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# LIVESTOCK POLICIES IN SON LA PROVINCE, VIETNAM

## A REVIEW



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## **Abstract**

*Since the market-oriented Doi Moi reforms of the 1980s and 1990s, Vietnam's livestock sector has experienced rapid growth. Although policies have been implemented at the national and provincial levels to guide this growth in a sustainable manner, blind spots and implementation gaps remain. Through a review of policy documents, grey literature, peer-reviewed journal articles, and key informant interviews, this research seeks to summarize livestock-related policies at the national and provincial levels in Son La, Vietnam. Policies related to land-use, livestock feed, animal breed development, credit provision, epidemiology, agricultural extensions services, public investment, and sectoral master planning are examined. Based on this review, the authors recommend greater support for smaller actors in Son La's livestock value chains, mainly in the form of additional research and development, increased credit provision and agricultural insurance, improved agricultural extension services, and strengthened local processing capacity. These policy interventions and investments, among others, will be critical to achieving the government's ambitious livestock production targets over the coming decade. Notably, more robust public intervention and support is required to unlock this growth. Additional funding for local-level Ministry of Agriculture and Rural Development (MARD) initiatives and improved coordination between its national and provincial offices will be a key determinant in achieving sustainable intensification in Son La's livestock sector.*

## **1. Introduction**

With increasing consumer demand for meat and dairy products leading to the intensification of production systems, livestock is one of the fastest growing agricultural sectors in Vietnam. Since the launch of the Doi Moi economic reforms in 1986, which aimed to transition Vietnam from a centrally-planned to a market-driven economy, demand for food has steadily increased in line with a growing population, while rising incomes have led to changes in dietary preferences. In 2019, 49,600 private companies were active in Vietnam's agricultural sector, accounting for 8% of all domestic businesses. Of these, 7,600 engage in direct production, with the rest participating in related value chain activities. As the dominant mode of livestock production has shifted from smallholders rearing local breeds for sale in traditional markets to intensive industrialized production systems on mid-, large-, and mega-sized farms, the number of households raising animals has diminished as total animal populations have grown. In 2019, livestock production accounted for one-third of Vietnam's agricultural GDP (Cesaro et al., 2019).

The inherent cost and productivity limitations of smallholder farming have been capitalized on by larger operators, leading to the emergence of new farming models, processing facilities, and distribution systems with strengthened linkages across the value chain. Vietnam's livestock sector is also growing more dependent on foreign markets as trade liberalization has increased competition between domestic and imported products, including animals, feed, processing services, and veterinary drugs. While changing market dynamics have ensured a stable supply of animals to meet increasing levels of market demand, small producers have been negatively impacted by increased competition and a lack of government support. In response, a series of policy reforms and institutional innovations have aimed to support market-oriented changes in livestock production, trade, and consumption. These policies relate principally to land-use, animal feed, credit provision, epidemiology, agricultural extension services, public investment, and sectoral master planning.

The objective of this review is to identify key livestock policies since the onset of Vietnam's Doi Moi economic reforms at the national level, as well as at the provincial level in Son La. Based on the report's findings, recommendations will be made to promote sustainable livestock production in Son La province through 2030.

The livestock species examined here include cattle (beef and dairy), pigs, poultry and small ruminants. The policies reviewed have all been issued since the onset of the Doi Moi reforms in 1986, and specifically address aspects of livestock production, trade, or consumption. Data collection occurred in two stages. First, state policies and related secondary data published by government organizations, including the General Statistics Office of Vietnam, the Ministry of Agriculture and Rural Development (MARD), and the Son La People's Executive Committee (SLPEC), were reviewed. Official reports were then supplemented with peer-reviewed academic papers, news reports, and grey literature from non-governmental research and development organizations. Second, key informant interviews were conducted with experts

from provincial and national government organizations, including MARD's Department of Livestock Production, MARD's Department of Animal Health (DAH), MARD's National Institute of Animal Science (NIAS), MARD's Institute for Policy and Strategy for Culture and Rural Development (IPSARD), MARD's various provincial offices in Son La, the Son La People's Executive Committee, and the International Livestock Research Institute (ILRI). Key informant interviews were performed with experts at both the national and provincial levels.

## **2. Recent livestock production trends in Vietnam**

Between 1990 and 2019, Vietnam's cattle (beef and dairy), goat, pig, poultry, and sheep populations have increased, while those of buffalo and horse have decreased slightly. In 2017, poultry comprised 91.6% of Vietnam's total livestock population, followed by swine (6.5%), cattle (beef and dairy) (1.34%), and buffalo (0.59%). The average annual growth rate of Vietnam's livestock sector between 2007 and 2017 was 4.92% (General Statistical Office, 2019a). Geographically, cattle populations are concentrated in in the Central Highland and Northern Midland and Mountain regions, while buffalo are more common in the Northern Mountains. Poultry and swine are reared throughout the country, with the highest population density in the Red River Delta and Southeastern regions.

The consumption of livestock products—especially pork, cow milk, and eggs—has increased dramatically between 2010 and 2020, with growth rates in Vietnam leading all countries in the Southeast Asian region (World Bank group, 2016). The total production quantity of meat has increased by 152% between 2007 and 2016, from 3.29 to 5.02 million tons. The production of cattle and poultry meat products has grown 174% faster than the average output of all animal populations, equivalent to 8.6% per year over the same period.

In terms of quantity, pork comprises 73.0% of total livestock production, with 3.7 million tons produced in 2019. However, this is down 25.5% from previous year due to the spread of African swine fever (see *Policies related to epidemiology* section). The same year, poultry accounted for 960,000 tons, or 19.1% of total livestock production, and meat products from buffalo and beef comprised 6.1% and 1.7%, respectively (General Statistical Office, 2019b). Milk production grew by 240% between 2007 and 2016, to 795.1 million liters annually, while egg production increased by 136% over the same period, to 10.6 million eggs annually (General Statistical Office, 2019b).

Scientific advances in locally-suited livestock breeds have enabled significant growth in Vietnam's livestock populations. New hybrid breeds offer improved yields, higher quality meat, enhanced disease resistance, reduced input necessity, and shorter rearing times. Genetic combinations of Landrace, Yorkshire, Pietrain, and Duroc pig breeds have been incorporated into multi-generational breeding schemes spanning up to four generations (National Agency for Science and Technology Information, 2019). As a result, national average dressed carcass weights increased from 56.5 kg to 70 kg (Lien, 2019). The new hybrids also have increased reproductive capacities and higher quality meat.

Similarly, artificial insemination was used to crossbreed imported Holstein Friesian cattle with the local Lai Sind breed to produce a new, more locally-suited variety. The new breeds

variously feature 50%, 75%, and 87% HF genetic classifications (Cai, 2009; Hanh, 2010). When cross-breeding beef cattle, imported breeds (including Red Sindhi, Sahiwal, Brahman, Red Angus, Droughtmaster, Limousine, Crimousine, Simmental, Charolaise, Hereford, Santagestrudis, and Belgian Blue) generally comprise at least 63% of the new breed's genetic classification (Cai, 2007). Artificial insemination technology is expensive, and difficult to access in the remote mountainous regions of Northern Vietnam, where, as a result, local beef cattle varieties are most common. On the contrary, in the well-connected and relatively affluent Mekong and Red River Deltas, improved hybrid varieties dominate.

### **3. Livestock policies at the national level**

#### **3.1. Policies related to land-use**

Between 1990 and 2012, Vietnam's agricultural lands have more than tripled (OECD, 2015). By the end of 2018, more than 25 million hectares (ha) were being used for agricultural purposes, accounting for 82% of all natural areas and 88% of total land use (General Statistical Office, 2019c). Of the agricultural total, 600 thousand ha of land were used for livestock production—mainly farm lands and permanent pastures and meadows (General Statistical Office, 2019c; OECD, 2015a). Lands allocated to pasture and meadows doubled in the 1990s, when expansion then plateaued (OECD, 2015b). The average land area per agricultural household is currently 0.46 hectares, with each household owning an average of 2.8 parcels of land (Chung, 2018; MONRE, 2019; Vien, 2017).

To accommodate and support the expansion of lands used for livestock production, the National Assembly of the Socialist Republic of Vietnam (the NA), the President, the Office of the Prime Minister, and the Ministry of Agriculture and Rural Development (MARD) have enacted a multitude of policies related to land-use and management. Resolution No. 26-NQ/TW, passed in 2008, is a wide-ranging policy that touches on many aspects of agricultural production. In terms of land-use, the policy seeks to expand private land ownership and strengthen the land-use rights of the individual. This Resolution stripped back many of the pre-Doi Moi restrictions on the private ownership of property and employment outside of formal cooperatives by stipulating that private owners could now purchase the land-use rights for specific agricultural plots for fifty-year periods, after which the state is free to reallocate that land to a new user. By introducing longer tenures, the Vietnamese state hoped to encourage the use of sustainable, rather than exhaustive, farming practices. Key provisions of the Resolution were reinforced by 2012's Resolution No.19-NQ/TW.

Decrees No. 13/2003/QH11 and 181/2004/ND-CP, passed in 2003 and 2004, respectively, are related and articulate various classifications of agricultural and non-agricultural land types, including land reserved for livestock farming, pasture and other livestock-related land types.

National policies concerning land-use and management for agricultural and livestock are largely designed to support market-driven economic growth. Rather than benefitting smallholder farmers, these policies have created the conditions for land accumulation among a smaller number of owners with larger land holdings. Initially, the policies attracted a number

of entrepreneurs to the field of animal husbandry; this caused animal populations to rapidly increase and enabled the emergence of large-scale farming models and increased production.

### **3.2. Policies related to livestock feed**

Animal feed is a crucial input and typically accounts for between 65% and 70% of Vietnam's total livestock production costs. In line with rapid population growth, particularly of pigs and poultry, demand for feed has increased sharply and led to increased domestic production and rising imports. Vietnam's domestic animal feed industry is heavily dependent on imported raw materials to produce concentrated animal feed. More than USD \$ 1.6 billion was spent on their import in the first five months of 2019, up 0.3% compared to the same period in 2018. According to several policies, protein-rich ingredients such as dried meat-bone flour, soybean, maize, and dried fish flour, must comprise 90% of ingredients, with the remaining 10% comprised of minerals, vitamins, and other additives (Giap, 2015). During the first five months of 2019, 769 thousand tons of soybeans, worth US \$ 304 million, and 4 million tons of maize worth US \$82 million were imported to Vietnam (Chan Nuoi Viet Nam, 2019a). While exact quantities are difficult to specify, a large portion of both commodities was intended for the production of animal feed.

Within Vietnam's feed production industry, monopolization, unfair competition, and price manipulation are common (General Statistics Office of Vietnam, 2019). In 2015, 239 animal feed processing plants were operating in Vietnam, of which 180 were domestically-owned companies and 59 either partly or fully-owned by foreign entities (Giap, 2015). Animal feed companies funded with foreign capital occupy a large and increasing share of the Vietnamese market. As the market is dominated by large players, it is often difficult for smaller companies to compete on price and volume. This leads to issues of unfair competition, particularly as large firms employ exclusive distribution contracts and steep discounts, both of which have the effect of preventing smaller competitors from entering the market. These actions harm not just small competitors, but farmers and consumers as well, as without competition large producers are able to sell their products at inflated prices. Furthermore, feed quality standards are poorly enforced and many companies fraudulently list ingredients. The official agencies charged with sectoral oversight—The Department of Livestock Production, The Provincial Department of Agriculture and Rural Development, and the National Agro-Forestry-Fisheries Quality Assurance Department—generally lack both the resources and capacity to adequately enforce the various policies related to production management and competition.

Despite these challenges, several policies aim to satisfy the needs of livestock producers in terms of demand and quality satisfaction. These policies, mainly decrees from MARD, focus on home-based silage production, the production of concentrated feed, the management of imported raw materials, quality standardization, business conditions, the trial-testing-approval-certification process, and the addition of antibiotics and probiotics.

Decision No. 90/2006/QĐ-BNN from 2006 identifies permissible types of livestock feeds and the raw materials to be used for domestic animal feed production for import. In 2009, Decision No. 168/QĐCN-TACN designated the official research centers to carry out the quality testing

of livestock feeds. Decision No. 116/2009/QĐ-TTg, from 2009, modifies the types of feeds that are permitted for domestic use. In 2017, Decree No. 39/2017/ND-CP amended Decree No. 08/2010/ND-CP in regulating the management of animal feed, the business conditions surrounding its trade, quality and testing standards, and the certification of different feed types. The government pledged to invest in research, development, and capacity building for feed examination and quality control, while obligating producers to maintain production records for three years and to include nutritional information on product packaging. Decision no. 2625/2017/QĐ-BNN-TY strictly regulated the use of antibiotics in animal feed by specifying the permissible purpose, type, and quantity of each to be included according to both feed and livestock type. The policy's ultimate goal is to boost immunity levels in livestock populations while not adversely affecting levels in humans through the consumption of residual livestock products.

### **3.3. Policies related to breed development**

Public research centers such as the National Institute of Animal Science, the Poultry Research Center, the Large Ruminant Breeding Center, and the Thuy Phuong Pig Research Center have been successful in cross-breeding and distributing new breeds of pig, cow, and poultry across Vietnam. Though publicly administered, these research centers also sell the hybrid breeds they develop. While this market-oriented public research has resulted in increasing livestock populations and the wide dissemination of improved breeds, major gaps remain in the policy landscape surrounding the livestock breeding industry.

One of the oldest and most influential policies related to livestock breeding is the National Assembly Standing Committee, 2004 ordinance No.16/2004/PL-UBTVQH11. It is a wide-ranging piece of legislation organized around five key breeding issues: the management and conservation of genetic resources; the research, crossing, selection, testing, and recognition of new breeds; the production and trading of livestock breeds; breed quality management, and; the inspection and resolution of disputes (Department of Livestock Production, 2020). While the ordinance has been largely successful in bringing structure to a previously unregulated industry, it did not address several key issues, including product quality standards, human resource capacity, and skills training.

Several interrelated policies seek to address these policy gaps. Presidential Decree No.34/2001/QĐ-BNN-VP empowers MARD to determine a set list of animals breeds for commercial breeding, mandates businesses to comply with restrictions relating to animal housing areas and technical specifications, requires breeding staff to hold at least a bachelor's degree in animal husbandry, and obliges breeding farms to maintain computerized computer records detailing the animal reproduction cycle. Presidential Policies No.225/1999/QĐ-TTg and 17/2006/QĐ-TTg set out regulations relating to business permits and operating procedures, administrative violations and sanctions, an updated list of breeds permitted for commercial production, and measures to preserve indigenous breeds. Decree No.119/2013/ND-CP seeks to protect animal health by laying out administrative violations and related sanctions related to the mismanagement of genetic resources. Specifically, it aims to manage the conservation of rare genetic resources, introduces regulations on the parameters for experimentation with new



breeds, regulates biosecurity measures, and introduces a certification, permit, and licensing system for the trading of new livestock breeds.

Though MARD administers provincial-level offices and programs in 43 of Vietnam's 63 provinces, gaps between national policy and local implementation remain. In particular, Vietnam lacks a centralized livestock breed monitoring, tracking, and management system. Additionally, provincial animal breeding research centers often lack adequate tools, technologies, and resources. This leads to a lack of qualified personnel who are able to carry out management, monitoring, and inspection services. This limits regionally-specific breed research and development efforts, and exacerbates existing inequalities between Vietnam's poorer, often more remote regions, and its wealthier ones. Shortcomings in livestock breeding also result in diminished production, and the number of annual livestock in Vietnam is notably lower than those in other Southeast Asian countries. Stunted productivity results in knock-on economic impacts, as livestock breeds are often insufficiently productive to participate in large supply chain activities, cutting off a key opportunity for the livestock sector to contribute to Vietnam's economic growth.

### **3.4. Policies related to credit provision**

To keep pace with the expanding livestock sector, in recent years the State Bank of Vietnam has accelerated the development of agricultural and rural credit schemes. As a result, multiple policies and new financial mechanisms have been deployed to help farmers access productive capital. Additionally, the network of physical banking locations that issue credit for livestock raising has grown, the debt ceiling for individual loaners has increased, and the capital requirements for receiving loans have been relaxed. However, the increased provision of credit can lead to increasing default rates. To combat this, Vietnam's lending institutions have, over time, modified lending conditions and repayment terms to protect against default. This has made accessing credit easier for agricultural producers and helped diversify the profile of Vietnamese borrowers to include many livestock producers.

Due to growth in the number of organizations providing agricultural credit, and the diversification of credit packages designed for agricultural producers, the number of farmers (and producer organizations, cooperatives, and businesses large and small) receiving loans has grown. In the period from 1994 to 2007, the proportion of rural households receiving loans has increased from 9% to 70% (The State Bank of Vietnam, 2009). This growth in credit provision has led to a restructuring of Vietnam's agricultural business environment and greatly influenced rural development as a whole. In particular, enhanced rural infrastructure (electrical networks, roads, irrigation systems) and the increasing availability of loans for small and medium firms, including those processing cattle and poultry products, have driven growth in the livestock sector. A relaxation of collateral requirements has increased the amount of credit loaned to households to VND 30 million, without providing mortgage assets. In remote areas, this maximum can be as high as 100 million VND per household.

Credit for livestock production (and other agricultural activities) is issued by a variety of state banks, commercial banks, and civil society organizations. The Vietnam Bank for Agriculture

and Rural Development (Agribank) and the Vietnam Bank for Social Policies (VBSP) are the largest lenders, and issued a combined 65% of all agricultural credits in Vietnam in 2018 (Alan et al., 2019).

The People's Credit Fund (PCF) is a system of communal savings and credit cooperatives that are member-owned and run. The PCF model serves to distribute credit, provide banking services, and mobilize local capital for on-site lending in rural, historically under-banked areas through local networks and a relatively fast loan approval process. Despite its small size, the PCF network provides 4% off all lending to the agricultural/rural development sector, and plays a notable role in poverty reduction, providing micro-financing for crop production, livestock rearing, and aquaculture (World Bank, 2019).

At present, there are 989 PCFs operating in Vietnam with a total capitalization of approximately VND 14,000 billion (US \$606 million). Total outstanding loans are worth approximately VND 12,000 billion (US \$519 million) and nearly 1.3 million households have participated in the PCF scheme (The State Bank of Vietnam, 2009; World Bank, 2019).

Since the early 1990s, foreign non-governmental organizations (NGOs) have increasingly provided technical assistance for agricultural credit programs. In the agricultural space, Groupe de Recherche et d'Echanges Technologiques, ActionAid, Développement International Des Jardins, the Save The Children Fund, and OXFAM have all been active in helping the rural poor mobilize savings, and in capacity building for community savings and loan groups. Many NGOs tend to focus attention on the poor, women, and ethnic minority communities in remotely-located areas as these groups have the most difficulty accessing formal credit schemes (The State Bank of Vietnam, 2009). These loans are often classed as either conventional loans, which have similar interest rates to those offered by commercial institutions, or preferred loans, with concessional interest rates. Multilateral development institutions such as the World Bank, the International Fund for Agricultural Development, the Food and Agriculture Organization of the United Nations, and the Asian Development Bank often disburse credit to various value chain actors as part of their programmatic implementation.

Several policies regulating loan packages, interest rates, repayment terms, and initiatives to protect producers from environmental hazards have been enacted. The agricultural credit system as a whole was established in 1999 by the Prime Minister's Decision No. 67/1999/QĐ-TTg, which allowed Vietnamese financial institutions to lend capital to individuals and businesses in the agricultural sector. In 2015, Decree No.55/2015/NĐ-CP expanded this ability to foreign-owned banks operating in Vietnam. Decree No. 106/2004/NĐ-CP, from 2004, is aimed at helping larger livestock-oriented businesses—such as poultry and cattle production farms, processing facilities, and slaughter houses—access credit for productive investment and businesses development. 2016's Decision No.1197/QĐ-BNN-KH in 2016 amended the earlier Decision No. 3346/QĐ-BNN-KH by restructuring the agricultural sector with the aim of orienting it toward enhanced production value and sustainable rural development. This is to be achieved by promoting pro-poor value chain value chains and improving rural market linkages.

Decree No.57/2018/NĐ-CP, passed by the Vietnamese government in 2018, laid out several new financing mechanisms to encourage investment into agriculture production, including the

livestock subsector. The policy focuses on capital and credit support, the reduction and exemption of specific agricultural service fees (paid to the state), land taxes, land rental fees, and allocates a portion of funds raised to support further investments in infrastructure and technologies related to the livestock sector.

Although credit programs for agricultural production, including livestock production, and rural development have proven popular, their capitalization still lags significantly behind non-agricultural credit programs in Vietnam. A key reason for this is that no commercial finance institutions are active in the sector as they view agricultural production too risky for investment. Instead, state banks with a developmental remit remain the main agricultural lenders.

### **3.5. Policies related to epidemiology**

Since 2000, Vietnam's livestock subsector has been ravaged by successive disease outbreaks, including avian influenza virus H5N1, foot and mouth disease (FMD), porcine reproductive and respiratory syndrome (also known as "blue ear" disease), and, most recently, African swine fever (ASF) (OECD, 2015b). In 2017 alone, 40 outbreaks of avian influenza virus H5N1 and the related A/H5N6 strain impacted poultry production in 21 provinces. In total, 50,316 heads of poultry were infected, leading to the destruction of 73,835 animals (MARD, 2018). In the same year, 13 outbreaks of FMD occurred in 4 provinces, infecting 1,429 animals. However, the most severe disease affecting Vietnam's livestock sector is ASF, which occurs in all ages and breeds of pig. ASF's death rate is 100% as currently no treatments or vaccinations exist. As of 2019, ASF has killed approximately 3.3 million pigs in Vietnam, with the Northern Mountain regions, the Northern Coastal area, and the Central Highlands impacted most acutely (MARD, 2018; BaoPhuong, 2019; Vietnamonline, 2019).

To address these epidemiological challenges, several policies were urgently issued. Compared with other agricultural policies, those concerning livestock disease control offer a robust toolkit of actions to prop up the industry, including subsidies and price controls on inputs and outputs, financial support for breeders and credit packages to speed the recovery of impacted producers.

In 2019, Government Resolution No.42/NQ-CP provided financial support for farmers, ranchers, and cooperatives impacted by ASF. Support was based on the market price and production costs for each breed of pig, and small and medium enterprises were typically eligible for support equaling 30% of their ASF-related losses. Presidential Decision No.793/QĐ-TTg, also issued in 2019, provided financial support to for value chain actors to take pre-emptive measure to stop the spread of ASF. Producer households were eligible for up to 30,000 VND/kg of pig, and small and medium commercial enterprises up to 10,000 VND/kg. For purebred sows, up to 500,000 VND/head in support was available through 31 December 2019.

In addition to those targeting ASF, Decisions No.1681/QĐ-TTg and No.1791/QĐ-TTg address the risks posed by blue-ear pig disease and hog cholera, and Decision No.476/QĐ-BNN sought to prevent the porcine spread of FMD by identifying and segregating high-risk areas through the use of buffer zones. Many of these policies increased the compensation level available to farmers per infected pig (and chickens, with regard to outbreaks of H5N1, A/H5N6, and Newcastle

disease), in hopes of encouraging farmers to destroy infected animals rather than sell them on the black market. Between 2005 and 2015, compensation rates per animals increased by 15% (OECD, 2015a). Actions laid out in epidemiological policies are often financed by the national Ministry of Finance, supported by research, development, and technology from MARD, and operationalized at the local level by provincial agencies (OECD, 2015a). Simultaneously, Vietnamese research centers have taken a proactive role in the development of new and hard-to-access vaccines for common diseases, notably for foot-and-mouth disease, with the goal of boosting domestic supplies and reducing reliance on imports. The government also encouraged large-scale livestock producers, such as GreenFeed Vietnam, Masan, Dabaco, and the C.P. Group to their biosecurity measures in order to secure national supply and stabilize prices.

Despite concerted policy action, disease outbreaks remain a critical issue for Vietnam's livestock sector. ASF is common, highly contagious, and untreatable. Small producers still struggle to apply adequate biosecurity practices, and the illegal trading of ill animals continues. As production area is expensive, livestock population density tends to be high on smallholder operations, which allows the rapid spread of pathogens from one animal to the next. Additionally, local animal testing and quarantine points are sparse and, where available, often lack the equipment and capacity to carry out effective animal testing, isolate sick animals and pre-emptively notify communities of targeted epidemiological risks.

### **3.6. Policies related to agricultural extension services**

Vietnam's National Agricultural Extension Center (NAEC) is administered by MARD and was established in 1993 by Decree No. 13/1993/ND-CP. The extension services' core role is to support agricultural production (including in the fisheries, forestry, and livestock subsectors) through research initiatives, business development training, the control of epidemiological hazards, and the development and dissemination of improved breeds, crop varieties, productive practices, and technologies. Related activities include campaigns related to policy and market developments, training courses, demonstration plots and field models, the distribution of agricultural inputs, and biosecurity initiatives.

In 2011, the NAEC employed 34,747 members nationally, equaling one staff member per 280 agricultural producers. Of this total, 11,232 employees operate at commune level, equivalent to 1.14 employees—though not necessarily extension officers)—per commune. In 2016, 8,202 communes, or 91% of Vietnam's total, benefited from at least one dedicated extension officer (General Statistics Office, 2019; Phuong, 2012). In 2018, livestock and veterinary extension activities included the development of 46 field models with 164,325 heads of livestock, roughly half of which were poultry. The models sought to improve sow breeding practices, porcine biosecurity, and high yield poultry production practices, and featured more than 100 seminars attended by approximately 3,800 producers. Weekly attendance at the field models often exceeded 3,000 participants (MARD, 2019).

However, the NAEC faces a number of challenges including limited human resources, a top-down approach that is not always responsive to local needs, a lack of services tailored for different types of livestock production, insufficient private sector engagement, and ill-equipped

monitoring systems that hinder planning processes (Phuong, 2012). There is also significant overlap between national and locally-administered extension programs, despite both being overseen by MARD (OECD, 2015). Furthermore, many extension programs lack a value chain approach and are overly focused on improving input supply while neglecting the importance of developing market opportunities by linking production with consumption.

In 2018, Decree No. 83/2018/ND-CP laid out plans for wholesale reform of the NAEC's services, including an organizational restructuring and alteration of the department's responsibilities, with the ultimate goal of improving the quality and efficiency of services. These included trainings related to technology transfer, initiatives to recruit female and minority ethnic extension workers, and increased input subsidization for participants in extension programs.

### **3.7. Policies related to public investment**

Public investment into Vietnam's agricultural sector comes from the national budget via MARD, government bonds, loans and capital from state-owned companies. Public investment into the agricultural sector comprised approximately 35% of total between 2007 and 2011, with the remaining 65% coming from multilateral development institutions, foreign direct investment, and domestic commercial investment (Thuan, 2017). Operational capital, provided by Vietnam's State Budget to provinces throughout the country to invest in agricultural production as they see fit, accounts for 8-10% of total sectoral investment. National investment into specific agricultural initiatives at the provincial level accounts for about 1% (Nga, 2019). MARD's total budget between 2016 and 2020 was VND 70 trillion (approximately US \$3 billion) (Nga, 2019). Between 2008 and 2012, total public investment in agriculture reached VND 93.4 trillion (approximately US \$4 billion), increasing 50% to VND 140 trillion (approximately US \$6 billion) between 2013 and 2017 (Thuan, 2017). A large portion of these funds are invested in animal housing infrastructure, pest and disease control, hygiene and food safety, the purchase of meat, eggs, and milk as part of state initiatives to guarantee food security, support domestic producers, and to stabilize the price of staple foods (Nga, 2019). A significant portion is also used to attractive private investment, often in the form of public-private-partnerships, to the agricultural sector.

Several key policies related to public investment are concerned with land-use fees and taxation. Decrees No. 129/2003/ND-CP and No. 20/2011/ND-CP establish tax exemptions for land used for agricultural production, while Decree No. 61/2010/ND-CP seeks to encourage private sector investment in the sector by establishing tax exemptions for private companies that finance agricultural projects. Other influential policies deal with the provision of credit, such as Decisions No.67/1999/QD-TTg and No.41/2010/ND-CP, which established how banks are to structure agricultural loan packages. Decision No. 497/QD-TTg regulates the interest rate of loans used for purchasing agricultural machinery, equipment and supplies.

Compared to other economic sectors, such as transportation or manufacturing, the return on public sector investments in the agricultural sector is relatively low (Nga, 2019). This is common in developing countries, as capital losses result from a low quality/ lack of human

resource capacity, poor marketing infrastructure, a lack of advanced machinery and technology, high transaction costs, and a general weakness in agricultural market systems, which complicates incremental value capture and economic growth. Many projects progress slowly, are delayed, or fail to deliver on their intended objectives.

### **3.8. Policies related to livestock master planning**

Master planning refers to wide-ranging and long-term sectoral development planning. In the livestock sector, these plans offer holistic strategies to ensure productivity, quality, competitiveness, and disease control. In 2008, Decision No. 10/2008/QĐ-TTg laid out a comprehensive agricultural development policy for Vietnam and was amended by Decisions No. 984/QĐ-BNN, in XXX, and No. 124/QĐ-TTg, in 2012. This trio of policies have played a crucial role in the sector's growth and strategic orientation to nearly all aspects of livestock production and trade through 2020, including research and development, public investment, private investment, credit services, land allocation, breed selection, feed supply, labor, population growth, extension services, value chain and market systems development, food security, and disease outbreak prevention (Department of Livestock Production, 2020). Overall, these policies seek to guide the sector's development from small- to industrial-scale production, and include eight specific programs: pig, beef and dairy cow, buffalo, poultry, silkworm, animal feed, and veterinary (Department of Livestock Production, 2020).

On the back of these policies, Vietnam's livestock subsector has made significant gains in scale, population growth, and productivity. Vietnam's agricultural GDP grew between 6.5% annually between 2006-2010, and then decreased slightly between 2011-2015, averaging 4.75% annually (World Bank, 2020; Diem & Thuy, 2019). In 2017, livestock accounted for 27.5% of total agricultural GDP (Duc Phuc, 2017). This growth is both the product of and stimulant for increased public and private investment in the livestock sector nationally and locally.

Issued in 2012, Decision No. 124/QĐ-TTg laid out growth plans for all key livestock varieties through 2020. Pig populations were expected to grow by 3-4% per year, to 34 million heads by 2020. Growth through 2018 greatly exceeded that number, until an outbreak of African swine fever decimated populations, causing a 43% drop to 19.6 million heads in 2020 (General Statistics Office of Vietnam, 2020). The new Vision 2030 master planning policy articulates the production strategy over the coming decade focuses on developing pig breeds that meet increasing consumer expectations for safe, flavorful meat. Generally, the strategy encourages a shift toward large-scale commercial farming in regions where pig production is already common—the Red River Delta, the Northern Mountainous areas and the Southeast.

The population of buffalo decreased by 1.98% to 2.4 million heads between 2012 and 2020, while that of cows grew by 2.75% to 6 million heads over the same period. Under the new master plan, buffalo populations are forecast to grow by 13.6% to 2.6 million heads, and cows by 23.5% to 6.6 million heads between 2020 and 2030 (General Statistics Office of Vietnam, 2020; Chinhphu, 2020). Buffalo. Buffalo production will continue to develop in the Northern Mountainous areas and along the North-Central Coast, and dairy cow population<sup>14</sup> are projected

to expand in the Northwest, Central Coast, Red River Delta, Central Highlands, and Mekong Delta regions where they are already most common. Similar to pork, the master plan calls for the quality of beef—its flavor profile, texture, protein content, fat content, and antibiotic levels—to be improved in order to satisfy domestic consumer demand.

Poultry populations grew by 12.1% annually between 2012 and 2020, to 481.1 million heads. Under the new master plan, populations are projected to grow by 7.3% annually to 550 million heads by 2030 (General Statistics Office of Vietnam, 2020; Chinhphu, 2020). While small-scale farming models are still dominant, as with other livestock varieties, the 2030 plan seeks to foster the development of large-scale, industrial production models within the poultry sector. Though chicken and ducks are currently reared all over Vietnam due to their limited space requirements, the 2030 plan aims to generate local comparative advantages by concentrating poultry production in the Red River and Mekong Delta regions. The plan also notes that a key challenge to poultry growth going forward will be controlling the spread of H5N1 avian influenza.

Despite ambitious planning, there are still many challenges to growing Vietnam’s livestock sector. While the national master plan calls for all provinces to devise subsidiary master plans, implementation of this policy at local level has been poor, with just 27 of 63 provinces submitting proposals as of December 2020. Only two provinces, Lang Son and Thanh Hoa, have gone further and enacted resolutions in order to begin taking action. As Decision No. 899/QĐ-TTg calls generally for “agricultural restructuring towards raising added values and sustainable development,” provinces have interpreted this broad call to action in a wide variety of ways. It is still unclear how the national policy will be interpreted by the Son La People’s Executive Committee. The policy also lacks a monitoring and evaluating framework, and instead largely trusts provinces to act of their own volition. This has the potential to lead to uneven implementation or, worse, inaction.

#### **4. Livestock production, policies, and programs in Son La Province**

The people of Son La province depend heavily on agricultural production for livelihood generation, and pressure on agricultural lands is significant. Of the province’s 1.4 million ha land area, 64% is used for agricultural production. Soil erosion and land degradation are widespread environmental hazards. Son La has a unique topography as it is partitioned by a mountain range, with mountains and plateaus covering 75% of the province. This complicates the linking of farmers with local and regional markets to sell their goods (Karimov et al., 2016). However, in recent years the districts of Moc Chau and Van Ho have experienced significant economic development. This is largely due to temperate climatic conditions that allow for the cultivation of out-of-season and specialty crops.

In Son La, livestock production levels have remained relatively static in recent years. In 2019, the number of buffalo decreased by 3.2% to 129,660 heads while the number of dairy cows in Moc Chau and Van Ho districts, 26,200, remained constant (Son La, 2020; Nhu Thuy, 2020). In 2019 the number of pigs increased by 0.7% to 510,425 heads (Son La, 2020). The most significant change impacted the pig population, which dropped by 7.9% to 536,280 heads due

to an outbreak of African swine fever (Son La, 2019). In 2019, the number of poultry (chicken, goose, Muscovy duck, and musk duck) increased by 1.3% to 6.9 million heads (Son La, 2020). In contrast to pig production, small-scale poultry production is dominant and primarily takes place in the garden areas of individual homes. Home-based poultry production is especially prevalent in Son La's high-sloping, remote districts. Currently, 60% of local poultry are lean-improved quality breeds and 40% are local breeds, both reared primarily in backyards and residential gardens. Goat production is most common in Thuan Chau, Song Ma, Mai Son, Quynh Nhai, Muong La, and Bac Yen. Local breeds account for 70% of total heads, and improved breeds 30%.

#### **4.1. Policies related to land-use**

In Son La, policies related to land-use planning and management have grown stricter in recent years, with individual land types now allocated for specific land-uses. However, within these broad categories of land-use types—agricultural, forestry, industrial, etc.—there is greater flexibility for utilization. For example, agricultural lands may be used for crops, livestock, or aquaculture. This has contributed to the growth in livestock populations, as it is seen as a profitable agricultural sub-sector for those who can afford the significant start-up costs. While it is legally easier to convert agricultural lands from one type to another, there are still significant taxes related to agricultural land-use change. These transaction costs are often more significant than the value that can be generated from agricultural production on the land.

This increased flexibility in land-use change has placed stress on land resources in Son La. The quantities of grassland in the province are limited, fragmented, and under stress from increasing demand for animal feed. Additionally, grasslands not reserved for feed production are often converted to croplands, which are seen as more productive. Despite this, the majority of maize production in Son La is for livestock feed rather than human consumption.

#### **4.2. Policies related to livestock feed**

Policies related to livestock feed in Son La are often framed around the subsidization and production of forage crops and grasslands. Though there are no feed-specific local policies on the books, Son La's provincial government has aimed to increase the areas cultivated for forage crops by donating lands and subsidizing inputs. It has also encouraged the use of crop residues and agricultural byproducts to produce animal feed. The promotion of non-concentrated feeds is meant to reduce livestock producers' input costs (as concentrated feeds are significantly more expensive than non-concentrated feeds) and improve agricultural sustainability through effective resource management. The diet of local livestock is varied, with cattle and small ruminants mainly depending on non-concentrated feed sources, and poultry and pig consuming higher quantities of concentrated feeds.

#### **4.3. Policies related to breed development**

Though data on livestock breeding initiatives in Son La is limited, a provincial program administered by MARD's subdepartment of Animal Husbandry, Veterinary, and Agriculture's



provincial office, between 2017 and 2019, employed a campaign of artificial insemination to improve the quality of local cattle and pig breeds. The program used frozen semen to impregnate 5,184 beef and dairy cows and resulted in the birth of 4,400 hybrid calves. Both natural and artificial insemination was employed to cross-breed local pig varieties with exotic breeds such as Duroc and Pietran, which are prized for their high-quality semen. Consequently, the sperm from 336 exotic pigs was used to inseminate 704 indigenous animals.

As part of the Son La Livestock Development Plan (SLDP), research and development activities led to 7,250 hybrid pregnancies by 2016 (Brahman). The SLDP also resulted in the successful transferring of purebred cow embryos, improved local climate adaptation, greater disease resistance in new breeds, and higher quality beef and milk products. The plan also promoted the addition of active probiotics to processed animal feed and the use of home-made silage to recycle agricultural residues and reduce input costs.

Activities related to the SLDP have also led to the insemination of local pigs by exotic boars, producing hybrid breeds that are fast-growing and feature a leaner meat profile. Two large-scale farms—Minh Thuy Enterprise in Co Noi commune, Mai Son district, and Chieng Hac Pig Husbandry Company Ltd. in Yen Chau district—have achieved commercial success by applying Vietnamese Good Agricultural Practices (VietGAP) to the rearing of these new hybrid varieties (Trang Thi Xuan, 2017).

#### **4.4. Policies related to credit provision**

While there are no credit programs that exclusively serve the residents of Son La or actors in livestock value chains, local communities have benefited from general improvements in the availability of loans, loan application processes, and the timeliness of disbursement. As a result, the ability of producers to purchase additional inputs has resulted in enhanced local production. While the main suppliers of formal credit in Son La are VBARD and VBSP, informal credit funds, women's unions, the credit fund of farmer groups, and NGO lending are also common at the village and communal levels.

However, farmers tend to borrow in seasonal production patterns and loans are often not available when producers need the funds most, or in the amounts they require. Additionally, loans are not linked to agricultural value chains. This means that they are not disbursed in line with the input and output factors most influential in business development. Further economic research related to business development within Vietnam's livestock sector is required to help design loan packages that are maximally effective.

Livestock production is capital intensive and susceptible to a range of environmental (flood, drought, disease, etc.) and non-environmental (price fluctuations, food safety issues, etc.) hazards. For these reasons, commercial insurance products are unavailable to actors in Son La's livestock value chains, leaving them highly vulnerable to a variety of risks.

In Son La, as elsewhere, rural poverty is often a closed feedback loop where small producers are unable to access productive finance because they lack collateral, and thus can't develop their businesses to a point that commercial finance institutions will lend to them. While this

issue can be solved through the development of innovative financing mechanisms, producers are instead forced to rely on a small number of traditional banking packages, payment services, and agricultural insurance programs that may or may not meet their needs.

Human resources are also a limiting factor, as education in rural areas tends to be harder to access and of lower quality. The application procedures for accessing credit tend to be complex and can be difficult to understand. In particular, the procedures related to mortgage assets and land-use right certificates (known colloquially as “red books”) are major obstacles for farmers. These documents must be provided to banks in order to receive a loan. However, the bank will not return the certificates until a loan has been repaid. This is an issue as many farmers take out loans simply to cover the cost of inputs rather than to scale their businesses, and face huge difficulties if they are then not able to use their red books in order to access additional credit.

Finally, regional planning processes often call for livestock populations to increase without articulating plans to expand the related market systems. Credit provision for business development, as well as technical support such as genetic research and development and livestock management systems, are often unfunded. In Son La, the Son La Livestock Development Plan does not provide funding for genetic research and development, as these are activities that often take place at the national or regional level. Poor planning for market systems development makes it harder for small producers to grow their businesses, and thus restricts their ability to access formal credit. Additionally, provincial planning processes occur independent of one another and would benefit from national coordination.

#### **4.5. Policies related to epidemiology**

Disease prevention in Son La is overseen by MARD’s provincial office, which in recent years has taken action to subsidize inputs and outputs, support animal breeding activities, and provide credit to breeders and farmers. In line with the SLLDP, local veterinary services have deployed 1.2 million doses of pasteurellosis vaccine for poultry and cattle, 379,230 doses of FMD vaccine to buffalo and cows, and 151,800 doses of antiseptic chemicals to pre-empt the spread of diseases (Son La, 2019).

However, financial compensation for the destruction and death of animals is often slow to arrive, leading to cashflow issues for producers. Farmers frequently lack the paperwork necessary to file claims, which can take months to process once submitted. While the government mobilizes additional staff to support containment efforts, these temporary workers are paid below market rates, which limits their effectiveness on the front line. Finally, containment efforts are often underfunded, which restricts testing, control, interment, and employee remuneration.

#### **4.6. Policies related to agricultural extension services**

Livestock-related agricultural extension programs in Son La focus largely on increasing the value of local meat and dairy production through the implementation of technical regulations, the dissemination of high-yield practices and technologies, and the upgrading of animal living conditions. One program, seeking to increase the use of incubators by small poultry producers

in Quynh Tai district, established a reproductive field model consisting of an incubator, a generator, and 200 chickens. Another, targeting 10 household producers and 2,000 chickens in the Thuan Chau and Quynh Nhai districts, trained producers on improved rearing practices and advanced biosecurity measures. A similar initiative in the same districts involved 2,500 ducks and focused on herd management and disease prevention. Here, participants were provided with animals cost-free and had 50% of their other inputs subsidized. A program in Muong La, Song Ma, and Phu Yen districts sought to develop a goat breed that is well-suited to local grazing as well as housing, and resulted in the birth of 43 hybrid animals. Extension services have also provided free-of-charge vaccinations to prevent the spread of pasteurellosis, cholera, and FMD.

#### **4.7. Policies related to public investment**

While Son La's livestock sector benefits from national-level public investment, mainly through the local implementation of MARD initiatives, Son La province also invests in provincial agricultural development initiatives. Many of these investments focus on the research and development of locally-produced livestock feeds and are not outlined in official policy documents, but rather implemented in line with the objectives of Decisions No. 296/QĐ-UBND and No. 2070/QĐ-UBND (see *Policies related to livestock master planning* section).

One project named "Technology application in cross-bred goats: Reproduction and development of commercial goat production models in Son La" aims to develop locally-suitable goat breeds, as well as the VA06 grass variety for feed production. It also funds veterinary services and disease prevention measures for goats. Another, the "Pilot production of animal feed types for pigs in Quynh Nhai district, Son La province" is testing the impact of concentrated feed on pig growth to identify the optimal dietary components for different breeds. Other programs are investigating the use of maize, sugarcane and passionfruit byproducts to produce animal feed, and experimenting with feed grass varieties that exhibit high levels of local suitability—VA06, Guatemalan, Mulato II, and Mombasa.

#### **4.8. Policies related to livestock master planning**

In Son La, several livestock master planning policies are meant to guide sectoral development through 2030. The Livestock Production Development Plan (LPDP) passed by the Son La People's Executive Committee (SLPEC) in 2018 seeks to guide the sector's development through 2030. The LPDP targets the increased production of milk and meat and generally seeks to strengthen the value chain of numerous livestock production systems, namely cattle (beef and dairy), goat, pig, poultry and honey bee.

According to the LPDP, populations of dairy cows will increase to 29,600 heads in Moc Chau and 5,400 heads in Van Ho by 2030. Across the two districts, reproductive cows will comprise a bit more than half of the total population and lactating cows a bit less than half. Dairy production in Moc Chau and Van Ho will be supported through the establishment of 12 local research and development centers. The goal of these centers will be to guide dairy production toward the use of advanced technology and modern practices like the use of hybrid and improved forages, gender-disaggregated semen, and VietGAP practices. Buffalo population

will remain unchanged, with populations spread across Phu Yen, Yen Chau, Song Ma, Moc Chau, Mai son, Thuan Chau, Muong La and Sop Cop.

The LPDP also calls for pig populations to increase by 25.3% to 672,000 heads by 2030, with the dominant production model shifting from small to large industrial farms, mainly in the districts of Mai Son, Muong La , the city of Son La, Song Mã, Thuan Chau, and Yen Thanh. Currently, 55% of local pigs are lean-improved quality pig breeds (Yorkshire, Landrace, Duroc) and 45% are local (Mong Cai).

The LPDP envisions a decrease in poultry populations by 6.8 million heads by 2030, but calls for both improved and local breeds (Golai, ISA, BE, Sassco, Tam Hoang, Luong Phuong, Ri, H'Mong) to be introduced in the Son La districts where they are best-suited to local climatic conditions: Mai Son, Moc Chau, the city of Son La, Song Mã, Thuan Chau, Yen Thanh, and (DARD, 2019).

Decisions No. 296/QĐ-UBND, from 2017, and No. 2070/QĐ-UBND, from 2018, set targets to be achieved by 2030, but largely leave the implementation strategies to be determined later. Instead, they call generally to develop innovative production practices, shift production models from small farms to large ones, and for increased investment into improved breeds, rural infrastructure, and human resource development. The policies also aim to increase local slaughtering capacity, strengthen regulations regarding animal waste management, and grow the quality of extension programs. Son La will also invest in breed development to increase the quality of meat and dairy products, reduce production costs, and expand export opportunities.

Moreover, the polices specify which animal feeds should be grown in Son La's specific agro-ecological zones. Son La province has the largest maize growing area in the country and a significant portion of local production is processed into concentrated feed for livestock. Local production of elephant grass, widely used as a forage crop, is also planned to grow. There is no specific plan for other common feed crops, such as banana, cassava, and sugarcane, that are grown in Son La.

Resolution No.88/2014/NQ-HDND encourages local enterprises and cooperatives to invest in Son La's agricultural development. To stimulate the growth of large-scale buffalo and cattle farming, Son La province is supporting large buffalo and cattle producers, who own more than 500 heads, in developing plans to scale their businesses. Participating enterprises have 100% of their administrative, project design, and environmental impact assessment costs subsidized. The government also plans to increase the availability of subsidized and free supports for buffalo and cattle farmers, such as agricultural extension services, veterinary services, and low-interest loans.

As livestock production in Son La's rural districts (Mai Son, Muong La, Phu Yen, Quynh Nhai, Song Ma, Van Ho, and Yen Chau) is currently dominated by local animal breeds and traditional rearing practices; this policy seeks to capitalize on this by ramping up the marketing of these specialized livestock products, which are often more highly prized by Vietnamese consumers than mass-produced ones.

## **5. Conclusion**

Policies implemented since the onset of Vietnam’s Doi Moi shift in the mid-1980s, toward a market-based national economy, have led to a significant increase in agricultural output. The Government of Vietnam’s efforts to encourage the development of large-scale industrial production have instrumental in enabling the livestock subsector to match growing domestic demand for meat, milk, and eggs with sufficient supply. National policies have largely been implemented, if unevenly, at the provincial level, and ambitious sectoral planning through 2030 demonstrates the potential for further intensification.

However, increased livestock production has put a strain on smaller producers and natural resources in Son La. While Son La’s fertile land and geographical proximity to major markets provides a natural comparative advantage for its livestock sector, production-related issues will continue to worsen unless national and provincial governments implement policies to develop the capacity of value chain actors—particularly smaller ones. Recently enacted policies concerning the development of high-yielding breeds, animal feed production, and relief for producers impacted by disease outbreaks are intended to remedy some of these constraints. However, policies face a number of impediments to implementation at the local level, and are further hampered by finite land availability, the high costs of critical inputs like feed and vaccines, poor access to affordable labor, a lack of transportation infrastructure, and limited marketing opportunities.

Improved coordination between MARD’s national office, its local research institutes, and agricultural universities is necessary to drive the research and development of high-yielding, resilient livestock breeds and improved technologies. This research must be matched with improved agricultural extension services to ensure widespread dissemination. Local processing capacity must also be improved to help producers convert yields into higher value consumer products. While improvements in disbursing credit agricultural credit have been made, more can be done to help small producers scale their family businesses into larger enterprises. Insurance products and relief for producers impacted by disease outbreaks will also play a critical role in de-risking the investment-intensive livestock sector, and unlocking additional investment.

Ultimately, public institutions must play a more significant role in unlocking market-driven growth. The effective implantation, through public intervention and oversight, of policies to support value chain actors of all types and sizes is the best means of unlocking generating sustainable, equitable growth in Son La’s livestock sector.

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## Appendix I. Livestock policies at the national level

No.	Policy type	Code & date	Title
			<b>Policies related to livestock master planning</b>
1.	Law	No. 32/2018/QH14	Law of animal husbandry
2.	Decision	No. 10/2008/QĐ-TTg (January 16 <sup>th</sup> , 2008)	Approving the strategy for livestock breed development through 2020
3.	Decision	No. 124/QĐ-TTg (February 2 <sup>nd</sup> , 2012)	Approving the agricultural master plan through 2020 and a vision toward 2030
4.	Decision	No. 899/QĐ-TTg (June 10 <sup>th</sup> , 2013)	Approving the project “Agricultural restructuring towards raising added values and sustainable development”
5.	Decision	No. 984/QĐ-BNN-CN (May 9 <sup>th</sup> , 2014)	Approving MARD’s “Agricultural restructuring towards raising added values and sustainable development” project
6.	Decision	No. 985/QĐ-BNN-CN (May 9 <sup>th</sup> , 2014)	Approving action plan for the implementation of MARD’s “Agricultural restructuring towards raising added values and sustainable development” project
7.	Ordinance	No. 16/2004/PL-UBTVQH11 (March 24 <sup>th</sup> , 2004)	Ordinance of the Standing Committee of the National Assembly regarding livestock breeds
8.	Decree	No.119/ 119/2013/NĐ-CP (October 9 <sup>th</sup> , 2013)	Issues regulations related to veterinary services, animal breeds, and animal feed
9.	Decision	No. 10/2006/QĐ-BNN (February 10 <sup>th</sup> , 2006)	Issues regulations and registration procedures for the production, import, and circulation of veterinary medicines, microorganisms, and chemicals
10.	Decision	No. 99/2007/QĐ-BNN (November 3 <sup>rd</sup> , 2017)	Amends and supplements decision No. 10/2006/QĐ-BNN dated February 10 <sup>th</sup> , 2006
11.	Decision	No. 850/QĐ-BNN-KHCN (April 18 <sup>th</sup> , 2012)	Issues technical and economic regulations related to national extension projects in the livestock sector
12.	Decision	No. 01/2012/QĐ-TTg (January 9 <sup>th</sup> , 2012)	Regulates the application of “good agricultural practices”

13.	Decision	No.4930/QD-BNN-KTHT (November 14 <sup>th</sup> , 2014)	Approving the plan of restructuring the agricultural sector toward added value and sustainable development during 2014-2020
			<b>Policies related to livestock feed</b>
14.	Decision	No. 90/2006/QD-BNN (2 <sup>nd</sup> October 2006)	Lists permitted animal feeds and feed materials for import
15.	Circular	No. 02/2019/TT-BNNPTNT (February 11 <sup>th</sup> , 2019)	Lists permitted raw materials and processed feed products for trade
16.	Decree	No. 39/2017/ND-CP (April 4 <sup>th</sup> , 2017)	Regulates livestock and aquaculture feed management procedures
17.	Decree	No. 08/2010/ND-CP (February 5 <sup>th</sup> , 2010)	Regulates livestock feed management
18.	Decree	No. 08/2011/NĐ-CP (January 25 <sup>th</sup> , 2011)	Articulates penalties for administrative violations related to livestock feed
19.	Decision	No. 34/2001/QD-BNN-VP, (March 30 <sup>th</sup> , 2001)	Regulates business conditions in the agriculture and livestock sectors
20.	Decree	No.119/2013/ND-CP (October 9 <sup>th</sup> , 2013)	Articulates penalties related to administrative violations related to veterinary services, livestock breed development, and livestock feed production
21.	Circular	No.42/2015/TT-BNNPTNT (November 16 <sup>th</sup> , 2015)	Restricts specific chemicals and antibiotics banned from import, manufacture, trade and use in feeds for livestock and poultry in Vietnam
22.	Circular	No. 29/2015 / TT-BNNPTNT dated September 4 <sup>th</sup> , 2015	Amends and supplements several articles of Circular No. 66/2011 /TT-BNNPTNT dated October 10 <sup>th</sup> , 2011 and Decree No. 08/2010 / ND-CP dated February 5 <sup>th</sup> , 2010 related to the management of animal feed
23.	Circular	No. 61/2011/TT-BNNPTNT (September 12 <sup>th</sup> , 2011)	Issues National Technical Standards for Animal Feed as developed by MARD
24.	Circular	No. 66/2011/TT-BNNPTNT (October 10 <sup>th</sup> , 2011)	Amends and supplements several articles of Decree No. 08/2010/ND-CP dated February 5 <sup>th</sup> , 2010 related to animal feed management

25.	Circular	No. 77/2009/TT-BTC (April 14 <sup>th</sup> , 2009)	Regulates preferential import tax rates for several raw materials used in the production of livestock feed
26.	Decree	No. 100/2017/NĐ-CP (August 18 <sup>th</sup> , 2017)	Amends and supplements several articles of Decree No. 39/2017/ND-CP dated April 4 <sup>th</sup> , 2017 related to livestock and aquaculture feed management
27.	Circular	No. 36/2016/TT-BNNPTNT (December 26 <sup>th</sup> , 2016)	Amends and supplements Article 4 of Circular No. 06/2016/TT-BNNPTNT dated May 31 <sup>st</sup> , 2016 listing permitted ingredients to be used as antibiotics in feed for cattle and poultry
28.	Circular	No. 01/2017/TT-BNPTNT (January 1 <sup>st</sup> , 2017)	Lists chemicals and antibiotics banned to be banned from import, production, trade, and domestic use
29.	Decree	No. 66/2016/NĐ-CP (July 1 <sup>st</sup> , 2016)	Regulates investments in crop, seed, and livestock protection and quarantine
30.	Circular	No. 20/2017/TT-BNNPTNT (November 10 <sup>th</sup> , 2017)	Introduces guidelines for the implementation of Decree 39/2017/ND-CP dated April 4 <sup>th</sup> , 2017 by on livestock and aquaculture feed management
31.	Circular	No. 27/2016/TT-BNNPTNT (July 26 <sup>th</sup> , 2016)	Issues National Technical Standards for animal feed
32.	Circular	No. 06/2016/TT-BNNPTNT dated May 31 <sup>st</sup> , 2016	Lists permitted ingredients to be used as antibiotics in feed for cattle and poultry
33.	Consolidated document	No. 04 / VBHN-BNNPTNT dated January 8 <sup>th</sup> , 2016	Regulates procedures for issuing and revoking certificates of genetically modified plants eligible for use as animal feed
			<b>Policies related to breed development</b>
34.	Decision	No.675/QD-BNN-CN (April 4 <sup>th</sup> , 2014)	Regulates technical and economic aspects of livestock breeding
35.	Decision	No.1506/QD-BNN-KHCN (May 15 <sup>th</sup> , 2008)	Issues “good livestock practices” related to pig production
36.	Decision	No.2194/QD-TTg	Approves a program for developing new agricultural plants, tree varieties, livestock breeds, and aquatic species through 2020

37.	Decree	No. 41/2017/NĐ-CP (April 5 <sup>th</sup> , 2017)	Amends and supplements several Decrees related to penalties for administrative violations in the aquaculture, veterinary, animal breeding, animal feed production, forest management, and forest product development fields
38.	Circular	No. 14/2014/TT-BNNPTNT (April 28 <sup>th</sup> , 2014)	Issues a list of high-yield livestock breeds to be developed in line with Decree No. 210/2013/ND-CP
39.	Circular	No. 01/2018/TT-BNNPTNT (January 16 <sup>th</sup> , 2018)	Issues a list of livestock breeds for production and trade in Vietnam
40.	Circular	No. 16/2017/TT-BNNPTNT (August 24 <sup>th</sup> , 2017)	Issues National Technical Standards on hygiene requirements for pig sperm production facilities
41.	Decision	No. 4653 / QD-BNN-CN dated November 15 <sup>th</sup> , 2015	Issues “good husbandry practices “(VietGAP) for: dairy cows, beef cattle, goat, pig, chicken, duck, and honey bee
42.	Decision	20/QD-BNNPTNT Dated July 20 <sup>th</sup> , 2015	Regulates the breeding of bulls
43.	Decision	17/QD-BNNPTNT Dated July 20 <sup>th</sup> , 2015	Regulates the breeding of buffalo
44.	Decision	18/QD-BNNPTNT Dated July 20 <sup>th</sup> , 2015	Regulates the breeding of goats
45.	Decision	No. 4411 / QD-BNN-CN dated October 15 <sup>th</sup> , 2014	Establishes an Executive Board to implement the "Breeding cows to help the poor near the border" program
46.	Decision	No. 680 /QD-BNN-CN dated April 7 <sup>th</sup> , 2014	Approves the "Strengthening the state management capacity on livestock breeds until 2020" project
47.	Circular	No. 14/2014 /TT-BNN (April 28 <sup>th</sup> , 2014)	Issues a list of high-yield livestock breeds to be developed
48.	Circular	No. 25/2015 /TT-BNNPTNT (July 1 <sup>st</sup> , 2015)	Issues a list of livestock breeds to be produced and traded domestically
49.	Circular	No. 31/2013/TT-BNNPTNT (June 12 <sup>th</sup> , 2013)	Issues technical regulations for the testing of pig breeds

			<b>Policies related to public investment</b>
50.	Decree	No.210/2013/ND-CP (December 19 <sup>th</sup> , 2013)	Introduces tax incentives for enterprises investing in the agriculture and rural production sectors
51.	Decision	No.50/2014/QĐ-TTg (September 4 <sup>th</sup> , 2014)	Introduces policies to improvements small-scale livestock production between 2015-2020
52.	Decree	No. 57/2018/NĐ-CP dated April 17 <sup>th</sup> 2018	Issues policy and implementation mechanisms to incentivize investment in the agriculture and rural production sectors
53.	Decision	No.62/2013/QĐ-TTg (October 25 <sup>th</sup> , 2013)	Issues policies linking livestock production targets to consumer demand and introduces guidelines related to the development of large plots of agricultural land
54.	Decision	No. 394/2006/QĐ-TTg (March 13 <sup>th</sup> , 2006)	Regulates investment in slaughter and processing facilities
			<b>Policies related to credit provision</b>
55.	Decree	No.55/2015/ND-CP (June 9 <sup>th</sup> , 2016)	Introduces a policy to support agriculture and rural development
			<b>Policies related to epidemiology</b>
56.	Law	No. 79/2015/QH13 (June 19 <sup>th</sup> , 2015)	Relates to the Law on Animal Health
57.	Decision	No. 476/QĐ-BNN-TY (February 17 <sup>th</sup> , 2016)	Approves "The national program for the prevention of foot and mouth disease between 2016-2020"
58.	Decision	No.1791/2011/QĐ-TTg (October 15 <sup>th</sup> , 2011)	Issues policies and implementation mechanisms to develop vaccines for blue-ear and pig cholera disease, and to promote livestock production, ensure adequate food supplies, and stabilize market prices
59.	Decision	No.719/QĐ – TTg (June 05 <sup>th</sup> , 2008)	Introduces policies to prevent disease spread among cattle and poultry
60.	Decision	No.142/2009/QĐ-TTg (December 31 <sup>st</sup> , 2009)	Issues policies and implementation mechanisms to restore agriculture, livestock, and aquaculture production in areas impacted by natural disasters and disease outbreaks
61.	Circular	No. 07/2016/TT-BNNPTNT dated May 31 <sup>st</sup> , 2016	Issues regulations to prevent disease spread among terrestrial livestock breeds

62.	Circular	No.187/2010/TT-BTC (November 22 <sup>nd</sup> , 2010)	Issues policies and implementation mechanisms to restore agriculture, livestock, and aquaculture production in areas impacted by natural disasters and disease outbreaks
63.	Ordinance	No.18/2004/PL-UBTVQH11 (April 29 <sup>th</sup> , 2004)	Regulates veterinary services
64.	National Technical Regulation	QCVN 01-41: 2011 BNTT PTNT	Regulates hygienic standards in the production of livestock and livestock products
			<b>Policies of livestock production management</b>
65.	Decision	No.167/2001/QĐ-TTg (January 26 <sup>th</sup> , 2001)	Issues policies and implementation mechanisms to support dairy production between 2001-2010
66.	Decision	No.3399/QĐ-BCT (June 28 <sup>th</sup> , 2010)	Issues policies and implementation mechanisms to support dairy production through 2020, and establishes a vision through 2030
67.	Decision	No.166/2001/QĐ-TTg	Issues policies and implementation mechanisms to support export-oriented pig production between 2001-2010
68.	Decree	No. 69/2010 / ND-CP	Regulates biosafety measures for genetically modified organisms to be used in breeding activities
69.	Decision	No.07/2005/QĐ-BNN (January 31 <sup>st</sup> , 2005)	Regulates the wild boar population
			<b>Policies related to agricultural extension services</b>
70.	Decision	No.1947/QĐ-BNN-CN (August 23 <sup>rd</sup> , 2011)	Issues “good livestock practices” for smallholder pig production
71.	Circular	No.04/2010/TT-BNNPTNT (January 15 <sup>th</sup> , 2010)	Issues national technical regulations for the biosafety of pig and poultry production
72.	Circular	No.60/2010/TT-BNNPTNT (October 25 <sup>th</sup> , 2010)	Regulates hygienic standards in pig slaughter facilities
73.	Circular	No. 25/2016/TT-BNNPTNT (June 30 <sup>th</sup> , 2016)	Regulates the quarantine of animals and terrestrial animal products

74.	Circular	No.14/TT-BNNPTNT (June 2 <sup>nd</sup> , 2016)	Regulates disease-free areas and facilities
75.	Circular	No. 51/2014 / TT-BNNPTNT dated December 27 <sup>th</sup> , 2014	Regulates conditions for food safety on small \ production farms
76.	Circular	No. 14/2014 / TT-BNN dated April 28 <sup>th</sup> , 2014	Issues a list of high-yield livestock breeds
77.	Decision	No. 397 / QD-CN-MTCN dated April 4 <sup>th</sup> , 2017	Issues guidelines for environmental protection within concentrated livestock production areas
78.	Official dispatch	No. 1125 / BNN-CN dated December 29 <sup>th</sup> , 2016	Regulates the long-term development of pig production
			<b>Miscellaneous livestock-related policies</b>
79.	Vietnamese Standard	TCVN 9121 : 2012/BNN PTNT	General requirements for ruminant farms
80.	National Technical Regulation	QCVN 62-MT: 2016 BNN PTNT	General requirements for wastewater from livestock production
81.	National Technical Regulation	QCVN 01-15: 2010 BNN PTNT dated January 15 <sup>th</sup> , 2010	Regulates conditions for biosecurity on poultry farms
82.	National Technical Regulation	QCVN 01-14: 2010 BNN PTNT dated January 15 <sup>th</sup> , 2010	Regulates conditions for biosecurity on pig farms



## Appendix II. Livestock policies in Son La

1	Decision	No. 296/QĐ-UBND dated February 16 <sup>th</sup> 2017	Approves the project “Planning for livestock production development in Son La province up to 2020 and orientation until 2030”
2	Decision	No. 2070/QĐ-UBND dated August 25 <sup>th</sup> 2018	Approves the “Restructuring livestock production activities in Son La province between 2018-2020 and orientation through 2030” plan
3	Resolution	No. 117/2015/NQ-HĐND dated December 10 <sup>th</sup> 2015	Issues a five-year socio-economic development plan for 2016-2020
4	Resolution	No.76/2018/NQ-HĐND dated April 4 <sup>th</sup> 2018	Issues policies and implementation mechanisms to support the processing of agricultural products and general food safety between 2018-2021
5	Resolution	No. 89/2014/NQ-HĐND dated September 17 <sup>th</sup> 2014	Issues policies and implementation mechanisms to support epidemic disease prevention amongst cattle and poultry populations in Son La
6	Report	No. 699/BC-UBND dated August 2 <sup>nd</sup> 2019	Issues policies and implementation mechanisms to support livestock production in Mai Son district
7	Report	Dated November 22 <sup>nd</sup> 2018	Summarizes livestock production activities in 2018 and the strategic orientation of activities in 2019
8	Report	No.58/BC-TTĐVNN dated September 12 <sup>th</sup> 2019	Summarizes extension services and animal health during activities during January-September 2019
9	Report	No.370/BC-CQLTT dated August 2 <sup>nd</sup> 2019	Publishes administrative violations issued in the field of animal husbandry and veterinary medicine
10	Report	No. 63/BC-TTKN dated August 2 <sup>nd</sup> 2019	Publishes the results of programs related to livestock production during 2017-2019
11	Report	No.243/BC-KHCN dated August 2 <sup>nd</sup> 2019	Publishes research results and related technological applications related to livestock production in the during 2017-2019