Socio-cultural factors challenging development interventions in cattle production in the remote areas of Vietnam

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ABSTRACT

The northwest highlands of Vietnam are characterized by high altitude, low infrastructure, and low population densities composed of a wide diversity of different ethnic groups. Their socio-cultural characteristics strongly influence their lifestyle and production systems, including agricultural activities. The majority of these people have suffered from slow economic development, with the highest poverty rate in the country. This is a real need for plausible interventions where behavioral changes of smallholders throughout local value chains would be a critical foundation. Our project implemented in this context of development in the Northwest highlands of Vietnam aims to understand the role of socio-cultural factors in cattle production systems in order to propose and examine feasible technical and marketing interventions to improve local grazing-based cattle production. Data on farmers and other actors (collectors, slaughterhouses, retailers and consumers) in local cattle value chains of two selected provinces (Son La and Dien Bien) were collected at the beginning of the project via a baseline survey. In addition, different group discussions with farmers were conducted until the end of the project to monitor the project's progress and changes created through its interventions. We found that such behavioral changes cannot be motivated by development interventions per se without integrating an understanding of socio-cultural factors (i.e. ethnicity, geographical location and grazing-practices).

Keywords: Cattle production, Development intervention, Smallholders, Socio-Cultural influences, Vietnam

Introduction

In Vietnam, the northwest mountainous area is consistently among the poorest regions, and although there has been improvement in living standards for some people, this trend has slowed since 2006 (Turner, 2011). Many researchers have agreed that historically poor, remote communities struggle to adapt their farming systems and maintaining productive ecosystems whilst lacking sufficient access to infrastructure and financial capital required for sustainable development (Alexander 2007; Alexander, Millar & Lipscombe 2009). This region, however, is very rich in culture where more than twenty ethnic groups have resided for generations. The Hmong or Miao people, who largely inhabit the higher altitudes, and the Thai people who prefer living at the lower altitudes, are two majorities among ethnic minorities in this region. They are cattle keepers rather than cattle producers (Hung et al, 2012). In recent years they have suffered very high losses of indigenous cattle during severe winter cold periods. Where household livelihoods and survival are inextricably involved with the ownership of two to four cattle, their mortality is a very serious issue (Hung et al, 2012) that may result in long term poverty for such family households. Hence,

practice change to facilitate cattle production and reduce losses through cold stress and other causes are essential.

Given the abovementioned context, it is necessary to conduct research for analyzing the dynamic of rural livelihoods, understanding the economic motives for production and investigating the

relationship between socio-cultural factors and economic decisions (Firth, 1951). In particular, it requires an understanding of the nature of incentives that motivate people to act in certain ways as well as how people access and employ the various forms of capital (Harvey and Reed, 1996; Emery and Flora, 2006;). In Vietnam little research has been conducted in order to explore the relationship between socio-cultural factors and development interventions, in particular with reference to the northwest highlands (Friederichsen, 2004; Tugault-Lafleur and Turner, 2009; Turner, 2011; Wells- Dang, 2012).

Consequently, the Governments of Vietnam and Australia collaborated on research to develop, evaluate and implement technical and market strategies to improve smallholder incomes from beef cattle in the northwest highlands of Vietnam. The project's objectives focused on understanding biophysical and socio-economic characteristics of the smallholder farming system, improving the management of cattle and improving the profitability and sustainability of the beef value chains. This paper reflects a socio-cultural component of that comprehensive research and aims to understand the role of socio-cultural factors in cattle production system in order to propose and examine feasible technical and marketing interventions to improve local grazing-based cattle production. These attempts may help when proposing future interventions for improving the beef cattle value chain to facilitate poverty reduction in the local area.

Methodology

A value chain approach (Kaplinsky and Morris, 2001) was employed in two study sites, Son La and Dien Bien provinces, in the Northwest region of Vietnam. 186 farmers were surveyed from four selected communes while a series of discussions and in-depth interviews were held with various chain actors (collectors, slaughterhouses, retailers, restaurants and consumers) in the region. We considered only smallholder actors (Berg et al., 2007) in which farmer households keep cattle, and undertake different grazing-practices (controlled, semi-controlled, and free grazing-practices), as our main target group in order to explore their involvement in value chains. In addition, ethnicity was taken into account in this study, particularly the Hmong and the Thai people. These criteria are due to the fact that farmers may behave differently because of culture diversity.

The study also was concerned with smallholder farmers' behaviors that refer to their perception of value as it may relate to their culture (Harvey and Reed, 1996), and possible collection decisions made through rational choice theory (Coleman and Fararo, 1992). Different practices of smallholder farmers will be analyzed in accordance with given approaches as assuming social and cultural factors may take significant effect to local producers rather than economic incentives do per se. At the end of the project, based on some case studies, we conducted a cost-benefit analysis to calculate potential costs and benefits of adopted feeding practices in the absence of ACIAR project funding and to estimate opportunity cost of the feed management strategies which may be a significant inhibition to farmers' decision to adopt.

Moreover, the policy background of the study was explored via an institutional approach within a value chain context (Kaplinsky and Morris, 2001). Throughout this study, institutions are consistently known as "Rules of the game" while organizations are "players of the game" (Aoki, 2007).

Outcome of study

Traditional features of the Hmong and the Thai

The Hmong, a medium-sized and a kinship-based group, have developed a simple productive system suited to their needs within their restricted mountain environment. Agriculture is integrated into the social system through the household and its members acting both as producers and consumers of farming commodities. It is supported by the religious system which supports and values many of the agricultural activities. Hmong people are good at cultivation in upland area. However, Hmong are constrained by the capacity of their agricultural base to sustain themselves (Lee, 2005). The Hmong are spatially isolated, marginalized by language barriers and suffer negative stereotyping by the more integrated ethnic groups such as the Thai and the Kinh (Friederichsen 2004).

In constrast to the Hmong, the Thai reside in lower land and often nearby the water sources (i.e stream, river). In spite of that, their economy is also orientated towards self-sufficiency and agriculture dominates their livelihood. This is cognizant with Lefebvre (1972) who postulated that the economy determines social relations only as far as it limits the activities and the potentiality of individuals and groups through the lack of economic means to achieve them.

A typical cattle value chain with a focus on smallholders

The map given below demonstrates a typical value chain of beef cattle in the Northwest region with a numeric illustration of Tuan Giao district of Dien Bien (Figure 1). The local chain in this remote region of

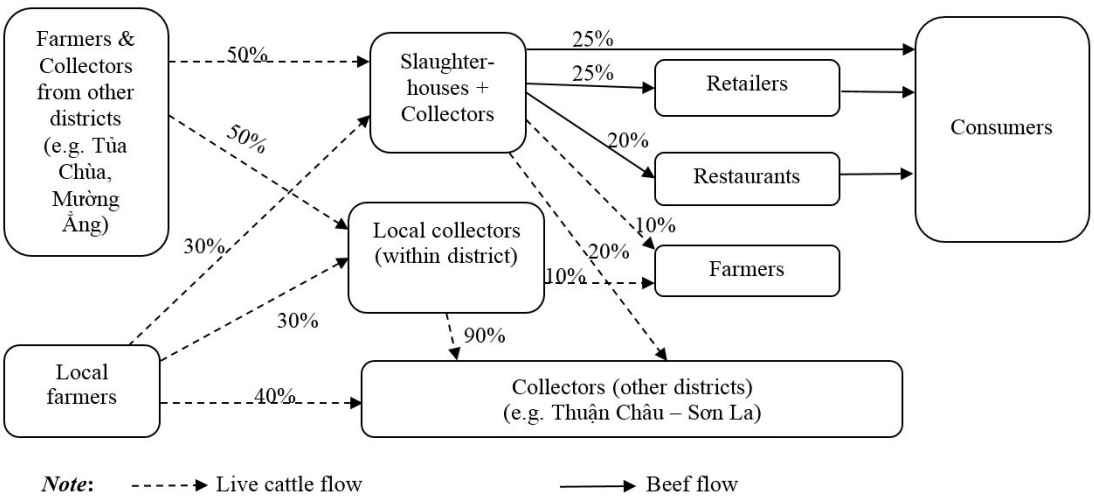

Figure 1: A typical cattle value chain in the Northwest region of Vietnam (with a numeric illustration of Tuan Giao district of Dien Bien)

Table 1. Differences in farmers' purposes of cattle raising and selling in the study sites of Son La and Dien Bien

	Purposes of cattle raising	**Purposes of cattle selling**
We may think:	*Cattle raising = Breeding + Draught + Sale*	*Cattle Selling = Increase income*
In fact:		
For majority	Only Breeding (46% of HHs) Both Breeding & Draught (35% HHs) Sale (15% HHs)	66% HHs sell cattle for their Consumption **Few farmers** sell cattle for increasing income (7%)
Ethnic difference	For SALE: ***Hmong*** (esp. in Higher land) ***> Thai***	More for building house: ***Hmong in Son La (esp. in Lower land)*** ***Thai people*** think more about income increment
Geographical difference	***Dien Bien***: more Breeding ***Son La***: more Breeding & draught For draught: more in ***Lower land*** For SALE: ***Dien Bien > Son La***	**Dien Bien** (esp. the H'Mong): more consumption **Son La:** more building house & tuition fee
Grazing practice	For sale: more in ***Free Grazing*** (esp. in Higher land)	***Free grazing*** farmers do not sell for tuition fee & income improvement but consumption (esp. in ***Higher land***)

Note: HHs = Households Source: (Ha *et al.*, 2014)

Vietnam often involves many smallholder actors from production to distribution and consumption due to its complex topography resulting in agricultural, geographical and socio- economic disadvantage. To many farmers, especially Hmong people, this is exacerbated by poor communication, limited access to markets and infrastructure, poor representation in government bodies, and lack of common language. The marginalized farmers often use fragile, low fertility soils, have disputed land tenure, live in remote, hilly areas, and face greater disadvantage than other rural or urban populations (Alexander, 2007).

Therefore, the role of middlemen is emphasized in this context where they bridge the two ends of the beef cattle market. Because of the small-scale of supply and demand, many of the local middlemen perform more than one function (i.e. collecting and slaughtering, or slaughtering and retailing…) in the existing chains, thus, they limit the number of actors and make the chains shorter. Also, they dominate farmers in negotiations and price setting since they have greater access to market information, and ultimately farmers rely heavily on them. Although prices are offered based on cattle weight, the farmers have limited experience or prefer not to use objective measurement techniques (e.g. weighing scales, girth circumference using tape) and rely on visual assessment which could negatively affect their transactions. To them, this technique is believed to be precise and that the middlemen, who define cattle weights, are experienced with such measurements.

In the northwest region, smallholder farmers are the main producers and a typical household often keeps less than five cattle. Their involvement in value chains, however,

was not consistent as most of them just sold one to two cattle in recent years. Moreover, the farmers in the study sites expressed unclear economic incentives to participate in a value chain due to the fact that keeping cattle created personal prestige in their local community, and it served as their "saving-account" in many cases (Table 1). To them, cattle are valuable assets in their family; especially poor households that are vulnerable to cattle death and it is usually impossible for them to purchase other cattle for many years after such an event.

Nonetheless, the farmers' involvement in the value chain is not homogenous over the study sites. It seems that the Hmong producers who live in the higher land and those who practice free-grazing keep cattle on a larger scale than other groups. And they are also likely to sell cattle more often whilst farmers who practice controlled-grazing are probably more cattle-keepers.

The policy background: Have current policies been supportive to smallholders in cattle value chains?

According to Duteurtre et al. (2015) who conducted a complementary study on institutions in the cattle value chain in the environment as part of this project: "The results show that the cattle breeding activity is supported by local authorities through two different types of policies defined at the national level: (i) livestock development policies, and (ii) poverty reduction policies. (…) If poverty reduction programs intend to focus more on disadvantaged families and remote areas, both policies are based on the same types of policy tools. Those include mainly bank loans, grants, subsidies for technical improvements on forage and genetic, vaccination programs, and technical trainings. (…) Infrastructure policies also play an important role to support the cattle trade and the meat markets, but until now, local authorities have not been able to invest significantly in setting up cattle market places and modern abattoirs. (…) The study reveals two sets of institutions which seem to be of very high interest for the development of the value chain. Firstly, institutions governing access to natural pastures appear to limit the development of commercial cattle farming. Secondly, cattle production and marketing appears to benefit a lot from contract farming, in the form of cattle confined to farmers by private entrepreneurs."

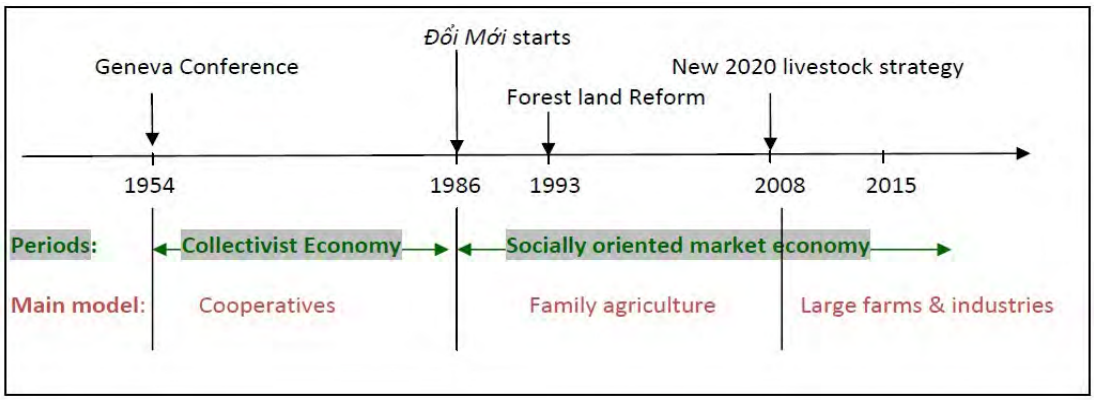

Figure 2: Main Sequences in livestock development Policies in North Vietnam
Source: Duteurtre, 2015

Rational decision making of smallholders

Whenever farmers decided to sell their cattle, they selected buyers according to three major indicators such as acquaintance, geographical proximity, and suitable pricing. Survey results revealed that those criteria were not ranked similarly among different socio-cultural groups (see Table 2). For the majority of producers in this region, knowing a buyer in advance was not so important. The most crucial issue to farmers is to choose local collectors who live near their villages. This is understandable given the context of their remote residential area and poor transportation arrangements, therefore, they lacked of market information and potentially access to better process for their cattle. However, among the population, producers who live in higher lands preferred to select buyers by good prices offered than other criteria.

Also social relationship and marketing decision are related significantly among producers in these study sites. Dien Bien farmers who have relatives working in the value chain are more likely to sell more cattle, particularly, the Hmong people.

Finally, many other decisions need to be made during the production cycle of cattle. For example, farmers with different social backgrounds or grazing-practices conserved feed differently but rice straw was always popular as a listed feed. Grass, however, was not kept in any household that were surveyed. Shelters for cattle are generally in poor condition, and type and location of shelters varies between the ethnic groups. The Hmong in Dien Bien often keep cattle separate from their houses whereas the Thai mostly keep their cattle under their houses. Regarding animal health issues, most farmers only used the subsidized vaccinations but the Hmong in Son La used this service less than the average for the two provinces. Educated farmers tended to use veterinary services more often while the Hmong utilized traditional treatments more than other ethnic groups.

Development interventions integrating socio-cultural factors

The more the research team understood the socio-cultural differences within smallholders in the northwest region, the more challenging it became to design and initiate possible interventions. After some studies on the local situation using participatory

Table 2. Rational choices of producers when selecting buyers (i.e. collectors) (Unit: %)

Reasoning	Ethnicity		Latitude		Grazing practices			General (n=186)
	Thai (n=92)	*Hmong (n=76)*	*HL (n=75)*	*LL (n=111)*	*Controlled (n=115)*	*Semi-controlled (n=50)*	*Free (n=21)*	
Acquaintance (1)	10.53	6.67	6.40	9.10	11.94	2.94	0.00	7.96
Proximity (2)	24.56	26.67	19.10	31.80	19.40	41.18	25.00	26.55
Good prices (3)	14.04	22.22	27.70	10.60	17.91	17.65	16.67	17.70
(1) & (2)	28.07	24.44	27.70	25.80	26.87	23.53	33.33	26.55
(1) & (3)	14.04	13.33	12.80	13.60	16.42	8.82	8.33	13.27
(2) & (3)	1.75	2.22	2.10	3.00	2.99	2.94	0.00	2.65
(1) & (2) & (3)	7.02	4.44	4.30	6.10	4.48	2.94	16.67	5.31

Source: (Ha *et al.*, 2014)

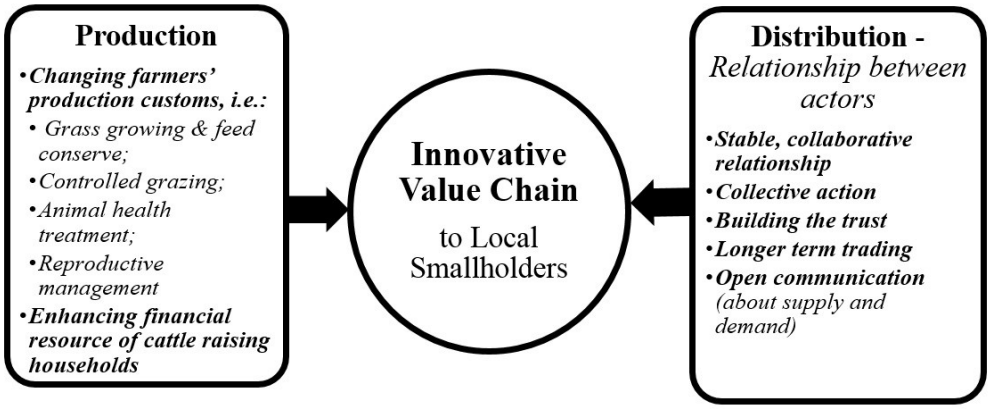

Figure 3: The introduction of development interventions as innovating the local cattle value chain by and for local smallholders

techniques, the project defined several technical and marketing strategies to be implemented and we applied various dissemination methods including farm trials, primary school agricultural education programs, beef research exposition to extension/research stakeholders (the influencers)… The project introduced to local smallholders, particularly cattle farmers, how the current value chain could be strengthened and upgraded through a systematic approach to all actors in this network.

The project undertook a number of trials and workshops to explore and demonstrate that it was possible to connect local slaughterhouses with urban markets (in Hanoi) through a network of groceries and supermarkets. Moreover, the local brands for Son La and Dien Bien beef have been developed in order to foster the marketing activities of the existing distribution channels as well as open new opportunities to chain actors. In undertaking these activities it was very apparent that collaboration between researchers and practitioners is very important in developing a value chain.

From the supply side, according to Hung et al (2014), farmers only sell cattle for large expenditure items or consume cattle for family events, such as a wedding or funeral, or buying vehicles. However, adoption of forage and by-product silage in practice has changed farmers' perception of cattle production as a business. The cost-benefit analysis of different practices in cattle production shows that taking the opportunity cost of cassava into the economic efficiency computation of practices with current prices of materials shows that using a feedlot approach, forage can help improve economic efficiency of cattle production, and the traditional practice becomes less profitable and riskier in case of feed shortage and harsh weather. Feeding practices developed in the project help decrease the duration of keeping cattle and risks in cattle production. Therefore, farmers can raise more cattle and sell them to increase household income and wealth. This shows that economic incentives play an important role in driving farmers' cattle production.

For example, based on a case study of a farmer, Mr. Tong Van Sach, and the study of Quang et al (2014), three feeding strategies were analyzed to determine which has the most

Table 3: Cost and benefit of feeding strategies from a case study of Mr. Tong Van Sach

Year	Cost/benefit	S1	S2	S3
	Calf (‘000vnd)	-8000	-8000	-8000
	Forage (‘000vnd)	0	-115	-115
1	Cassava (‘000vnd)	300	300	-182.3
	Straw (‘000vnd)	0	0	-168.5
2	Forage (‘000vnd)	0	-115	-115
	Cassava (‘000vnd)	300	300	-182.3
	Straw (‘000vnd)	0	0	-168.5
	Revenue	0	0	25000
3	Forage (‘000vnd)	0	-115	0
	Cassava (‘000vnd)	300	300	300
4	Forage (‘000vnd)	0	-115	0
	Cassava (‘000vnd)	300	254.4	300
	Straw (‘000vnd)	0	-42.1	0
	Revenue	0	25000	0
5	Forage (‘000vnd)	-115	0	0
	Cassava (‘000vnd)	300	300	300
	Revenue	25000	0	0
	NPV (r = 7.8%)	***11,898.05***	***12,705.91***	***14,382.21***

Source: Hung et al., 2015

economic efficiency. This might explain the acceptance of farmers to forage and its increasing expansion in reality. As the discussion with Mr. Sach, the three strategies include traditional practice (controlled grazing) – S1, controlled grazing with forage supplementation – S2, and controlled grazing with forage and silage (cassava and straw mixed) supplementation – S3 (Table 3).

Required volume and cost of forage, cassava and straw silage are computed according to this case study and the experiment of Quang et al (2014). We used unit cost of cassava computed from database and average price of cassava in the market (1000vnd per kg). Moreover, according to a study of Tanaka et al (2010), the estimated time discount rate (r) of Vietnamese is 7.8% which is applied for computing NPV of these strategies.

Following the computation of cost and benefit of three different feeding strategies, it was found that a more intensive feedlot approach was more profitable than controlled grazing, or controlled grazing with forage supplementation. As well the traditional practice is less profitable and riskier because of natural grass shortage and cold winters. In conclusion, taking the opportunity cost of cassava into the economic efficiency computation of practices with currently given prices of materials shows that using feedlot and forage can help improve economic efficiency of cattle production, and the traditional practice becomes less profitable and riskier in case of feed shortage and harsh weather.

The trials of forage planting and making silage from by-products created a large effect on cattle production at the research sites since they helped to deal with feed shortage and meet the farmers’ demand of alternative feed for natural grass. Many forage varieties were well

Table 4: Farmers' plan in cattle production

Plan	Lower land	Higher land	Participated	Non-participated	Overall
Increase number of cattle	68.2	64.7	66.7	66.7	66.7
Increase forage area and remain number of cattle	22.7	11.8	13.3	20.8	17.9
Unchanged	9.1	23.5	20	12.5	15.4

Source: Hung et al., 2015

adapted with local natural conditions, especially VA06, Guatemala and Mulato. The Guatemala forage is the most preferred by farmers despite the fact that it does not contain the same level of nutrition as several others such as Mulato. The trial farmers now become local seeding suppliers and key actors for expanding project's outcome. Even at some villages as Kha and Tham (in Dien Bien), the forage seed and stems can be exchanged between farmers or sold out into the local area at market prices.

In addition, farmers' awareness of forage importance has changed significantly. The success of trials with participation of village heads is the clear evidence of the efficiency of using forage and silage to feed cattle in feedlots. This helps farmers understand the utility of planting forage and making silage, and thus, they are willing to implement this practice to improve the efficiency and profitability of their livestock enterprises.

Cattle production in farmer households has been changing because of the change of natural conditions as well as forest protection policies. The project's feeding practices have met the farmers' need to deal with the feed shortage. However, the limitation of land resource and availability of practice materials are big constraints for the expansion of forage and by-product silage. These problems need to be solved by organizing farmers into production groups or interest groups as was done at some project sites.

As table 4 shows, 66.7% of farmers plan to increase their cattle herd size in next 3 years and they also need to expand their forage area. 17.9% of farmers plan to keep the same size of production scale while increasing the forage area. Finding the alternative forage really helps farmers deal with feed shortages, then they can extend the production to large scale and make it as an important income source.

To develop the cattle production in the remote areas, economic incentives play an important role in driving farmers' perception of cattle production. However, economic efficiency of practices needs to be demonstrated in trials involving key farmers in the community such as the village head. Villagers would be more accepting and trust on the motives for interventions and change their behavior by being engaged in the research and development process. Moreover, gathering people in interest groups also needs to incorporate a socio-cultural approach. Including village heads or good- practice farmers would help set up a broader group as well as an efficient organization for adoption and dissemination of knowledge within the community.

Conclusions

Research undertaken in the North West Highlands of Vietnam, involving Thai and Hmong ethnic minority groups, has highlighted the importance of social and cultural issues relating to agricultural practices

and beef cattle production in particular. A study conducted in Son La and Dien Bien provinces successfully investigated technical and marketing issues aimed at improving the

livelihoods of smallholder farmers with beef cattle. A major constraint to improved cattle production in this region is the cold, dry winter when the quantity and quality of available feed is inadequate and mortality rates can be significant. The introduction of new forage species and better use of crop residues, combined with improved shelter for cattle was found to largely overcome this problem.

When information on socio-cultural issues was taken into account, the adoption of these practices was found to be strongly dependent on farmers' culturally-based attitudes to cattle production and established relationships within the beef value chain. Thai and Hmong people live in different geographic environments, and have different socio-cultural structures. The research found that kinship and social network have strong effects on not only cattle production activities but also cattle exchange flows in value chains. Each ethnic group has a different attitude toward market-oriented cattle production and choosing trading partners. In many cases farmers prefer to be cattle keepers with the number of cattle owned regarded as an indication of wealth and status within their community.

While the government has implemented many development policies employing different approaches, there is little evidence of significant change in cattle production practices and performance. The advantage of the tested interventions of the project is that the farmers can see directly the results of any intervention from trials involving their village head or key farmers whose status are publicly respected and trusted.

There remains much potential for developing cattle production and markets in the Northwest area of Vietnam. Diversifying cattle production within the smallholder farm system as well as introducing sound interventions using a socio-cultural approach should be considered as key tasks of policy-makers to improve the economic efficiency of cattle production and upgrade the whole cattle value chain based on local market development.

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