



## MEAT, MILK AND MORE:

### Policy innovations to shepherd inclusive and sustainable livestock systems in Africa



Livestock is an important component of Mali's agriculture sector, contributing more than 40 percent of agricultural GDP.<sup>1</sup> The livestock sector is diverse, with more than 15 million cattle, 32 million small ruminants, 37 million poultry, and nearly 1 million camels.<sup>2</sup> Mali's stock of cattle represents 30 percent of the region's total. Livestock contributes to 14 percent of the country's total GDP and is the largest export product after gold and cotton, earning CFA 135 billion (US\$233 million) in 2016.<sup>3</sup> Between 2000 and 2016, the average livestock stock, measured in tropical livestock units (TLU) per 100 people, is estimated at 70.9 TLU, which is three times the median for African countries of 23.44 TLU, while the average growth rate of the gross production value of livestock is 3.87 percent,<sup>4</sup>

which is also above the median for African countries of 2.2 percent.<sup>4</sup> These achievements are partly due to the government's commitment to strengthening the livestock sector's role in improving food security, nutrition, and economic growth through targeted policy and institutional innovations and programmatic interventions.

#### Institutional innovations

Mali has a separate, independent ministry overseeing livestock development, outside of agricultural functions. The Ministry for Livestock and Fisheries (MEP), created in 2004, is the main institution governing the livestock sector. The MEP seeks to improve traditional livestock activities through training and extension services for

<sup>1</sup> The average livestock stock TLU per 100 people over the period 2000-2016 (FAO data) was chosen to assess countries' levels of animal stock. To define high and low levels of animal stock, the threshold was set at the median. The average growth rate of the gross production value (GPV) of livestock (in constant 2004-2006 international dollars) over the period 2000-2016 (FAO data) was chosen as indicator of value addition growth of the sector.



producers; developing pastoral areas; promoting feed and fodder processing industries to boost animal productivity; improving animal health infrastructure and services, and quality control of livestock services, animal inputs, and products; and creating reliable markets for the sale of animal-sourced products.<sup>5</sup>

Under the MEP, the National Directorate of Production and Animal Industries (DNPIA), established in 2005 by merging the Malian Livestock and Meat Agency (OMBEVI), and several divisions of the former National Directorate of Livestock (DNE), is mandated to design national policy and implement programs to support animal production and related industries. The DNPIA is organized into four divisions: pastoral water management, animal product value chains (meat, milk, poultry, skins and hides), animal industries (slaughterhouse management, monitoring of livestock markets); and training and documentation. DNPIA is further represented by Regional Directorates of Animal Production and Animal Industries (DRPIA); Local Services of Animal Production and Industries (SLPIA) at the departmental level; and Support Units for Animal Production and Industries (UAPIA) at the municipality level.<sup>6</sup>

In addition, in its efforts to promote a sustainable increase in livestock production, the government created dedicated institutions for breeding and genetics. In 2013, a center for the genetic improvement of livestock, the Madina Diassa Center for the Conservation,



Multiplication and Dissemination of Endemic Ruminant Livestock (CCMD-BRE), was created and is attached to DNPIA. To support DNPIA's mission, CCMD-BRE improves the production and productivity of endemic ruminant livestock, such as the N'Dama cattle breed, through artificial insemination and maintaining an inventory of endemic ruminant livestock breeds. The center also conducts capacity-strengthening activities for livestock associations and cooperatives to increase the adoption of endemic ruminants among livestock keepers.<sup>7</sup>

In 2015, the National Center for Animal Artificial Insemination (CNIA) was created as a public institution.<sup>8</sup> The center has 26 permanent staff, including 10 senior managers as well as 42 inseminators working in 11 production areas. CNIA aims to improve animal production through the use of artificial insemination by making the insemination services accessible to breeders and organizing them around programs of genetic improvement, production of milk and meat and conservation of indigenous breeds. It also seeks to improve the milk productivity of cows by selection and crossing. To this end, CNIA is in charge of the production, export, import, packaging, conservation, storage, quality control and distribution of animal semen and embryos. CNIA also ensures that inseminators are well-trained and monitors and evaluates artificial insemination activities at the national level, including those of approved private artificial insemination centers. Furthermore, it supplies the inputs for artificial insemination to approved private centers.

The National Directorate of Veterinary Services (DNSV), established in 2005, oversees the design of the national policy related to animal protection and veterinary public health, as well as the implementation and enforcement of related legislation and regulation.<sup>9</sup> It also monitors and coordinates the implementation of the policy. In addition, DNSV designs national programs for the control of animal diseases, including zoonoses, and develops standards on animal protection and veterinary public health. Moreover, it ensures that veterinary infrastructure, animal health services, and the sanitary control of animals and livestock products meet national veterinary standards. DNSV also collects and disseminates information and data on animal protection and veterinary public health.<sup>10</sup>

Another government agency involved in livestock activities – under the auspices of the MEP – is the Central Veterinary Laboratory (LCV) established in 1979, which performs diagnostic and research activities for animal diseases and the development of animal vaccines.<sup>7</sup>



LCV is mandated to :

- contribute to the prevention and eradication of animal diseases, such as contagious bovine pleuropneumonia (CBPP) and sheep and goat plague (PPR) through diagnostic and research activities;
- ensure, as far as public health is concerned, the screening of zoonoses, as well as quality control of food, water and beverages;
- ensure the production of vaccines and sanitary protection of livestock against infectious diseases; and,
- participate in the initial and continuing training of technicians on laboratory techniques.

The LCV's vaccine production for the prevention of major epizootic diseases meets the domestic needs, and the surpluses are exported to other West African countries including Burkina Faso, Togo, Benin, Guinea, Mauritania, Côte d'Ivoire and the Democratic Republic of Congo.

The Institute of Rural Economy (IER) — the government's main agricultural research institute under the Ministry of Agriculture — also conducts research and training on livestock. Founded in 1960, IER is mandated to design, manage, and implement agricultural research programs, including those for the livestock sector, often in collaboration with international development partners.<sup>11</sup> It seeks to improve agricultural, pastoral, and aquaculture production and productivity through the development of new technologies to achieve food

security and to preserve human health and biodiversity in Mali. For the livestock sector, through its six regional agricultural research centers, IER carries out research programs on cattle, small ruminants, and poultry. The decentralization allows IER to respond to local needs more effectively in remote areas. Its research findings include the development and promotion of artificial insemination of genetically improved local cattle breeds through crossing, adaptation, and dissemination of improved small ruminant breeds, the development of poultry husbandry practices, and the creation of a synthetic poultry breed.<sup>12</sup>

The Rural Polytechnic Institute for Training and Applied Research (IPR/IFRA), created in 1969 under the Ministry of Higher Education and Scientific Research, is also involved in livestock training and research.<sup>13</sup> IPR/IFRA conducts graduate and postgraduate trainings in forestry, fisheries, agroforestry, agronomy, soil sciences, agroeconomics, rural engineering, veterinary sciences, animal production, and extension services.<sup>14</sup>

### Financing

With respect to financing for Mali's livestock sector, the National Bank for Agricultural Development (BNDA) (51 percent state-owned) makes just over half (55 percent) of its loans to agriculture-related businesses and offers short-term loans to livestock producers, mostly SMEs and larger enterprises. For instance, BNDA charges 10 percent interest over a period of six months to one year on the purchase of animals, and 10 percent over a period of three to six months for loans used for forage production.<sup>15</sup> In addition, BNDA has been providing loans on demand to microfinance institutions at 8 percent for on-lending.<sup>16</sup> Women primarily benefit from those loans through credit unions (*caisses populaires*) for crop production and raising small livestock. However, for some livestock keepers the interest rates remain too high.

### Livestock federations

In 1999, the National Interprofessional Federation of the Livestock Meat Value Chain (FEBEVIM) was created to intensify and diversify the production of live animals and their products; better organize the production, marketing, and promotion of livestock products; improve the fattening of cattle; and ensure that the quality of livestock products not only meets domestic but also international safety and quality standards.<sup>17</sup> Furthermore, FEBEVIM is represented in each region in Mali to help livestock keepers and producers gain access to animal feed and medicines.<sup>18</sup> FEBEVIM's headquarters in Bamako facilitate access to credit; conduct capacity-strengthening activities for the production, conservation, processing, marketing,



and commercialization of livestock products; identify medium- and long-term investment projects for FEBEVIM; organize the sanitation of slaughterhouses; and mark cattle routes across the country.<sup>19</sup>

The actors of the milk sector are organized in the National Milk Producers Federation of Mali (FENALAIT), created in 2006.<sup>20</sup> FENALAIT supports its member cooperatives by improving their organizational structures and by facilitating networking opportunities in the dairy production sector. It also represents its members in decision-making bodies linked to the local milk sector and builds alliances with other umbrella organizations. In addition, FENALAIT advocates for policies to promote the milk sector at the national and regional levels and plays an important role in validating standards and labeling local milk products.

Finally, the Poultry Sector Stakeholders Federation of Mali (FIFAM), established in 2005, coordinates the interests of all stakeholders in the poultry subsector and represents them at the national and international level. It serves as a common platform for consultation, reflection, and action in support of the poultry value chain. FIFAM plays a crucial role in the organization of the poultry sector with respect to production and distribution channels and coordinates fundraising activities for the Malian poultry sector.<sup>21</sup> FIFAM facilitates the collective purchase of chicks and transport-sharing to markets among its members.<sup>22</sup>

Furthermore, the government focused on developing regulation to improve the provision of veterinarian services. In 1986, a law was passed for the privatization of veterinary services that allowed private veterinarians to supply services to livestock farmers. To improve coverage across the country, the government limited public service provision to reduce competition and increase the uptake of services by private veterinarians, particularly in remote areas where the majority of pastoralists are located. The government also supports the private sector through capacity strengthening activities and the provision of equipment on credit, such as cold rooms to store inputs. As a result, Mali has markedly improved animal health and the private sector now provides more than half of veterinarian services in the country.

### Policy innovations

Over the last few decades, Mali's policy emphasis for the livestock sector has been on reducing the impact of animal diseases and improving productivity through access to inputs, services and markets - particularly for pastoralist and agro-pastoralist communities. From 2000-2018, cow milk yield increased over 25 percent and total output increased by 185 percent. At the

same time, production of goat milk doubled while that of sheep milk grew by nearly 150 percent.<sup>23</sup> Prior to the 1990s, Mali's livestock sector policy had a strong focus on animal health with vaccination campaigns, in particular against rinderpest, which was eventually eradicated in 1999 in partnership with the Pan-African Rinderpest Campaign implemented by the African Union-Inter-African Bureau for Animal Resources.<sup>24</sup> Following the great droughts of the 1970s and the 1980s, the government's emphasis shifted toward increasing access to water points and pasture, while support for the marketing and processing of livestock products was also strengthened, for example through increasing the number of slaughterhouses and livestock markets. In 1991, Mali abolished a cattle export tax to reduce market barriers and support growth in the sector.<sup>25</sup> In 1995, the government agreed on an action plan for the development of the red meat sector.<sup>26</sup>

Livestock production in Mali is largely concentrated in pastoralist and agro-pastoralist livelihoods. In 2001, the Pastoral Charter (Charte Pastorale) was passed, acknowledging the right of pastoralists to move their herds in search of water and fodder, including into neighboring countries, while requiring them to respect the property of others and protect the environment, for example, by avoiding overgrazing. Pastoralists were given access to pasture, saline lands, water points, and state-owned resting areas. Transhumance agreements were made with neighboring countries in order to limit cross-border conflicts over shared pastoral resources, and a monitoring mechanism was proposed. Today, the government seeks to promote pastoral farming by developing rangelands, combatting diseases, and constructing water points, pastoral perimeters, and livestock infrastructure.<sup>27</sup> Despite being considered as only partially enforced by some actors, the Charter has facilitated the implementation of many programmatic interventions, such as the Regional Project to Support Pastoralism in the Sahel (PRAPS, see below). The laws and regulations related to the Charter have significantly strengthened the autonomy of local communities as well as knowledge transfer with respect to the improved management of natural resources. Furthermore, in several municipalities, regulations have been translated into practical planning tools based on the application of the Land Use Planning Scheme (SAT) and the Economic, Social and Cultural Development Plan (PDSEC). However, in some parts of the country, the implementation of the Charter has stalled due to ongoing political instability.

In 2004, Mali adopted the five-year National Livestock Development Policy (*Politique Nationale De Développement De L'élevage*, PNDE) to improve animal feed and health and the performance of livestock, to build



livestock breeding and commercialization infrastructure and equipment, to strengthen the capacity of livestock value chain actors, and to preserve natural resources. Under the PNDE, MEP has implemented strategies to add value to local raw milk; promote the red meat, tanning, and poultry subsectors; improve animal feed; strengthen epidemiological surveillance of diseases; and increase the capacity of milk producers and breeders.<sup>28</sup> PNDE called for an expansion of the budget allocated to the sector such that it matched the livestock sector's contribution to GDP; implementing the PNDE from 2004-2009 was expected to cost CFA 75 billion (US\$139 million).<sup>29</sup> However, implementation in the pastoral areas in northern and central Mali was severely hampered by a lack of human resources as well as political instability.

Moreover, in 2006, the government passed the Agriculture Orientation Law (LOA) (*Loi d'Orientation Agricole*), which is the overarching document guiding government actions in the agriculture, livestock, fisheries, and forestry sectors.<sup>30</sup> It aims to develop an intensive and diversified agriculture sector, and defines the functions of government and other entities, stating that government services are to be demand-driven, concentrated on providing technical assistance to farmers and agricultural organizations, and dedicated to setting policies beneficial for agricultural growth and market expansion.<sup>31</sup> In 2008, the government developed a strategy for promoting domestic dairy production with the aim of reaching self-sufficiency in milk and dairy products by 2013.<sup>32</sup> To achieve this objective, the strategy sought to increase private investment in the milk sector; create incentives, such as easier access to land, credit, inputs, equipment, and services, and favorable taxation policies; strengthen the technical, organizational, and institutional capacities of stakeholders in the dairy sector; ensure easier access and collection of local raw milk for the processing industries; and establish industries for processing local raw milk. However, despite encouraging results, Mali has not yet achieved self-sufficiency.

In 2013, the Agricultural Development Policy (PDA) (2013-2020) was approved by the government as the strategic framework of the LOA, replacing the previous Master Plan for Rural Development 1992-2010.<sup>33</sup> The PDA implemented a sector-focused approach to agricultural development with the objective of reducing poverty, ensuring food security, modernizing agricultural production systems, and improving the competitiveness of the agricultural sector.<sup>34</sup> The PDA provides the framework for all policies and sectoral strategies governing the agriculture sector, including livestock.<sup>35</sup> For the livestock sector, the PDA takes into account the objectives of the PNDE and promotes

the development of private farms using intensive production systems for meat, milk, and eggs. It also seeks to preserve and improve local breeds and to implement conservation programs for local breeds threatened by extinction. Furthermore, the PDA encourages the use of biotechnology, such as artificial insemination for genetic improvement. To ensure optimal health coverage of livestock and preserve the competitiveness of livestock products, the government encourages and reinforces the liberalization of the veterinary profession. Incentives have since been put in place to encourage private veterinarians to move to some of the more remote pastoral areas.<sup>36</sup> However, several constraints were encountered including quality of human resources, security issues and late implementation of regulations of the veterinary profession in compliance with international and regional standards such as the free movement of veterinary doctors in the West African Economic and Monetary Union.

Finally, in 2015, Mali finalized its CAADP 10-year investment plan, the National Agricultural Investment Plan (PNISA) covering the period 2015 to 2025.<sup>37</sup> PNISA provides the framework for all investments in the agriculture sector, including strategic investments in livestock value chains, specifically livestock products (both meat and dairy).<sup>38</sup>

### Programmatic interventions

Numerous programs have been implemented by the government and its partners as it seeks to develop the livestock sector to boost economic growth and improve food security and nutrition.

#### Poultry

In the poultry subsector, the government has designed interventions targeting each segment of the value chain. Between 1998 and 2010, the Program for the Development of Poultry in Mali (PDAM) sought to increase the production of eggs and chicken meat through the adoption of modern production technologies and improvement of poultry feed and health. It also sought to increase the incomes of rural populations in the project's intervention areas and organize the actors in the poultry sector. Under the program, poultry markets, slaughterhouses, and cold rooms were constructed. In addition, targeted vaccination campaigns and capacity-strengthening activities for value chain actors – including breeders, merchants, and hatchery operators – were organized. Cars, motorcycles, and bikes to transport goods were also purchased for farmers' organizations.<sup>39</sup> As a result, the stock of poultry increased from 5.6 million to 27 million between 1999 and 2006, while the number of poultry sold and registered in 32 markets increased



from 983,000 to 6 million.<sup>40</sup> In 2014, due to the positive impacts of PDAM, the government launched the second phase of the project over a period of five years, with the objective of achieving self-sufficiency in poultry meat.<sup>41</sup>

### Milk and meat

To increase the stock of productive local cattle for milk and meat production, the government initiated the Azawak Zebu Selection and Multiplication Support Project in Mali (PASMZAM) in 2000. The project aimed to enhance the living conditions and income of pastoral communities, particularly in the region of Menaka, by increasing the stock of a local breed, the Azawak Zebu, which is known for high milk yield even under harsh conditions. In addition, its carcass yield ranges from 50 to 60 percent, and an Azawak ox can transport loads of 80 to 100 kg over distances of 15 to 20 km at a speed of 3.4 km per hour. The project was implemented in three phases. During the first and second phases (between 2000 and 2006), each beneficiary farmer received four heifers, one bull, and a dromedary, to be repaid at a later stage. The third phase of the project began in 2012 but could not be implemented due to the ongoing conflict in Mali.<sup>42</sup>

In the spirit of achieving self-sufficiency in raw milk production and dairy products, the *Projet de Développement et de Valorisation de la Production Laitière au Mali (PRODEVALAIT)* was initiated in 2009. The project sought to better organize dairy production areas, provide support to farmers, set up milk collection centers and processing units, and provide institutional support. To improve the genetic composition of cattle, the project financed the purchase of inputs for the storage and conservation of animal semen, supported the training of inseminators, and artificial insemination service provision across the country, and organized awareness days for pastoralists in the peri-urban areas of Bamako. In 2015, almost 6,000 cows belonging to about 2,000 farmers were inseminated. Also under the project, milk collection centers were renovated to restart widespread milk collection activities. Some milk collection centers were equipped with solar panels for electricity generation.<sup>43,44</sup>

From 2014 to 2019, the *Livestock for Growth Project (L4G)* was implemented jointly by the governments of Mali and the United States through the *Feed the Future* program, using the value chain approach to commercialize the livestock sector in Mali.<sup>45</sup> L4G has been mostly implemented by local actors under the supervision of regional authorities.





It aimed to strengthen livestock value chain actors' competitiveness, responsiveness to market demands, and access to quality agricultural inputs and services. The main objectives of the program were to enhance livestock productivity, increase trade domestically and in the region, increase the entrepreneurial capacity of livestock value chain actors, and strengthen the enabling environment for the livestock sector.<sup>46</sup> It also sought to increase the capacities of private veterinarians and other livestock professionals to train farmers. The project was affiliated with FEBEVIM and the National Union of Livestock and Livestock Traders, who have benefited from capacity building in market regulations and livestock marketing.<sup>47</sup> The project implemented vaccination campaigns, supported farmers to sell and buy animals, and offered training.<sup>48</sup> L4G also facilitated access to microfinance loans for producer organizations to fund animal fattening activities. In addition, the project supported the rehabilitation of a Livestock Market Information System (LMIS) operated by the Observatoire des Marchés Agricoles (OMA).<sup>49</sup> As a result of these interventions, 691 mt of fodder were produced, which led to a significant improvement in meeting animal feed needs, particularly during the dry season, resulting in an increase in both animal productivity and competitiveness when sold at markets.<sup>50</sup> Furthermore, the project developed the Private Proximity Veterinary Service (SVPP) that allowed 287,525 animals to be vaccinated and more than halved the prevalence of diseases in the Koro and Bankass Cercles districts from 45 percent in 2014 to 20 percent in 2018.<sup>51</sup> In addition, 1,800 full-time jobs were generated (65 percent held by women) in animal fattening, fodder production and sale, and multinutritional salt block production, and working as veterinarian assistants, tree nurserymen, and dual-purpose seed producers.<sup>52</sup>

The government of Mali has also participated in regional interventions to develop its livestock sector. Mali is part of the Regional Sahel Pastoralism Support Project (PRAPS) initiated in 2015 and being implemented in Mauritania, Senegal, Burkina Faso, and Niger. PRAPS aims to improve access to important productive assets, services, and markets for pastoralists and agro-pastoralists in cross-border areas and along the transhumance routes, and strengthen national capacities to respond efficiently to pastoral crises or emergencies. It is expected that the project will directly benefit 440,000 pastoralists and agro-pastoralists, including 132,000 women and young people in Mali by 2021. PRAPS improves animal health through the rehabilitation or building of veterinary infrastructure and support to animal disease surveillance and vaccination campaigns for regional priority diseases such as CBPP and PPR. It also provides support to pastoral and agro-pastoral communities to grant secure access to natural resources such as grazing

lands and drinking water. In addition, market access is facilitated through the rehabilitation and building of new livestock markets to increase pastoralists' access to competitive markets, and to boost trade in pastoral products.<sup>53</sup> An evaluation in 2019 found that the herd prevalence of CBPP fell significantly, sustainable land management practices were adopted by pastoral and agro-pastoral communities, and the construction of new water points improved access to reliable water resources. In addition, the building and rehabilitation of seven markets increased the number of animals sold.<sup>54</sup>

Furthermore, to complement the PRAPS Project, over the period 2018 to 2024, MEP coordinates the Mali Livestock Sector Development Support Project (PADEL), which seeks to increase the productivity and commercialization of non-pastoral animal production in selected value chains and to enhance the country's capacity to respond to crises and emergencies.<sup>55</sup> The overall approach is to support sedentary livestock value chains such as cattle and small ruminants (meat and milk) and poultry (chicken and eggs), as well as all livestock development activities along the selected value chains, from production to market. It includes three components: strengthening of livestock services to increase productivity in selected nonpastoral value chains; enhancing the competitiveness of targeted cattle and small ruminants (meat and dairy) and poultry (eggs and chickens) value chains; and creating mechanisms to prevent and better respond to crises and emergencies. Furthermore, it aims to increase project coordination capacities within MEP.<sup>56</sup>

The Malian government has recognized the potential of the livestock sector to deliver economic growth and meet food security and nutrition targets. To support the sector, the government has introduced targeted institutional and policy innovations and programmatic interventions. Mali is a net exporter of live animals. However, it is still strongly dependent on imports to meet demand for dairy products. By pursuing efforts to boost dairy productivity and providing incentives for private investors to invest in milk collection activities and modern processing facilities to produce competitive and quality products, Mali can make significant progress toward achieving self-sufficiency in milk.



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