoods of households raising small ruminants,
- IP6: Strengthening links between actors in the PR value chain.

The defined IRs are:

- IR1: Policy makers recognize the importance and added value of thermostable PPR vaccine and support public-private partnership,
- IR2: Vaccine producers have the skills to produce and supply high-quality vaccines that tolerate high temperatures,
- IR3: Multi-Stakeholder Innovation Platforms (MSIP) are strengthened,
- IR4: Actors strengthen linkages, inclusion, and coordination along the value chain,
- IR5: Value chain actors improve their technical and business skills,
- IR6: Stakeholders have access to new SAPLING innovations (tools and technologies) adapted to the local context,
- IR7: Value chain actors, including producers and service providers, use new skills, tools, and business models to promote innovations and technology packages.

The defined EoI/O Outcomes are:

- EoI/O1: Packages of co-created, inclusive, and demand-driven innovations, comprising low-emission technologies that improve productivity and resilience, as well as the institutional arrangements (including markets) necessary for their adoption, are used by 2,000 people (men and women) in households raising small ruminants in Mali, resulting in a 20% increase in livestock productivity,
- EoI/O2: Private and public sector partners invest at least $1.5 million in the co-creation and delivery of innovative, low-emission, demand-driven technologies and practices that promote gender equality and youth, and improving productivity and resilience in genetics, animal nutrition and health,
- EoI/O3: Public and private decision-makers use the innovation packages supported by the Initiative to inform policies and investments in Mali towards an inclusive and sustainable livestock sector, including progress towards equity gender and youth inclusion,

Relationships, Mutual Influences, Dependencies among Stakeholders

This section provides, from MACTOR tool, the results of the analysis of relationships and mutual influences between the already identified stakeholders (involved in the small ruminant value chain in Mali), described in the previous section.

MACTOR provides, in this relationship analysis, a graphical representation of the positioning of the involved stakeholders, according to their influences and dependencies on each other (Figure 1). The figure is subdivided into four parts showing four categories of stakeholders (dominant stakeholders (Upper left corner of figure 1), relay stakeholders (Upper right corner of figure 1), autonomous stakeholders (Down left corner of figure 1), dominated stakeholders (Down right corner of figure 1).

This first output from MACTOR analysis reflects the reciprocal influences exerted among stakeholders and their level of dependency on each other. Analysis shows that there are several dominant stakeholders (24% of the total involved actors) who have a strong influence on the others without being strongly influenced. These dominant actors are essentially composed of government actors who have considerable weight in decision-making processes within the small ruminant value chain. They represent 50% of the total dominant players, 43% of which operate at regional and cercle levels (CRA, DRDSES, SDSES, DRA, DLCA, CCDSES, etc). The fact of having dominant actors at this level of intervention represents an advantage in guaranteeing an effective implementation of the technological packages at the local level. So, it is necessary to better value the support of the government. The results also show another advantage for an efficient implementation of these innovation packages. CBOs (e.g., CRCR, Agro-pastoral association, PI "Farakala"), Farmers' associations and cooperatives including socio-interprofessional Groups (Federation) of Producers & Processors, (e.g., FERLAIT, livestock association & cooperative, etc.) and NGOs (Sugu Yiriwa) actually represent 25% of the dominant players. In this case, it is necessary to better value this dominance within the framework of decentralization of power in order to promote the value chain. It should be noted here that these local associations and organizations represent only 27% of the total number of local organizations involved in this SR/VC-based work. This encourages better integration of the rest of these key actors in the decision-making process. In addition, analysis shows that only two dominant actors represent financing and development organizations (Kafo Jiginew and US ADF). The latter can play an important role in the empowerment of local communities. Furthermore, an important finding that has been noticed is that there is a significant presence of traders and especially market intermediaries in the processes of the small ruminant value chain (they represent 18% of the dominant actors). This can hamper sustainability and the allocation of actors' profit margins within the value chain. In this case, the role of intermediaries has to be limited and that of other private actors increased.

Analysis shows also that many key stakeholders are strongly influenced and dominated by others in terms of decision (18% of the total actors are dominated). First, the weak influence of advanced research institutions indicates the weak technical support to the value chain and constitutes a major constraint on the development of the small ruminant breeding sector. In addition, analysis shows the existence of several farmers' cooperatives and socio-Interprofessional groups which are dominated and have practically weak decision-making weight within the value chain (UCEB, livestock producers' cooperative, FEBEVIM, FENALAIT). This encourages better positioning of these local organizations considered as key stakeholders through their integration into decision-making processes within the value chain. Analyzes show also dominated private actors such as veterinary and para-veterinary pharmacies and wholesalers of agricultural inputs and fodder feed. Furthermore, development support projects, such as PADEL and PRAPS currently do not play important roles in the decision-making process and their intervention is very dependent on other actors. Finally, a very important finding is that the most important key actor in the value chain, represented by sheep and goat producers, is among the most dominated stakeholders and has a very weak influence on the others in decision processes. This is considered as a major constraint to the development and sustainability of the small ruminant value chain in Mali. Thus, the improvement and sustainability of animal productivity in regional and national scales would require some of the key stakeholders to increase their influence and dominance.

Another important finding in this step is the existence of small number of relay actors formed especially by two government actors (DNPIA and DNSV) acting at the national level through the draw up of national policies in the fields of animal production and valorization of animal products and by- products, coordination, and monitoring of its implementation, but also through health surveillance and protection and veterinary public health. Two other important relay actors exist also in the decision process, which are the individual livestock producers and the USCET of Ségou (union of cooperative societies of livestock producers whose role is to unite and support livestock producers by facilitating resource sharing, capacity building, market access, etc.). Despite the existence of these important relay actors, the improvement and development of the value chain requires other relay actors which could bridge the gaps among stakeholders.

The rest of the actors (57%) are autonomous. They are neither influential nor dependent. They are represented mainly by 70% of private actors, 50% of CBOs, NGOs, cooperatives, and associations, and 45% of government actors. These records show the importance of the number of key actors who do not participate or are on the margins of decision-making processes within the small ruminant value chain in Mali. The improvement and sustainability of animal productivity in this value chain would require again some of these key stakeholders to increase their influence and dominance.

In term of relation powers (influence in the decision process), findings show that most of the previously defined dominant actors have an R score higher than the other stakeholders and confirm the first results, except for the case of CMDT Bamako (government), US ADF (international development organization) and Kene Forge (private manufacturer of small-scale agricultural equipment). Despite its mandate for developing scientific based evidence, innovations, and strategies, including the provision of technical skills, the academic and research institutions are in a non-favorable balance of power in terms of influence. The relation power analysis shows also that many local organizations are completely dominated, with a weak R score. In fact, the heavy presence of the government creates a strong dependency on local associations. In this case, the challenge is the difficulties of acquiring independence and capacities of dialog between government and local organizations. The flexibility of the government is thus very important for better performance of small ruminant value chains. Accountability and transparency between stakeholders are also symptoms of an effective and sustainable implementation of the IPs.

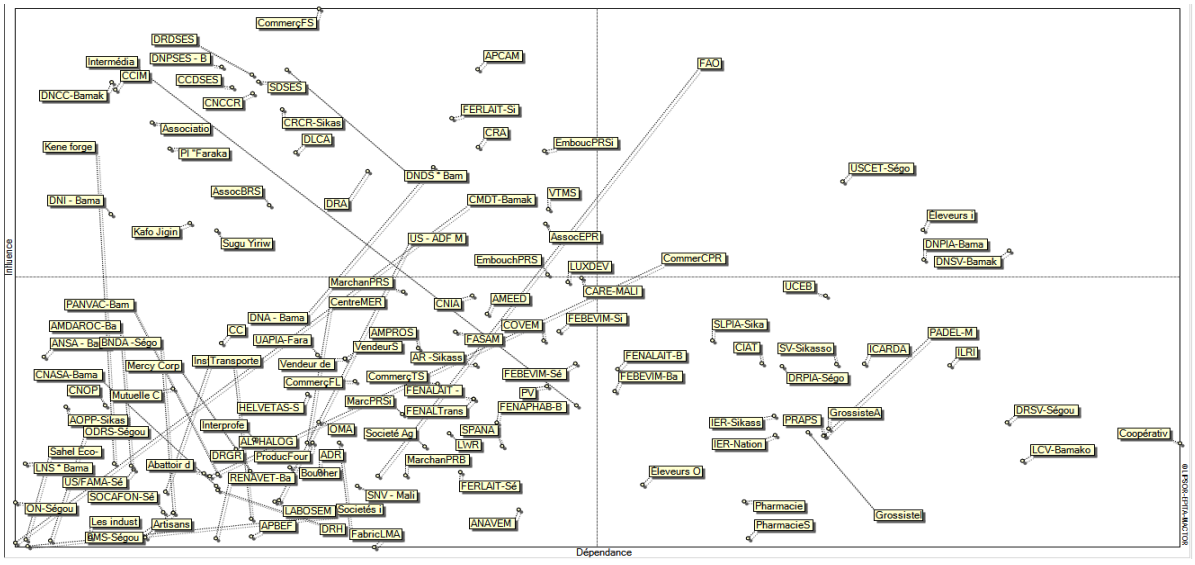


Figure 1. Stakeholders' Influence and Dependency Map

Potential Alliances and Conflicts between Stakeholders: Convergence and Divergence regarding IPs , IR, and EoI/O

In this section, we will present the agreements and disagreements, the potential alliances, and conflicts between the involved stakeholders in the small ruminant value chain in Mali. These relationships are evaluated according to the level of convergence (sum of agreements) or divergence (sum of disagreements) among stakeholders toward the expected strategic objectives of SAPLING, taking in account the power relations, i.e., we will identify if the relationships and power relations can help or not to achieve these strategic objectives. In other words, we search to understand and identify which actors/stakeholders are helpful or unhelpful and to suggest prospects for stakeholder cooperation for an effective implementation of related innovation packages (IP). We will define which actors are properly linked to each IP, who are the key stakeholders that may contribute effectively (at different scales) to the implementation of each IP in a sustainable manner/perspective - and who can be brought in to achieve the initiative's outcomes. This can also help identify which is gathering the most consensus and the stakeholders most involved in the achievement or non-achievement of these objectives. The outputs are expected to suggest pathways for stimulating and catalyzing potential alliances and reducing conflicts in order to guarantee an effective implementation of related innovation packages (IP) and SAPLING initiative's outcomes.

This can easily be read from the “correspondence maps of stakeholders/objectives” (Figures 2, 3 and 4) in which close distances between different stakeholders and a given objective (IP or IR or EoI/O) identify the level of agreement regarding the objectives.

Convergence & Divergence regarding the Implementation of Innovation Packages (IP)

Regarding the initiative’s innovation packages, Figure 2 reveals that eight key actors can be identified. Among these, two are private actors, namely VTMS and Mutuelle Cuir et Peau, a member of Socio-Interprofessional group of producers and processors. The remaining six actors are government entities, including DRA, DNA, DNI, CCIM, and DNCC. It's interesting to note that these eight actors seem to be the least enthusiastic about the six IPs, and in some cases, they do not perceive them as a priority. Consequently, it is imperative to enhance their engagement in the initiative's activities and incorporate them into the behavior change communication strategy, particularly given that many of them wield significant influence. Furthermore, there is a clear need for targeted efforts aimed at raising awareness within the DNSV regarding the initiative and its innovation packages. These efforts should encompass regular involvement in the implementation process to ensure a more comprehensive understanding and commitment.

The analysis also indicates that IP3, which pertains to "Inclusive Smart Marketing to promote a dynamic market information system and strengthen collective action for the marketing of small ruminants" is the least consensual objective. The results suggest that only a limited number of actors are likely to contribute to the realization of this IP. These actors include financial institutions like Kafo Jiginew, socio-interprofessional groups of producers and processors such as FENAPHAB, as well as government institutions like OMA.

Besides, finding shows that the most consensual IP is IP2 (Integrated gender-responsive herd health packages through behavior change communication (BCC) to improve sheep and goat productivity), where 80 actors are linked and considered as key stakeholders that may contribute effectively (at different scales) to the implementation of this IP in a sustainable manner. These actors are mainly from government, research, and private sector. These latter are autonomous actors and have a weak relation power. To reach the assigned objective in this IP, these actors should increase their involvement in decision processes. Some local associations, CBOs, and socio-interprofessional groups of producers and processors could also play an important role in the implementation of this IP by valorizing their dominance and strong power forces at local scale.

Concerning the implementation of IP1 (Production and distribution of thermostable vaccines against PPR taking into account the gender dimension), 13 actors are in convergence in relation to this objective: 6 government actors (including five dominant actors and one autonomous actor: SLPIA/DRSV which is a key actor but it does not have a great influence on the others and requires to be better placed in the decision-making process), 2 CBOs and a socio-interprofessional group of producers and processors (two of which are dominant (Association of Small Ruminant Breeders and CRCR) and the third has a little influence (FENALAIT), 3 private actors (COVEM, Individual livestock producers, PR Emboucheurs) and one actor representing advanced research institutions (LCV). In addition to the three actors specialized in veterinary services (COVEM, ANAVEM and PV), the most appropriate actors which have to be chosen to cooperate for a better implementation of this IP are "CRA", "Individual livestock producers", "APCAM" and "FENALAIT". However, the role and weight of individual livestock producers in the decision-making process must be improved and increased.

The analysis also reveals a potential for collaboration among various actors. These include livestock producers' cooperatives, Socio-interprofessional groups of producers and processors like FERLAIT/FENALAIT and FEBEVIM, government institutions such as CNIA, DNSV/SLPIA/PV, and DNPIA/DRPIA/UAPIA, private entities like “Bouchers” & Emboucheurs, as well as academic universities and research institutes like US/FAMA and IER. This collaborative effort can be particularly effective in the implementation of IP4, which focuses on (Community schemes for the genetic improvement of animals’ farm, integrating gender and youth issues and artificial insemination (AI) in order to improve the production performance of sheep and goats. Notably, additional actors pertinent to this collaboration are visualized in Figure 2.

Regarding IP5, which focuses on the development of drought-tolerant and adapted forage cultivars and hybrids to improve the productivity, incomes, and livelihoods of households raising small ruminants, there are several key stakeholders who could play an important role in its implementation. These stakeholders include the MSIP of Farakala, forage producers, and the private sector (e.g., AgriSahel), among others. To further enhance the implementation and scaling of these forage cultivars and hybrids, the initiative has the potential to foster a public-private partnership. Specifically, a collaborative venture between IER and the private company Agri-Sahel could be catalyzed by the initiative. Such a partnership would not only enhance the reach and effectiveness of IP5 but also facilitate wider dissemination and adoption of these innovative forage solutions.

IP6, which focuses on enhancing connections among various stakeholders in the PR (Public Relations) value chain, is of great interest to a diverse range of actors. These actors encompass government entities, including DNPIA, OMA, CC, DNDS, DRDSES, and UAPIA; prominent regional NGOs such as Sugu Yiriwa in Sikasso; private entities and socio-

interprofessional groups consisting of producers and processors, for example, FENAPHAB. Additionally, national autonomous advanced research institutions like IER are actively engaged in this IP.

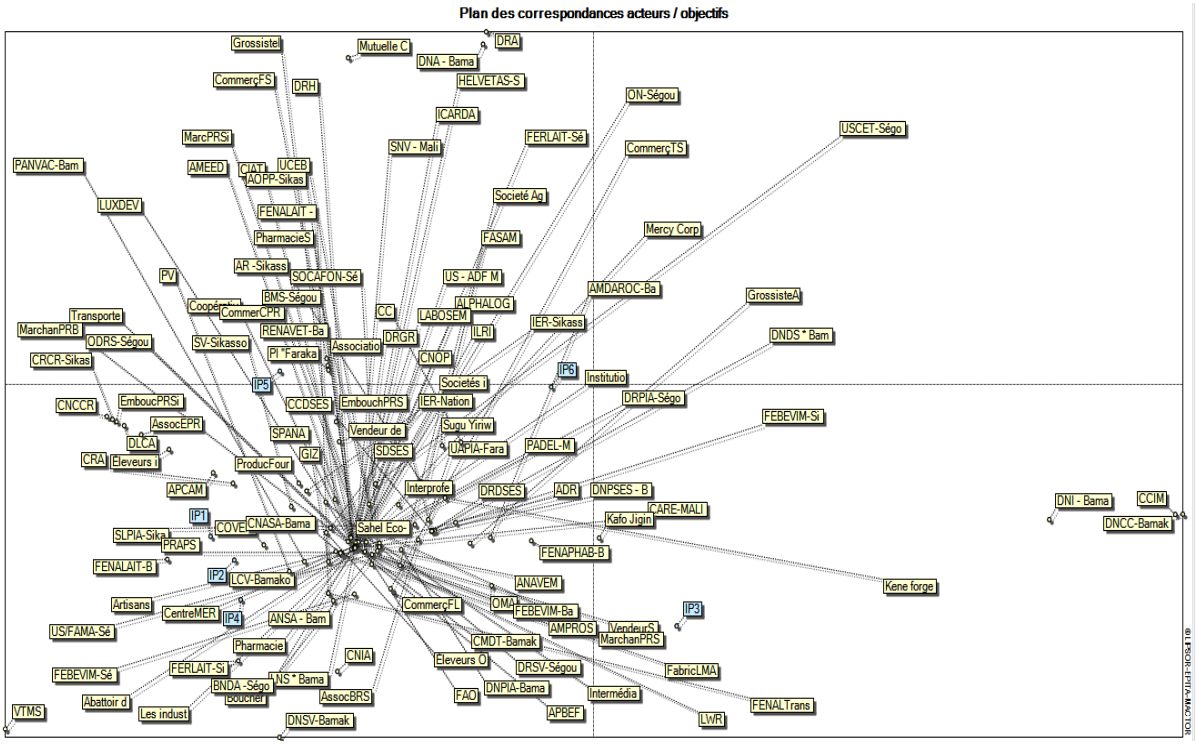


Figure 2. Correspondence Map of Stakeholders/Objectives regarding the Implementation of the Innovation Packages (IP)

Convergence & Divergence regarding SAPLING Immediate Results (IR)

Regarding the actors' perceptions of the seven predefined SAPLING potential immediate results, the findings presented in Figure 3 indicate that actors generally assign similar levels of importance to all the Immediate Results (IRs), with some exceptions. Notably, IR4, which involves “strengthening linkages between actors, inclusion, and coordination along the value chain”, received the lowest level of importance from a smaller subset of actors. This can be attributed to the fact that actors within the small ruminant value chain lack a well-established framework, experience, and model for effective coordination, cooperation, and equitable governance in decision-making processes and sustainable collective actions.

Additionally, it's worth noting that certain actors, such as DRA and the Association des bouchers/rôtisseurs, appear to have limited interest in the predefined immediate results, showing a high level of divergence from the majority. Furthermore, a significant number of stakeholders place a higher level of importance on the expected result related to IR3, which pertains to the strengthening of Multi-Stakeholder Innovation Platforms (MSIP). There is a strong consensus among stakeholders regarding the significance of establishing a sustainable and effective public-private partnership coordinated by the government, as outlined in IR1: "Policy makers recognize the importance and added value of the thermostable PPR vaccine and support public-private partnerships."

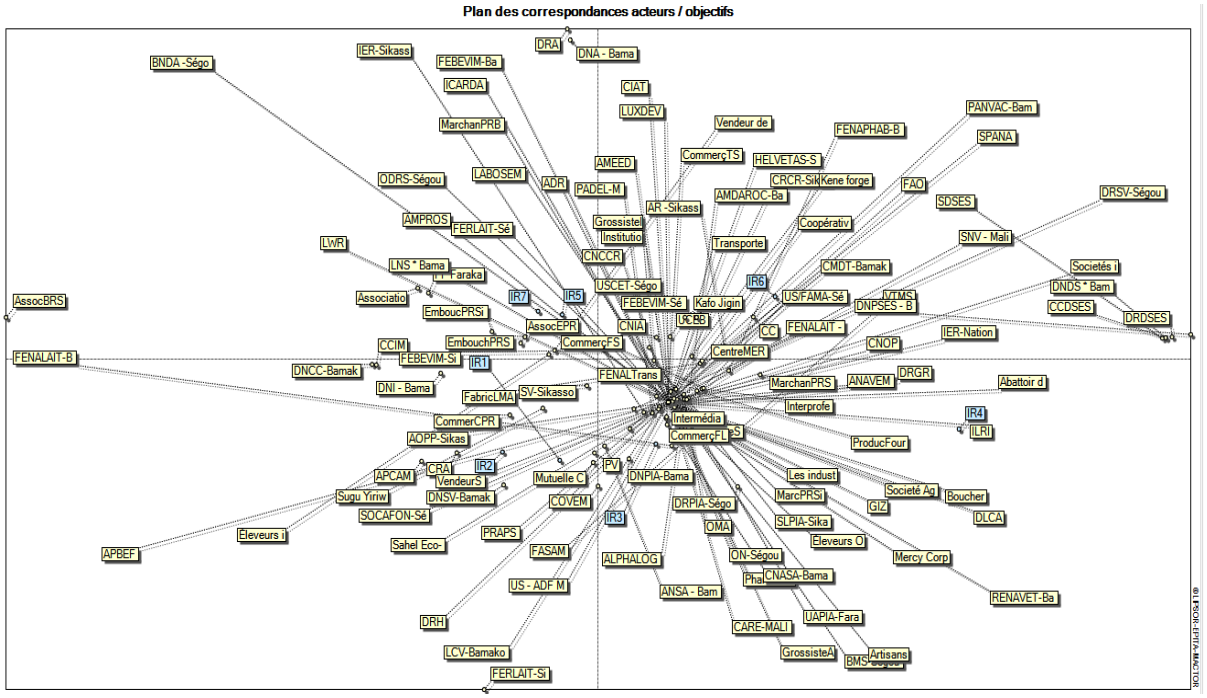


Figure 3. Correspondence map of stakeholders/objectives regarding SAPLING Immediate Results (IR)

Convergence & Divergence regarding the End-of-Initiative Outcomes (EoI/O)

The results illustrated in Figure 4 indicate that certain stakeholders, mainly CC, AR, CCDSES, DNDS, SDSES, DNPSES, DRDSES, diverge from the expected outcomes of SAPLING initiative. These actors are, in the majority, part of the government and have a strong influence (dominant actors) and a favorable balance of power, particularly concerning livestock producers' associations and their legal status. This can be considered as a major challenge on the implementation of Innovation packages, especially IP2 and IP6. In this case, it is necessary to initiate an information and awareness campaign targeted at these divergent actors. Local organizations and other government entities that present strong convergence with SAPLING outcomes can effectively manage this campaign. The objective is to persuade these divergent actors and facilitate their integration to ensure the effective implementation of Innovation Packages. Furthermore, our finding reveal that a limited number of actors converged towards EoI/O2 (Private and public sector partners invest at least $1.5 million in the co-creation and delivery of innovative, low-emission, demand-driven technologies and practices that promote gender equality and youth, and improving productivity and resilience in genetics, animal nutrition and health). On the other hand, the majority of actors can ally to the achievement of EoI/O1 (Packages of co-created, inclusive, and demand-driven innovations, comprising low-emission technologies that improve productivity and resilience, as well as the institutional arrangements (including markets) necessary for their adoption, are used by 2,000 people (men and women) in households raising small ruminants in Mali, resulting in a 20% increase in livestock productivity).

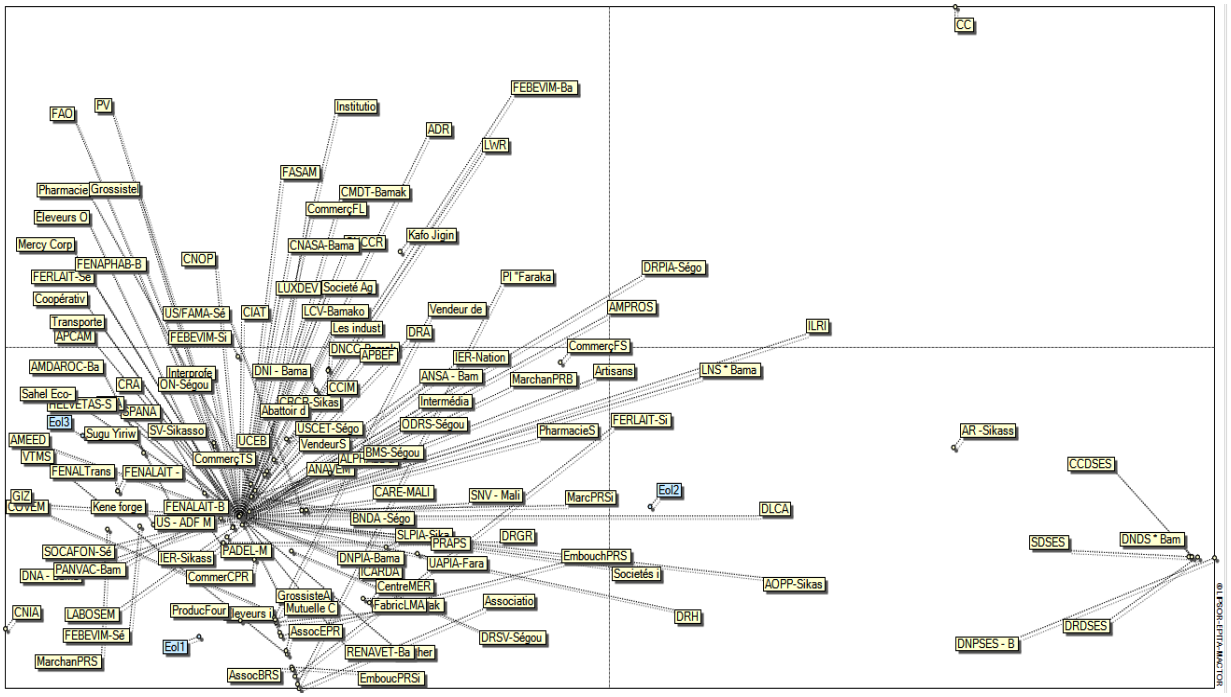


Figure 4. Correspondence map of stakeholders/objectives regarding End-of SAPLING Initiative outcomes (EoI/O)

Conclusion & Practical Recommendations

The diversity and complexity of relationships among stakeholders in the small ruminant value chain in Mali have shed light on various management aspects that could enhance the effectiveness of the implementation of the predefined innovation packages.

In this study, the levels of power, potential alliances and conflicts among all stakeholders involved in the value chain with regards to the implementation of IPs were analyzed using MACTOR. Results from the analysis of influences and power relations between stakeholders highlight key considerations for achieving a successful implementation. The analysis reveals that convergences and divergences of stakeholders regarding different IPs, IRs and EoI/Os may affect the implementation process. Identifying and characterizing these dynamics are essential steps to reach the desired outcomes. This study offers potential synergies and compromises among the stakeholders to help achieve the assigned objectives. Furthermore, the insights from this work can be used to identify strategic pathways for the effective implementation of IPs. It serves as a tool for categorizing objectives that require negotiation among stakeholders and for monitoring potential conflicts that may arise.

In this study, it should be noted that disagreements do not exist in general, and all stakeholders can build a common interest to achieve the predefined goals, which can lead to a high degree of interdependence throughout the small ruminant value chain in Mali. Nevertheless, it's imperative not to overlook the necessity of enhancing communication, coordination, cooperation, and collaboration between all actors in order to realize a better effectiveness of the role, inclusion and functioning of all stakeholders involved in delivering innovation packages. To achieve this objective, the relationships among operators must evolve and dominated operators shall fade or grow in importance.

In addition, the development and adoption of new technologies and innovations are more likely to be successful when there is a process of continuous learning, jointly undertaken by

research organizations, livestock producers, marketing agents, donors, NGO's, financial institutions, policy makers, and relevant civil society actors. To reach this inclusive development, the implementation of the MSIPs can be designed in the framework of learning alliance process which combine the efforts of stakeholders to success this new opportunity. The learning alliance processes could be carried out with the involvement and participation of all stakeholders, within different workshops, in order to present and explain the stakeholder analysis results and the potential effective relationships that have to be managed in order to reach an effective collective action. This can take advantage of the local dynamic of multi-stakeholders in the region.

In fact, local organizations have a central role and should build commitment and strong partnership with the other actors (especially with government and private sector) within the expected innovative process based on social innovation and effective governance. However, managers should try to find ways and actions (financial autonomy, capacity building, etc.) to improve the balance of power of some CBOs, NGOs, local associations, and farmers' cooperatives since they are completely dominated. So, managing this transition requires a joint learning process and successful management of a multi-level governance model to support communication among different relevant stakeholders with a long-term focus (small ruminant value chain sustainability), including uncertainties and risk (e.g., climate change). This calls for concerted efforts, involving several stakeholders, both governmental and non-governmental.

It is important also to enhance the private sector engagement in the innovation processes (implementation and involvement of existing institutions with better management, governance, participation, efficiency). This is by the implementation of new and effective strategies, legislatives or laws by government related to the new public-private partnership (reorganizing the relations between government, civil society, and private sector in term of facilities, implementation of new and effective strategies, legislations, better management, organization, confidence, cooperation, partnerships).

These new partnerships could be supported and guided by several local, regional, national, or international academic and research institutions and organizations and national, international development and financial organizations. This is by applying innovative research and scientific results, but also by capacity building, financial and technical support, etc.

The ultimate objective is to relay a participatory approach to support the implementation of the MSIPs, core of SAPLING innovation packages.

References

- Brugha, R., Varvasovszky, Z., 2000. Stakeholder analysis: a review. Health Policy and Planning. 15(3), 239–246. DOI
- Elmsalmi, M., Hachicha, W., 2014, Risk mitigation strategies according to the supply actors' objectives through MACTOR method. In 2014 International Conference on Advanced Logistics and Transport (ICALT), IEEE, p. 362-367. DOI
- Fetoui M., Dhehibi B., Frija A., Sghaier A., Kassam S., Aw-Hassan A.A., Abdeladhim M.A., Sghaier M. 2020. Towards an innovative olive oil value chain: Options for inclusive development in South-Eastern Tunisia. New Medit, 19(3), pp. 2-20. DOI
- Fetoui M., Frija A., Sghaier M. Dhehibi B. Sghaier M. 2021. Prospects for stakeholder cooperation in effective implementation of enhanced rangeland restoration techniques in Southern Tunisia. Rangeland management and ecology. Elsevier. Vol. 74, pp. 9-20. DOI
- Friedman, AL, Miles S., 2006. Stakeholders: Theory and Practice. Oxford: Oxford University Press. 360 p., ISBN: 0199269874, 9780199269877
- Godet, M., 1991. Actors' moves and strategies: The mactor method: An air transport case study. Futures. 23(6), 605-622. DOI
- Godet, M., Durance, P., 2011. Strategic foresight for corporate and regional development. DUNOD–UNESCO–Fondation Prospective et Innovation, Paris. Link
- Grimble, R., Wellard, K., 1997. Stakeholder methodologies in natural resource management: a review of principles, contexts, experiences, and opportunities. Agricultural Systems. 55(2), 173–193. DOI
- Hermans, LM, Thissen, WAH, 2009. Actor analysis methods and their use for public policy analysts. European Journal of Operational Research. 196(2), 808–818. DOI
- Kenis, P., Schneider, V., 1991. Policy networks and policy analysis: scrutinizing a new analytical toolbox, in: Marin, B., Mayntz R., (Eds.), Policy networks: Empirical evidence and theoretical considerations. Boulder, CO: Westview Press, p. 25–59. Link
- Lienert, J., Schnetzer, F., Ingold, K., 2013. Stakeholder analysis combined with social network analysis provides fine-grained insights into water infrastructure

Annex-1

Main Stakeholders Involved in the Study

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
CIAT	Alliance Bioversity International and CIAT	CGIAR Center	National/Regional	Cross-disciplinary scientific research at the intersection of nutrition, environment, and agriculture aimed at sustainability, inclusiveness, and biodiversity.
ICARDA	International Center for Agricultural Research in the Dry Areas	CGIAR Center	National/Regional	Providing innovative, science-based solutions for communities across the non-tropical dry areas.
IER	Institut d'Economie Rurale	National Research Institute	National/Regional	Improving agricultural productivity, increasing food security and farmers' incomes, and ensuring sustainable rural development.
ILRI	International Livestock Research Institute	CGIAR Center	National/Regional	Enhancing the roles that livestock play in food security and poverty alleviation – helping people in developing countries keep their farm animals alive and productive, increase their livestock and farm productivity in sustainable ways, find profitable markets for their animal products, and reduce the risk of livestock-related human diseases.
LCV	Laboratoire Central Véterinaire	National Research Institute	National/Regional	Producing vaccines and providing veterinary diagnostic services through research and testing.
AU-PANVAC	Pan African Veterinary Vaccine Centre	African Union Organization (Research)	National	The only AU organization mandated to provide international independent quality control of all veterinary vaccines either produced or imported into Africa; and the production of essential biological reagents for animal disease diagnosis and surveillance.
US/FAMA	Université de Ségou - Faculté d'Agronomie et de Médecine Animale	Academic institution (University)	National/Regional	Research and high education in agronomy and veterinary medicine.
Association des Agro-Pasteurs de Farakala	Association des Agro-Pasteurs de Farakala	Community Based Organization	Commune	Improving farming and pastoral practices.
Association des Éleveurs des Petits Ruminants	Association des Éleveurs des Petits Ruminants	Farmers' Cooperative (mainly sheep and goats)	Commune	Facilitate small livestock producers' access to natural resources, Information, knowledge, and extension services, Markets, food, and productive assets/inputs and tools, etc.
Livestock producers 'cooperatives	Livestock producers 'cooperatives	Farmers' Cooperative (mainly livestock keepers)	Commune	
CRCR	Comité Régional de Concertation des Ruraux	Community Based Organization	Regional	Representing and advocating the interests of agricultural producers at regional level.
MSIP "Farakala"	Multi-Stakeholder Innovation Platform of Farakala	MSIP	Commune-Cercle	Promoting vaccination against PPR, sale of fodder, collective marketing of live animals and women business models around feed nutrient blocks, in adding to that, supporting coordination of capacity building activities. An MSIP consists of a group of individuals who often represent organizations with different backgrounds and interests: farmers, cooperatives, traders, food processors, researchers, government officials etc. It serves as a mechanism to harness collective action to address the constraints and opportunities pertaining to small ruminant value chains development.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
UCEB	Union Communale des Éleveurs de Baroueli	Union of Farmers' Cooperatives	Commune	Uniting and supporting livestock producers and cooperatives by facilitating resource sharing, capacity building, market access, etc.
USCET	Union des Sociétés Coopératives des Éleveurs de Tamani	Union of Farmers' Cooperatives	Cercle-Commune	Dedicated to facilitating small livestock producers and cooperatives' access to natural resources, Information, knowledge, and extension services, Markets, food, and productive assets/inputs and tools, and Policy and decision making.
FEBEVIM	Fédération des Groupements Interprofessionnels du Bétail et de la Viande du Mali	Socio-Interprofessional Group of Producers & Processors	National - Regional	Coordinating livestock-meat value chain actors' interests: Promoting the livestock/meat sector, coordinating activities to promote trade in livestock products at local, national, and sub-regional levels, creating a permanent framework for exchange and consultation between member professional organizations on the one hand, and with consular chambers with consular chambers, public and private bodies, and development partners on the other. FEBEVIM is the only representative organization in the livestock and meat sector.
FENALAIT	Fédération Nationale des Producteurs laitiers du Mali	Socio-Interprofessional Group of Producers & Processors	National-Regional	Promoting the dairy industry by enhancing animal resources and improving marketing channels. Farmers' organizations (FOs) are currently structuring their dairy activities within the FENALAIT network. Dairy Producers. Dairy transporter.
FENALAIT - Lait PR			Regional-Cercle-Commune	
FENALAIT - Trans.				
FERLAIT	Fédération Régionale des Producteurs laitiers du Mali		Regional	Promoting the dairy industry by enhancing animal resources and improving marketing channels at regional level.
FENAPHAB	Fédération Nationale des Producteurs d'Huile et d'Aliment de Bétail		National-Regional	Coordinating oil mill and feed subsector stakeholders' interests.
CNCCR	Conseil National de Concertation et de Coopération des Ruraux	Farmers' organization	National	Contributing to the development of peasant agriculture and ensuring sustainable socio-economic livelihoods for small-holder farmers and rural communities.
CC	Conseil de Cercle	Local Authority Organization	Cercle	Overseeing and coordinating agricultural development initiatives at the local level.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
AOPP	Association des Organisations Professionnelles Paysannes	Socio-Professional Organization	National-Regional	Advocacy of the interests of members, family farming and family farms in the various rural development arenas (local, national, sub-regional, regional, international), Representing members in decision-making bodies and consolidating their legitimacy, supporting members' technical and organizational professionalization (training, information, communication on production, product enhancement, marketing, financial intermediation to finance POs' economic activities, etc.), and supporting the professionalization of their own organization and other POs (institutional strengthening).
CNOP	Coordination Nationale des Organisations Paysannes	Socio-Professional Organization	National-Regional	Representing farmers' organizations and defending their interests. It plays an important role in advocacy (promoting family farms and agroecology) and information (setting up an observatory of family farms).
Interprofessional Bétail – Viande	Interprofessional Bétail – Viande	Socio-Interprofessional Group of Producers & Processors	National-Regional	Promoting cooperation and coordination between livestock farmers, slaughterers, processors, distributors, and consumers.
Association des Bouchers/Rôtisseurs	Association des Bouchers/Rôtisseurs	Socio-Interprofessional Group of Producers & Processors	Regional	Defending the material and moral interests of meat producers and providing them with economic assistance.
ANAVEM	Association Nationale des Vétérinaires Mandataires	Socio-Professional Organization	National	Prevention and treatment of animal diseases and provision of advice to farmers.
COVEM	Collectif des Vétérinaires du Mali	Socio-Professional Organization	National	Coordination between private veterinarians for a better provision of veterinary services.
RENAVET	Réseau National des Cabinets et Cliniques Vétérinaires privés du Mali	Socio-Professional Organization	National	The VTMS are organized into ANAVEM, COVEM, and RENAVET, and carry out their activities under the supervision of the public veterinary services.
Mutuelle des Professionnelles des Cuirs et Peaux	Mutuelle des Professionnelles des Cuirs et Peaux	Socio-Professional Organization	National	Representing the hides and skins trade and promoting the sector.
BMS	Banque Malienne de Solidarité	Financing institution (including foundations)	National	Supporting and promoting solidarity-based economic initiatives and projects.
BNDA	Banque Nationale de Développement Agricole	Financing institution (including foundations)	National	Providing financial support and services to promote agricultural production and rural development.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
Kafo Jiginew	Kafo Jiginew	Financing institution (including foundations)	National	Offering local financial services at different scales (savings, credit, money transfers and (savings, credit, money transfers and other services) to the largest possible number of people in Mali to improve their living conditions.
Other Financing Institute	Other Financing Institute	Financing institution (including foundations)	National	
US ADF	US African Development Foundation	Financing institution (including foundations)	National	Providing funding and resources to empower local communities.
APBEF	Association Professionnelle des Banques et des Etablissements Financiers	Socio-Professional Organization	National	Intermediary between its members (any bank or financial institution operating in Mali) and the monetary and financial authorities.
ALPHALOG	Association Libre pour la Promotion de l'Habitat et du Logement	Non-Governmental Organization	Regional/Cercle	Improving the living environment and socio-economic conditions of disadvantaged groups. The NGO brings together agronomists, psycho-educators, breeders, geographers, etc. It is present in the Ségou, Bamako and Niono circles. ALPHALOG also helps women's organizations to set up income-generating activities to enable them to boost their autonomy.
AMDAROC	Association Malienne pour le Développement et l'Amélioration des Races Ovines et Caprines	Non-Governmental Organization	Regional/Cercle/Commune	Improvement and development of sheep and goat breeds.
AMEED	Association Malienne d'Éveil au Développement Durable	Non-Governmental Organization	Regional/Cercle/Commune	Social development and empowerment of agricultural field actors through natural ressources management and economic dynamics.
AMPROS	Association Malienne pour la Promotion du Sahel	Non-Governmental Organization	Regional	Providing support and development for the disadvantaged groups of farmers in Sahel (Agro pastoralism, Envirment, Gender Inclusion, health, etc).
CARE-MALI	CARE International Mali	International Non-governmental organization	National	Promoting good and equitable governance, with a specific focus on natural resource management, ensuring food security, and enhancing resilience to climate emergencies and environmental degradation.
LWR	Lutheran World Relief	International Non-governmental organization	National/Regional	Advancing sustainable farming practices to boost productivity and preserve natural resources and enhancing farmers' involvement in agricultural value chains, fortifying their livelihoods, and fostering job creation while establishing productive, inclusive, and resilient agricultural-based economies.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
Mercy Corps	Mercy Corps	International Non-governmental organization	National/Regional	Reducing food insecurity by building resilience, restoring peace and stability, and connecting communities to recovery resources. Key focus areas encompass enhancing food security, promoting quality nutrition, and strengthening market systems and youth employment.
Sahel ECO	Sahel ECO	Non-Governmental Organization	National	Sustainable management of natural resources and diversification of rural economic development; strengthening of community-based farmer organizations; water sanitation and hygiene; and climate change adaptation.
SNV – Mali	Stichting Nederlandse Vrijwilligers	International Non-governmental organization	National/Regional	Building resilient agri-food systems that deliver food security; increasing the reliability and availability of water and sanitation; and to improving access to affordable and sustainable energy – while providing technical Providing technical expertise and support for sustainable development projects (Agriculture in particular).
SPANA	Société Protectrice des Animaux et de la Nature	International Non-governmental organization	National/Regional	Helping working animals through veterinary treatment, training, and education.
Sugu Yiriwa, Southern Zone	Sugu Yiriwa, Southern Zone	Non-Governmental Organization	National-Regional-Cercle	Diversifying livelihoods and increasing economic opportunities, especially for women and youth, and Empowering private and public market actors across the market system with a strategic focus on pro-poor and nutrition-sensitive value chains.
FASAM	Formation Agricole pour la Sécurité Alimentaire au Mali	International Development Organization (Including Development programs/projects)	National	Strengthening public institutional actors in the agricultural training system.
PADEL-M	Projet d'appui au Développement de l'Elevage au Mali	International Development Organization (Including Development programs/projects)	National-Regional-Cercle-Commune	Strengthen the productivity and marketing of animal products from non-pastoral systems in selected value chains, and the country's ability to respond to eligible crises or emergencies.
PRAPS	Projet Régional d'Appui au Pastoralisme au Sahel (PRAPS) Mali	International Development Organization (Including Development programs/projects)	National-Regional-Cercle-Commune	Improving access to essential means of production, services and markets for pastoralists and agro-pastoralists in selected cross-border areas and along transhumance routes in the six Sahel countries including Mali and enhance the capacity of these countries to respond in a timely and effective manner to pastoral crises or emergencies – with specific objectives that encompass Improving animal health, strengthening natural resource management, facilitating access to markets, enhancing pastoral crisis management, institutional support and scheme management.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
FAO	Food and Agriculture Organization	International Development Organization (Including Development programs/projects)	National	Promoting sustainable agricultural development and addressing food security challenges.
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	International Development Organization (Including Development programs/projects)	National	Providing assistance on sustainable agricultural development.
HELVETAS	HELVETAS	International Development Organization (Including Development programs/projects)	National	Implementing and supporting development projects with a focus on water, food and climate, education, jobs and private sector development, governance, gender, and social equity.
LUXDEV	Luxembourg Development Cooperation Agency	International Development Organization (Including Development programs/projects)	National	Supporting agricultural development projects (rural development and food security, Technical and vocational training, Market access, Support to agropastoral value chain, etc).
DNSV	Direction Nationale des Services Vétérinaires	Government	National	Elaborate the national policy in the fields of animal welfare and veterinary public health and monitor and coordinate the implementation of the policy.
DRSV	Direction Régionale des Services Vétérinaires	Government	Regional	Health surveillance and protection & Veterinary public health.
SV	Secteur Vétérinaire	Government	Cercle	
PV	Poste Vétérinaire	Government	Commune	
DNPIA	Direction Nationale des Productions et des Industries Animales	Government	National	Developing national policy in the fields of animal production and the valorization of animal products and by-products and coordinating and monitoring its implementation.
DRPIA	Direction Régionale des Productions et des Industries Animales	Government	Régional	Implementation and monitoring policy elements related to animal production and valorization of animal products and by-products at Régional – Cercle, and commune or group of communes' levels.
SLPIA	Service Local des Productions et des Industries Animales	Government	Cercle	
UAPIA	Unité des Productions et Industries Animales	Government	Commune	

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
CNIA	Centre National de l'Insémination Artificielle Animale	Government	National	Advance animal breeding in livestock through the promotion and facilitation of artificial insemination techniques. This mission encompasses several key components, including the provision of Artificial Insemination Services and the establishment of robust Genetic Record Keeping systems. The center is dedicated to fostering knowledge and expertise within the livestock farming community by offering comprehensive training and educational programs on artificial insemination techniques and optimal animal breeding practices. The center is also engaging in research projects aimed at enhancing artificial insemination techniques and formulating innovative strategies to bolster the genetic potential of the national livestock population.
CRA	Chambre Régionale d'Agriculture	Government	Regional-Cercle	The Chambre Régionale d'Agriculture and the Assemblée Permanente des Chambres d'Agriculture du Mali constitute consultative and professional organizations representing agricultural interests. oversee application of government agricultural policies, represent producers' interests, act as a link between government and producers, manage conflicts.
APCAM	Assemblée Permanente des Chambres d'Agriculture du Mali.			
DLCA	Délégation Locale de la Chambre d'Agriculture		Commune	
AR	Assemblée Régionale		Regional	Regional governance (representation, legislation, budget allocation, Define and promote rural development policy, particularly in the areas of land, housing, combating desertification, water supply and livestock and preservation of the ecosystem; etc).
DNDS	Direction Nationale du Développement Social	Government	National	Drawing up national policy for improving people's living conditions and implementing the principle of national solidarity Integrating social considerations into agricultural development initiatives.
DNPSES	Direction Nationale de la Protection Sociale et de l'Économie Solidaire	Government	National	Developing national policy on social security and the promotion of cooperatives, associations, mutual societies, and other groups; coordinating and supervising regional and sub-regional public services, welfare, social security, and mutual organizations involved in implementing the aforementioned policy.
DRDSES	Direction Régionale de la Protection Sociale et de l'Économie Solidaire	Government	Regional	
SLDSES	Service Local du Développement Social et de l'Économie Solidaire	Government	Cercle	
CCDES	Centre Communal du Développement et de l'Économie Solidaire	Government	Commune	

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
DNA	Direction Nationale de l'Agriculture	Government	National	Drawing up national agricultural policy and coordinating and monitoring its implementation.
DRA	Direction Régionale de l'Agriculture	Government	Regional	Overseeing and implementing agricultural activities and initiatives at the regional level.
LABOSEM	Laboratoire National des Semences	Government	National-Regional	The official seed quality analysis and control service in Mali.
DNI	Direction Nationale de l'Industrie	Government	Regional	Overseeing and promoting industrial development policies and initiatives.
ADR	Agence de Développement Régional	Government	Regional	Promoting regional and local development in their area of operation.
CNASA	Centre National d'Appui à la Santé Animale	Government	National	Animal health risk assessment and animal health promotion: Assessing and evaluating animal health risks and aquatic animals; providing advisory support to veterinary services in the design and implementation of strategies for the prevention and control of animal diseases, including zoonoses; ensuring the design and implementation of strategies for sharing information, training and communication on animal health and veterinary public health; ensuring communication on animal health risks; and maintaining a surveillance and early warning system in the event a major animal health and veterinary public health threats.
OR	Office Riz Ségou	Government	National-Regional	Promoting and managing rice production and related activities.
DRGR	Direction Régionale du Génie Rurale	Government	Regional	Managing rural engineering and development projects including rural infrastructure at regional level.
DRH	Direction Régionale de l'Hydraulique	Government	Regional	Regional water resource management and hydraulic infrastructure development.
ON	Office de Niger	Government		The Office du Niger was conceived as a vast, integrated project encompassing all the activities required for its development: land development, exploitation (by the state or by farmers), product processing, marketing, agricultural credit, training, health, family economics etc.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
DNCC	Direction Nationale du Commerce et de la Concurrence	Government	National	Managing and regulating trade activities.
CCIM	Chambre de Commerce et de l'Industrie du Mali	Government	National	Organisation and professional representation of natural and legal persons engaged in the various branches of commercial, industrial, and service activities.
OMA	Observatoire du Marché Agricole	Government	National	OMA's mission is to collect, analyze and disseminate statistical, regulatory, and other information on all the factors that influence price setting on the agricultural market.
Abattoir de Sikasso	Abattoir de Sikasso	Government	Regional	Animal slaughter, meat processing and packaging.
ANSSA	Agence Nationale de la Sécurité Sanitaire des Aliments	Government	National	Ensuring food and feed safety through standardization and quality control services.
LNS	Laboratoire National de la Santé	Government	National	Conducting medical and health-related testing, analysis, and research. To ensure the safety of medicines in Mali, the LNS is responsible for controlling imported medicines.
CMDT	Compagnie Malienne pour le Développement des Textiles	Government	National-Regional	Organizing cotton production and marketing throughout Mali.
CEEMA	Centre d'Expérimentation et d'Etudes sur le Machinisme Agricole	Government	National-Regional	Affiliated to IER, the center is promoting agricultural mechanization all over Mali through i) research and experimentation, ii) training of farmers and machine manufacturers, and iii) technical support.
Artisans du Cuir	Artisans du Cuir	Private Sector	Regional	Handcrafted sheep and goat leather creations.
Boucher	Boucher	Private Sector	Commune	Selling animal meat.
Commerçant de Cuir & Peaux	Commerçant de Cuir & Peaux	Private Sector	National	Trade and distribution of leather products and animal hides.
Commerçant de Fourrages	Commerçant de Fourrages	Private Sector	Commune	Provision of forages.

Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
Commerçant de Fourrages/Ligneux	Commerçant de Fourrage/Ligneux	Private Sector	Regional	Purchase and sale of forages for animal feeding.
Commerçant de Tourteau/Son	Commerçant de Tourteau/Son	Private Sector	Regional	Purchase and sale of Tourteau/Son for animal feeding.
Emboucheurs de Petits Ruminants	Emboucheurs de Petits Ruminants	Private Sector	Regional-Cercle-Commune	Fattening of small ruminants for meat production.
Fabricant Local de Machines Agricoles	Fabricant Local de Machines Agricoles	Private Sector	Regional	Local agricultural machinery manufacturing.
Grossistes Alimentation du Bétail	Grossistes Alimentation du Bétail	Private Sector	Regional	Distributing and supplying livestock feed to retailers or farmers.
Grossistes intrants agricoles y compris Fourrages	Grossistes intrants agricoles y compris Fourrages	Private Sector	Regional	Provision of essential agricultural inputs seeds, fertilizers, including forages and animal feed to retailers or farmers.
Intermédiaires du Marché	Intermédiaires du marché	Private Sector	Cercle	Facilitating transactions between livestock market buyers and sellers
Kene forge	Kene forge	Private Sector	Regional	Local agricultural machinery manufacturing.
Industries de confection	Industries de confection	Private Sector	Regional	Manufacturing and producing clothing and textiles.
Marchand de Petits Ruminants	Marchand de Petits Ruminants	Private Sector	Regional-Cercle-Commune	Sellers of Small Ruminants.
Pharmacie vét/Para-vét	Pharmacie vét/Para-vét	Private Sector	Cercle-Commune	Veterinary product sellers.
Producteurs de Fourrages	Producteurs de Fourrages	Private Sector	Commune	Forage production.
SOCAFON	Société Coopérative Artisanale des Forgerons de l'Office du Niger	Private Sector	Regional	Adjusting , Manufacturing, and marketing of agricultural machinery
Societé AgriSahel	Societé AgriSahel	Private Sector	National-Regional	Forage seeds production and commercialization.

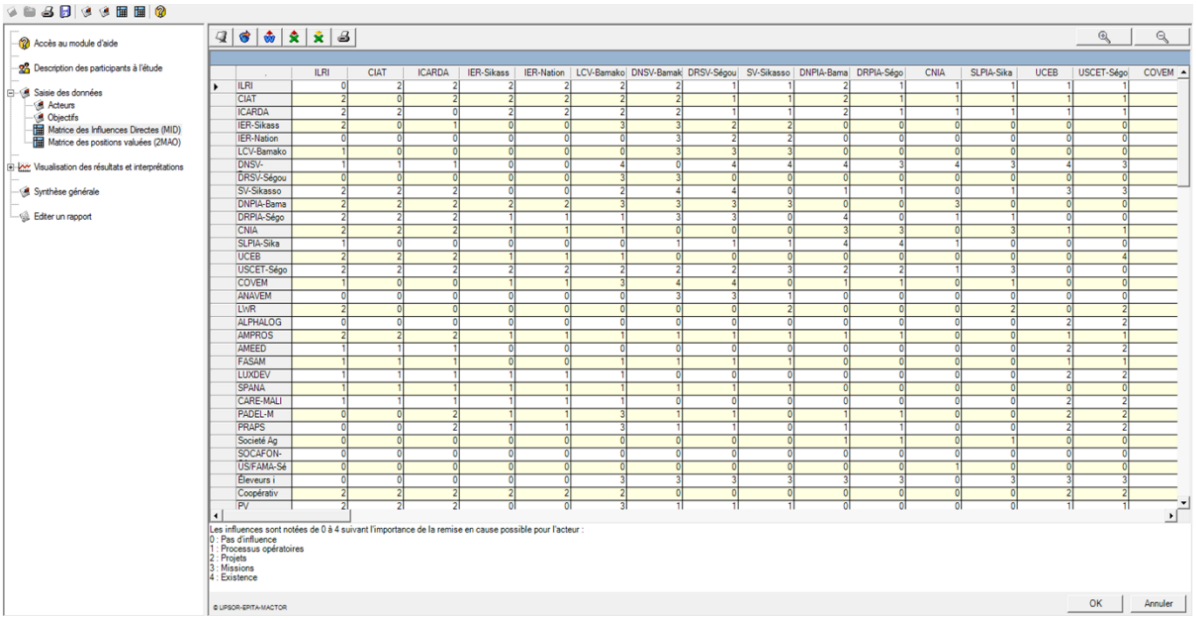
Annex-1 (Cont'd)

Main Stakeholders Involved in the Study (Cont'd)

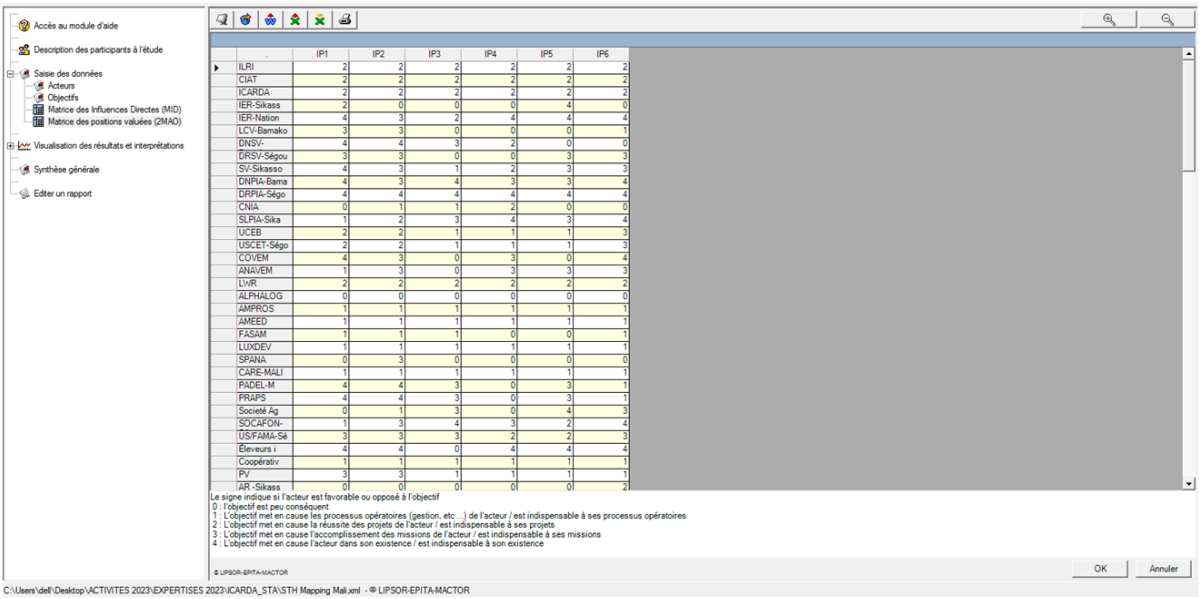
Actor's Acronym/Label	Actor's Full Name	Category	Geographic Intervention Level (s)	Role
Autres Sociétés individuelles	Autres Sociétés individuelles	Private Sector	Regional	-
Transporteur des Animaux	Transporteur des Animaux	Private Sector	Commune	Transportation of livestock.
Vendeur de Bloc Alimentaire	Vendeur de Bloc Alimentaire	Private Sector	Commune	Production and commercialization of feed blocks.
Vendeur de Son de Céréales	Vendeur de Son de Céréales	Private Sector	Commune	Producing and selling of cereal bran.
VTMS	Vétérinaire Titulaire du Mandat Sanitaire	Private Sector	Commune	Monitoring the health and well-being of animals while upholding regulatory and legal standards.
Éleveurs Ovins/Caprins de race	Éleveurs Ovins/Caprins de race	Individual Livestock Producer	Commune	Sheep and goats' breeders.
Éleveurs Individuelles	Éleveurs Individuelles	Individual Livestock Producer	Commune	Livestock producer.

Annex-2

MID Matrix

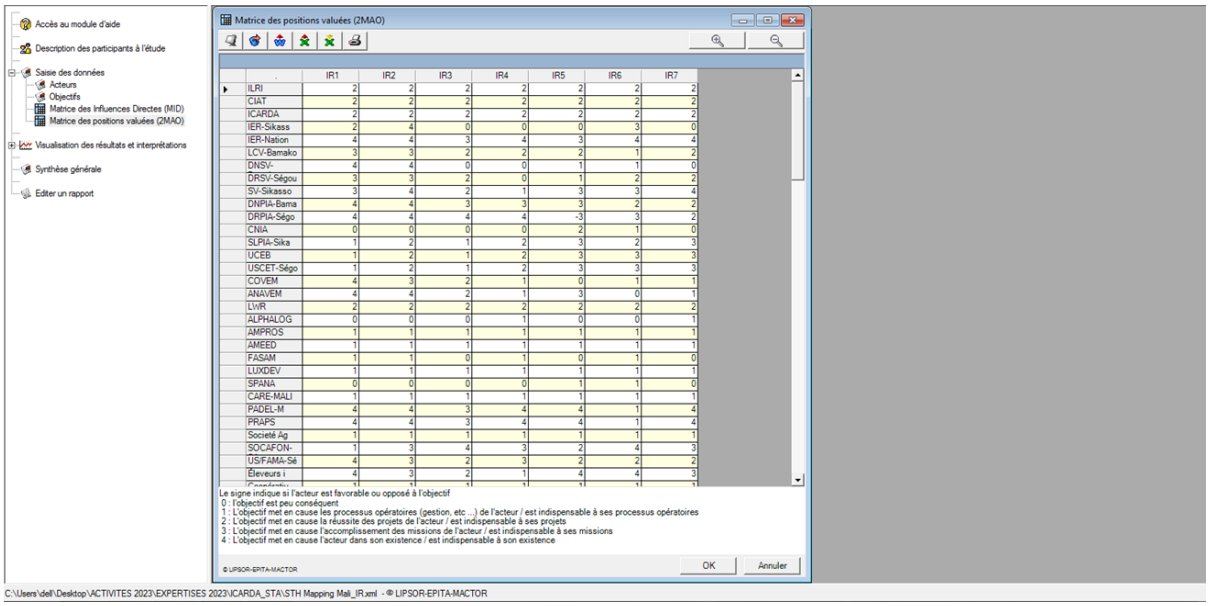


MAO Matrix (IPs)

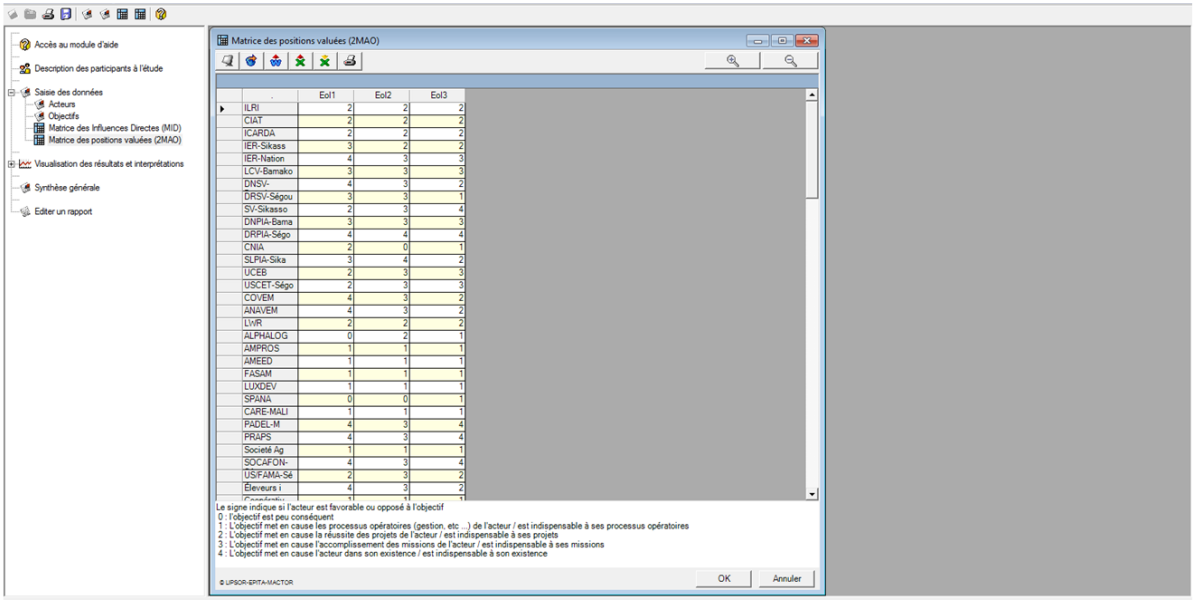


Annex-2 (Cont'd)

MAO Matrix (IRs)

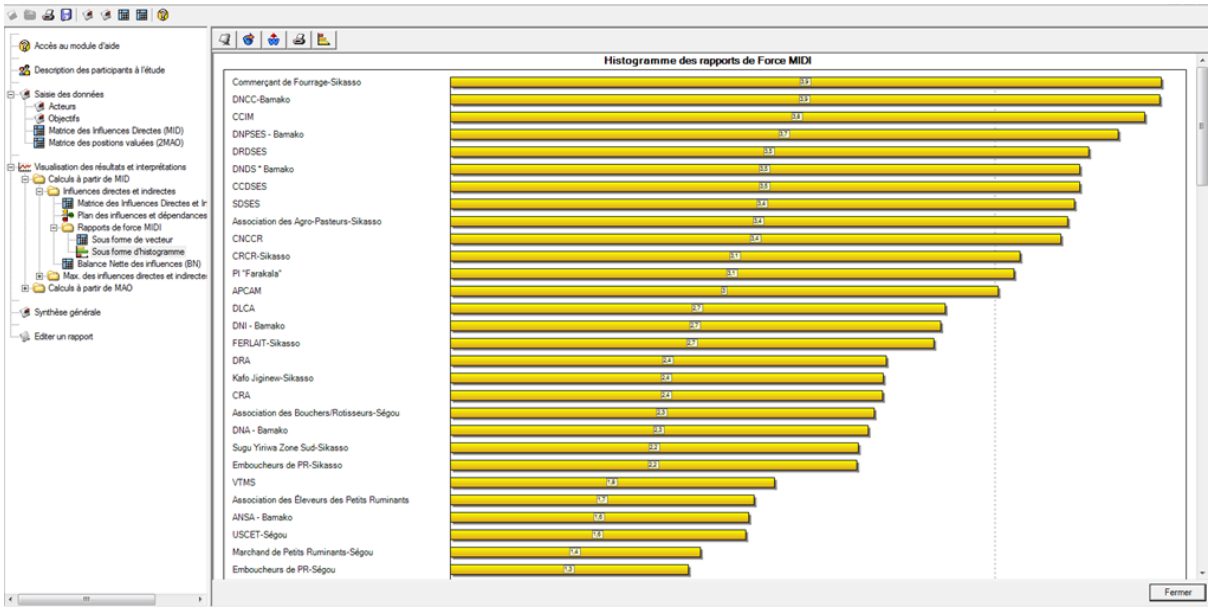


MAO Matrix (EoI/Os)

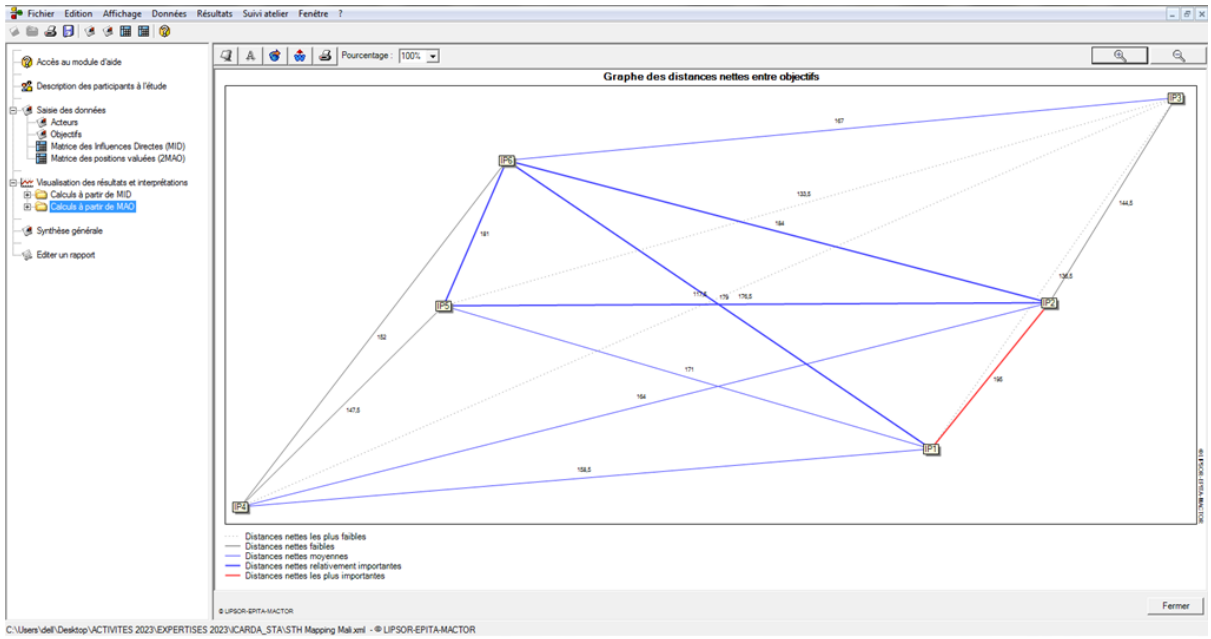


Annex-2 (Cont'd)

Power Forces

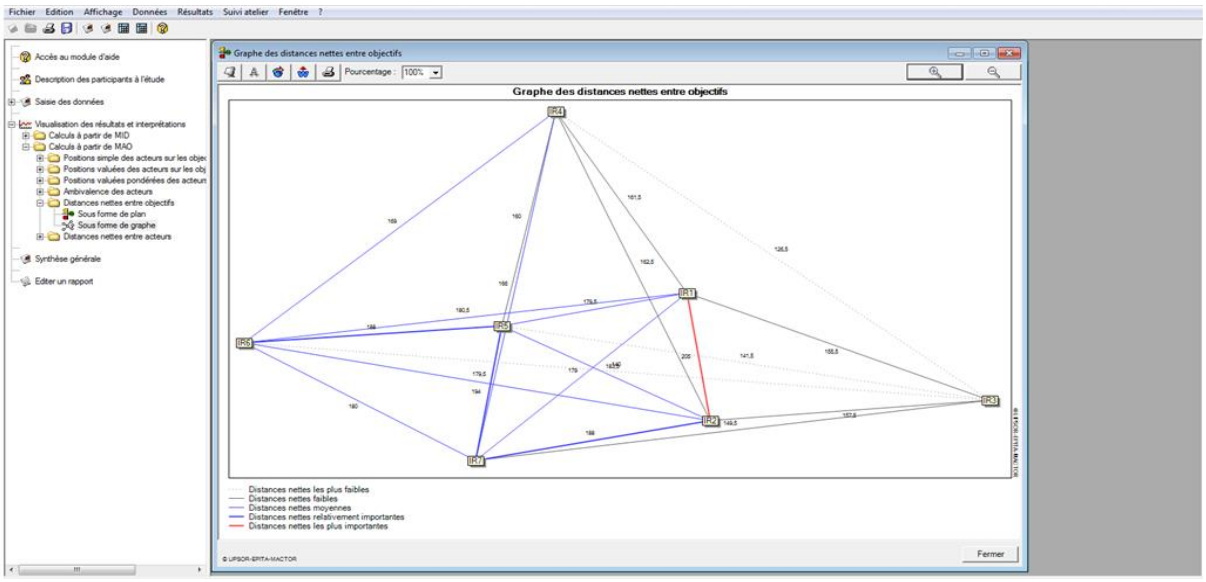


Divergences Graph (IPs)

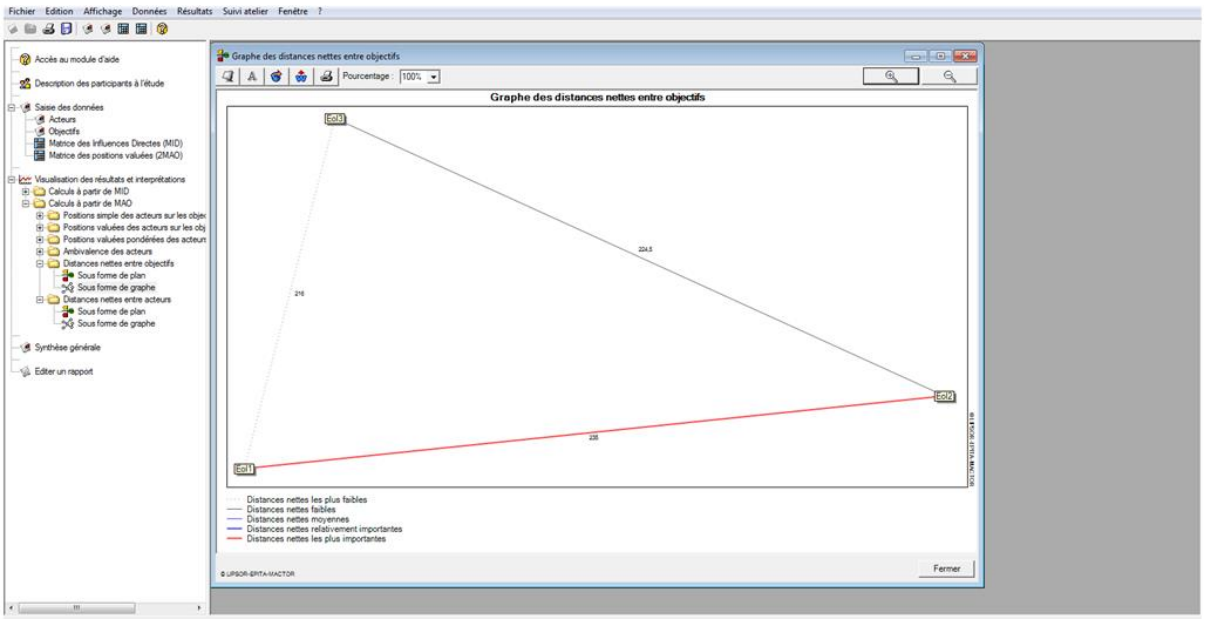


Annex-2 (Cont'd)

Divergences Graph (IRs)



Divergences Graph (EoI/Os)



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Workshop Report

Stakeholder Mapping, Social Network and Multi-Stakeholder Strategies Analysis in Mali's Small Ruminant Value Chain, Plus a Dive into Multi-Stakeholder Innovation Platforms as a Form & Driver of Inclusive SAPLING Innovation Packages

July 2023