Livestock

Coordinators

J.-F. Tourrand
P. D. Waquil
M.-C. Maraval
M. T. Sraïri
L. G. Duarte
G. V. Kozloski

CIRAD - French Agricultural Research Center for International Development

Livestock development, land-use reforms and the disinterest for pastures in the Northern highlands of Vietnam

Guillaume Duteurtre[1], Jean-Daniel Cesaro[1],
Le Thi Thanh Huyen[2] and Stephen Ives[3]

INTRODUCTION

In the last sixty years, livestock policies and land-use regulations have encompassed tremendous changes. These institutional transformations have particularly affected the northern Vietnam region. The Northern highlands refer here to the northern provinces of Vietnam with a high elevation characterized by mountains, uplands and midlands. The General Statistical Office uses the terms 'Northern Midlands and Mountains' (*Trung du và miền núi Bắc Bộ*) to describe this group of 15 provinces, surrounded by the Chinese and Laotian borders in the north and the Red River delta in the south. The present work focuses on the northwestern part of this ecoregion (Figure°1).

Ruminant production is an important component of farmers' livelihoods in this region. However, policy changes have not been accompanied by a major evolution of the ruminant production systems. Farmers continue to rely on natural grasslands and forest shrubs to provide fodder to their cattle. Moreover, the expansion of cash-crop cultivation on uplands has dramatically altered the landscape and reduced the availability of natural fodders (Eguienta et al., 2002; Le Thi Thanh Huyen et al., 2006; 2013).

Recent studies conducted in the Northern and Central highlands show the potential for sustainable development of ruminant production through forage cultivation, intensification of crop-livestock systems, and pasture development (Le Thi Thanh Huyen, 2010; 2014; Castella and Dang Dinh Quang, 2002; Stür et al., 2013). In order to assess better the potential of those solutions, the present chapter exposes the institutional dynamics of these agrarian systems. In particular, we show how public policies in the last 60 years have failed to recognize formally the existence and the importance of natural pastures.

[1]CIRAD, UMR SELMET, F-34398 Montpellier, France; SELMET, Univ Montpellier, CIRAD, INRAE, Institut Agro, Montpellier, France; guillaume.duteurtre@cirad.fr; jean-daniel.cesaro@cirad.fr
[2] NIAS, Hanoi, Vietnam; lehuyen.nias1973@gmail.com
[3] University of Tasmania, TIA, Launceston, Australia; stephen.ives@utas.edu.au

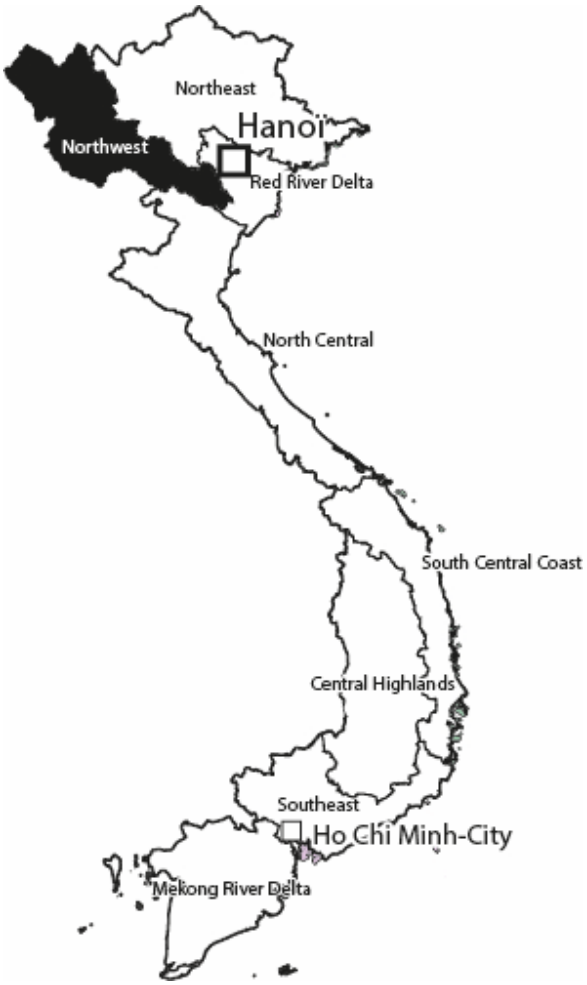

Figure 1: Northern region of Vietnam

AGRICULTURE IN THE NORTHERN HIGHLANDS

The Northern highlands account for about 30% of the total surface area in Vietnam and comprise more than 2000 administrative communes. Around 39% of the communes are located at a medium altitude of 200–600 m, and 39% at an altitude higher than 600 m. There are different mountains ranges, with some peaks exceeding 3000 m (Fansipan 3143 m), and several large intermountain basins. Due to this topography, the region is characterized by a wide range of ecosystems, from warm irrigated valleys in the low mountain zone (200–300 m elevation), to rain-fed hilly landscapes in the mid-elevation mountain zone (300–800 m), and a high mountain zone (> 800 m) (Vien, 2003).

The Northern highlands counted around 11 million people in 2009, i.e. 13% of the population with only 16% of the inhabitants living in urban centers (compared to 30% for the whole country). The region is characterized by a medium population

density with on average 116 inhabitants per kilometer square. This population density is only half that of the national average (256 inhab./km²) and one eighth of that in the Red River delta (950 inhab./km²) (GSO, 2016).

Around 40% of the population is composed of the Kinh ethnic group mainly located in urban centers and valleys. The remaining population (60%) is composed of ethnic minorities also called 'Montagnards' (Highlanders). In the low mountain zones that are closer to the roads and market infrastructures, the main ethnic minorities are the Thái (20% of the ethnic minorities in the region) and the Mường (17 %). In the mid-elevation mountain zones, the main ethnic groups are the Thài (23%), the Nùng (13%), the Dao (9%), the Khơ Mú (1%), and the Hà Nhì (0.2%). In the high mountain zone, which is a more remote area, the main ethnic minorities are the H'Mông (5%), the Lô Lô and, in some places, the Dao (Michaud, 2000).

Development constraints in the highlands are related to steep slopes, uneven grounds, soil limited fertility and remoteness, poor infrastructures, and a high poverty rate (Minot et al., 2006; Vien, 2003). These regions are considered as favorable areas for forestry, cash crops (e.g. maize, cassava, coffee) and livestock including fish. Ruminant production is widespread based on available natural pastures, as well as extensive pig and poultry rearing. Animal husbandry is therefore an important component of households' livelihoods (Minot et al., 2006) and accounts for more than 22% of their incomes (Epprecht, 2005).

Cattle are considered the most important ruminant species in the Northern mountainous regions and contribute to the livelihoods of nearly 70% of households (Maltsoglou and Rapsomanikis, 2005). Beef cattle and water buffalo "are raised in extensive mixed farming systems in hilly and mountainous landscapes of high altitude and steep slopes" (Dixon et al., 2001). Each family usually owns between two and five head. Cattle are largely multifunctional in those systems. They are used for drafting, manure, reserve of capital, offerings in cultual events, and their proceeds from market sales. However, market orientation is not dominant, and cattle contribute to a relatively small share of the total income of households (Epprecht, 2005). Furthermore, the cattle population is regularly affected by diseases and high mortality rates in winter because of poor health care services and feed shortages, especially for cattle grazing in natural pastures in the hill tops (Le Thi Thanh Huyen et al., 2011).

Smallholders in the uplands of Vietnam are mostly dependent on natural pastures for cattle feeding. Northern and Central highlands occupy more than half of the total grassland in Vietnam (Phong, 1995; Mui, 2003). "Free-grazing and tethered grazing are the main feeding systems, in which cattle are generally grazed every day on natural pastures in the forest land far from the homestead with little or no use of crop by-products" (Mui, 2003; Le Thi Thanh Huyen et al., 2006; Phung, 2009). However, the grazing area is declining because of crops expansion, resettlement or reforestation programs. As a result, and because there has been only little formal grazing management until now, available native pastures tend to be overgrazed.

The recent history of agrarian systems in the region explains the importance of natural pastures and grazing areas, and the emergence of new constraints that threaten current production systems. The following text presents an insight in the historical development of policies affecting livestock systems in these provinces. Land tenure, in particular, has had a major impact on cattle breeding systems and on the structure of cattle herds.

EXTENSIVE AGRICULTURE IN THE COLONIAL PERIOD (BEFORE 1954)

Northern highlands have long been separated from the main development programs of the Red River delta and other parts of the country. Until recently, the political control of the area had been influenced by complex relations between ethnic minorities and the central government.

During the colonial regime, feudal entities were recognized in the Indochina Confederation on the basis of ethnic groups and traditional chieftaincy or kingdoms (Michaud, 2000). At this time, forests dominated the landscape with some important clearings. The main crops that were cultivated were sticky mountain rice (*Oryza sativa* var*. montana*) and corn on slopes. Millet, buckwheat, sorghum, job tears (*Coix lacryma-jobi*) and sesame were also grown. Non-wood forest products and meat were used as a supplement in the diet. Shifting cultivation (*rai*) was an extensive agricultural technique widely used for slash-and-burn, in complement to intensive cultivation of lowland irrigated rice fields. The organization of the shifting cultivation differed from one ethnic group to another. Some villages used to cultivate plots on the western slopes of the mountains, others on shale and sandstone soils, others again defined the area customarily. In addition to this shifting cultivation focused on cereals, farmers cultivated vegetable crops, fruit crops and cash crops such as tea, tobacco, hemp, opium, cotton or nettle (*Urtica dioica*).

The subtropical forests of northern Indochina offered bioclimatic conditions favorable to cattle breeding. The buffalo were used for plowing irrigated lowland rice fields. When the old *rais* (1600 m²) were covered at the beginning of the rainy season with green grass, animals grazed those excellent pastures. But during winter, the pastures were reduced and dry. Animals had to rely on forest natural grass and fodder trees. Large ruminants were most often kept under traditional stilt houses. Manure was used on vegetable and rice cultivation plots. Rice growers also raised pigs and chickens in free grazing and scavenging in the villages, using swills and agricultural by-products. Livestock thus played a secondary though important role in the household economy.

On the foothills of these mountain areas, colonial farms and other commercial farms gradually established mostly for cash crops such as coffee or tea. Some land owners invested in cattle in order to use the manure to fertilize plots. This was the case of Mr. Borel in the Sơn Tây region at the foothills of Mount Ba Vì, who developed an important cattle farm attached to his coffee plantation in the beginning of the 20th

century (Duteurtre et al., 2015). Many of those large commercial farms benefited from natural pastures: colonial authorities viewed subtropical forests in North Indochina as 'livestock zones' as forest stands are spaced enough to allow the development of pastures (Demarez, 1919). Based on these cattle herds, a small number of dairy farms were created, very sparsely, near French population establishments such as Ba Vì or Sa Pa Elevation Station. These farmers imported dairy cows from India, Australia or Europe. However, the development of colonial land grants remained limited in mountain areas because of remoteness, poor infrastructure and resistance of local populations.

STATE FARMS AND COOPERATIVES DURING THE COLLECTIVIST PERIOD (1954–1986)

Until 1954, the region was hardly affected by the war against the French. In April 1955, the government of North Vietnam created the autonomous regions of Thái-Mèo (in the West) and Bắc Hà (in the East). They were renamed the Northwest Autonomous Region (Khu tự trị Tây Bắc) in 1961 and were separated again after the Vietnamese reunification of 1975 into different provinces. Between 1954 and 1956, the lowlands of the Red River delta lived at the rhythm of the agrarian reform, but in the mountains, the customary feudal system still prevailed. According to the land reform map of Võ Trường Sơn (1989), mountain areas were little affected by land reforms.

After 1954, colonial farms located in the piedmont regions were taken over by the army and progressively nationalized. Nearly one million animals, mostly cattle and buffalo, were transferred to militarized production units (Cesaro, 2016). In 1955, a contingent of troops settled down on the Mộc Châu plateau. This plateau had been noticed by the French administration to develop concessions in the 1930s. But it was the Vietnamese government who carried out this ambition. The 'Red Star' Mộc Châu military farm originally specialized in milk production. It remained a strong national symbol. Apart from Mộc Châu, several state farms settled in the mountains taking by force the best land for modern agriculture. These state farms participated in a broader program of transmigration of the Kinh population from the deltas to the mountains (Cesaro, 2016).

After the agrarian reform, the government decided to collectivize the land and form large cooperatives as early as 1960. This process went very quickly in the plains but was more difficult to implement in the mountains. The Thái who lived in the valleys were little involved whereas the H'mông living on the mountain peaks and the small enclave valleys were mainly outside the system. Ethnic minorities, however, were gradually driven to settlement and this forced them to progressively abandon shifting cultivation. The *rai* cultivation system was progressively replaced by more intensive cultivation systems of shallows, which led to the progressive closure of the grazing areas. Kinh migrants, who had been more receptive to political trainings and

propaganda than ethnic minorities contributed to building cooperatives in the mountains. Because of the lack of interest of local populations, the dynamics of cooperatives had been dwindling since the end of the 1960s. Moreover, mountain rice collective farming hardly managed to feed all the population. The management of land was then influenced by both the collectivist system and the customary rights of local ethnic minorities. To limit the expansion of the mountainous ethnic groups and slash-and-burn (swidden), the authorities prohibited land clearings. At the same time, the government encouraged clearings by cooperatives and state-owned enterprises. The result was rapid deforestation of the mountains in the 1970s and 1980s and a reopening of grazing lands.

THE RUSH OF FAMILY FARMING AFTER THE ĐỔI MỚI (1986–2010)

Đổi Mới (Renovation) reforms were launched in 1986 after the Sixth Congress of the Communist Party, following a major economic crisis faced by the cooperative system. These reforms resulted in a mix of policy decisions aiming at promoting a 'socially oriented market economy'. In the agricultural sector, the priority was officially given to 'household agriculture' (Resolution 10 issued in 1988 by the Politburo).

In the first years of the Đổi Mới, the legal status of the hillsides was not clearly defined. Land allocation and cadastral registration policies focused on valley bottoms. "This led to an abrupt return to traditional shifting cultivation practices and an uncontrolled rush for each family to clear and appropriate as much upland area as possible. Within a few years, most of the forests in the province of Bắc Kạn had been cleared" (Ducourtieux and Castella, 2006).

Some of the main institutional reforms that were made in the following years to foster private agricultural production were the 1990 Law on Companies and Enterprises, the 1993 Land Law, and the 1996 Law on Cooperatives. The new land law, in particular, defined the 'land-use right certificates' as basis recognition of land use rights for private producers. The new law on cooperatives defined the new role of private cooperatives in providing services to farmers (Figure 2).

In the Northern highlands, the 1993 Land Law was promulgated "to regulate the runaway exploitation of the uplands by applying the same solution that had worked in the lowland areas: allocating forest land to individual households" (Ducourtieux and Castella, 2006). Forests were classified into three different categories that included the majority of sloping lands in the mountainous regions (Ducourtieux and Castella, 2006): i) Protected forests, supposed to be managed by local communities or organizations for the preservation of water resources, the prevention of erosion, natural disasters, climatic risks, and the overall protection of the environment; ii) Special-use forests, supposed to be managed through national parks or reserves, and focused on the conservation of nature, plant and animal species, scientific research, and the protection of historic, cultural and touristic sites; iii) Production forests, primarily designed for timber and other forest products. In addition, a land-use

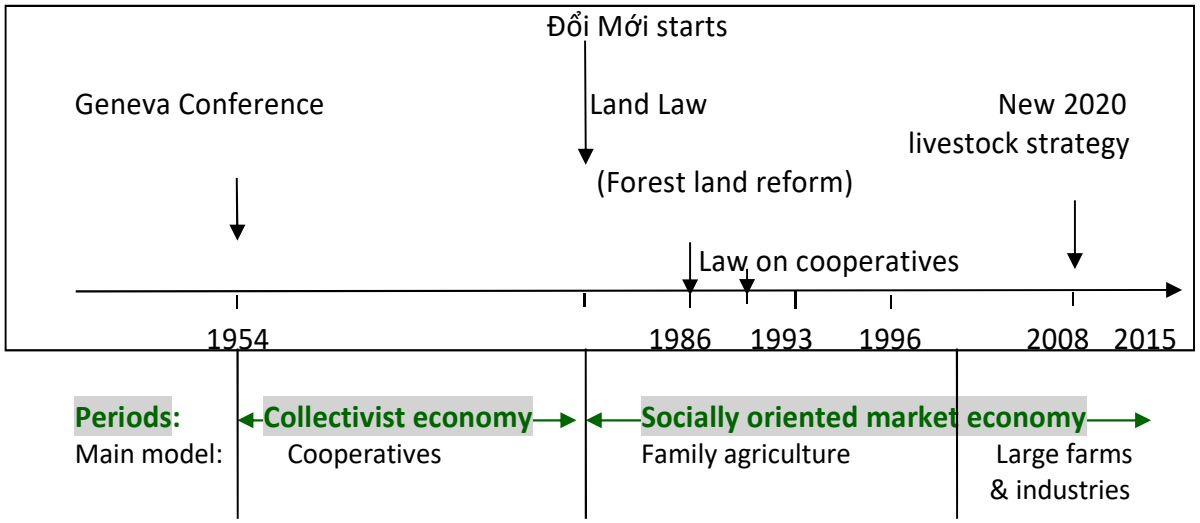

Figure 2: Main sequences in livestock development policies in North Vietnam

planning exercise was planned in each commune prior to land allocation "to make sure that the local distribution of land uses was compatible with the existing land-use plans at provincial and district levels." In practice, this rarely happened (Ducourtieux and Castella, 2006).

Between 1990 and 2000, major forestation programs were launched, largely driven by state organizations on protected state-owned land[4]. The forest-cover increased from 30.2% in 2000 to 37.6% in 2005. However, since forestry was not a significant component of household economic activities, forestation did not concern the land that was used by individual households (Clement et al., 2009).

Those reforms did not consider the specific role of forests in providing pastures and fodder for ruminant livestock. Rather, they neglected to enforce the management of pastoral resources, which resulted in lower incentives to conduct cattle breeding on collective forest pastures. Cattle production yet slowly developed. In Sơn La province, for example, the cattle population increased from 120,000 to 170,000 head (Duteurtre, 2014).

Between 2000 and 2010, the government promoted the development of private ranches in the Northern highlands. This was in line with the implementation of a new production model based on land attribution to individual enterprises. In Son La, six large scale livestock beef cattle enterprises were created in 2002-2003, supported by a government program. However, these experiments mostly failed. They suffered from various technical and organizational constraints. According to Le Thi Thanh Huyen et al. (2010), these breeding farms "were established with financial help from the province (30% of the total farmland value). Originally, the aim was to

[4] In 2015, a total of 319 state-owned enterprises still kept a leading role in the economy and managed 2,853,164 ha of agricultural and forest land nationwide (Government of Vietnam 2015 cited in Wells-Dang et al., 2015).

supply cattle to new residents for the development of smallholder beef production. In fact, all six farms belong to building companies that could dispose of sufficient capital to invest in such large farms." However, smallholder farms were not willing to rear exotic cattle produced by these farms, while these farms did not meet the demand from supermarkets for high-quality beef outside the province. Moreover, they focused on developing high productivity cattle breeds (such as Brahman zebus) that were not adapted to the seasonal drop in pasture production during winter. They also had to cope with limited land for growing forage and pastures. In 2011, only one of them was still operating in Sơn La (Duteurtre, 2014).

EMERGENCE OF INDUSTRIAL FARMING (FROM 2010 UNTIL TODAY)

In this context, and because of the rapid growth in the demand for meat products during this period, the government decided to promote intensive livestock throughout the country. Decision 10/2008 of MARD proposed a few new policy orientations aimed at large farms and livestock industries to respond to the domestic demand. In the Northern highlands, this policy helped develop large-scale pig farms. However, it did not manage to create favorable conditions for industrial cattle breeding. Apart from Mộc Châu dairy company, the industrial model did not take off in the ruminant livestock sector (Duteurtre et al., 2012).

CONCLUSION

There has been a number of governmental policies for development of livestock production in Northern Vietnam, in general, including cattle production. Most of these policies have focused on breeding to improve cattle performance, with some forage production programs and projects, in particular in former state farms, mainly focusing on the dairy sector. However, there has been limited interest and support by government and local authorities regarding pasture management and the improvement of grassland use.

Collective action is lacking between the local authorities and the livestock sector stakeholders in the Northern mountainous regions (Le Thi Thanh Huyen et al., 2013) compared to the livestock sector in the Central highlands (Stür et al., 2013). In order to promote smallholder beef cattle production in the Northern mountainous regions, there is a need to remove historical barriers and renew the interest by local authorities and the main stakeholders for pasture management and forage production programs.

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