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Diverse Experiences of Agrarian Change in Ethnic Minority Communities of Vietnam's Northeast Uplands

Nguyen Thi Thanh Binh* and Le Minh Anh**

Despite a growing literature, market-oriented agrarian change in Southeast Asia continues to beg questions on the diversity of local experiences and trajectories of development. In this article, we examine the challenges faced by ethnic minorities in Vietnam's northeast uplands during the process of agricultural transformation since the 1986 economic reforms. Drawing upon field research on a Tay commune in Lang Son Province and a Dao commune in Quang Ninh Province in 2016 and 2018, the article investigates their specific experiences with agrarian transformation. We suggest that local people have adapted their production systems according to the demands of the market but have not been able to compete successfully as market actors. Their main constraints are limited access to natural resources, lack of control over the market, and the ineffectiveness of state agricultural extension projects. Based on the analysis, the article provides suggestions for supporting upland farmers in overcoming their challenges.

Keywords: agrarian change, agricultural transformation, ethnic minorities, uplands, Vietnam

Introduction

Since the end of World War II, agriculture in Southeast Asia has been undergoing significant changes. The expansion of a capitalist economy caused by the Green Revolution and new socioeconomic policies implemented by governments since the 1960s have stimulated market-oriented agriculture in the region (Li 1999; De Koninck *et al.* 2011; Chai 2017). This has presented new opportunities for rural households to participate in production for markets. The main aspects of the transition include shifts in the mode of production and farming methods, the emergence of agribusiness and large-scale com-

* Institute of Anthropology, Vietnam Academy of Social Sciences, 1 Lieu Giai Street, Ba Dinh District, Hanoi 100000, Vietnam
e-mail: nguyenttbinh@yahoo.com
https://orcid.org/0000-0002-0712-9566
** Vietnam Social Sciences Review, Vietnam Academy of Social Sciences, 26 Ly Thuong Kiet Street, Hoan Kiem District, Hanoi 10000, Vietnam

mercial farming, and changes in land-use and landholding practices (Grandstaff *et al.* 2008; Chai 2017; Rambo 2017). Major changes to lives and living conditions have ensued, including rising incomes for many rural dwellers, more diverse livelihoods, greater connectivity, higher mobility, increased off-farm employment, and the growth of a rural middle class (Rigg and Vandergeest 2012; Walker 2012; Keyes 2014).

Rural Vietnam has been undergoing similar transformations since the 1980s and 1990s, when the state issued a series of agrarian reforms in response to socioeconomic crises under the planned and collectivist economy (Fforde 1993, 303; Kerkvliet 1993, 20). With Resolution 10, titled "Renovation in Agricultural Management"—issued by the politburo in 1988—land, draft animals, and other means of production were redistributed to farming households (Kerkvliet 1993, 20–21). A further step in agricultural decollectivization was taken in 1993 when the new Land Law allowed households and individuals to secure land-use rights for over twenty years. Along with local initiatives taken by rural people themselves, these new policies led to more productive land use, private investment in agriculture, and an agricultural shift from self-sufficiency to commodity production (Luong Hy Van 2003; Taylor 2007).

However, agrarian transformation in the uplands has not proceeded at the same pace and in the same direction as in lowland areas. As in other upland regions of Southeast Asia with predominantly ethnic minority populations, poverty, illiteracy, poor nutrition, and poor access to health and other services persist, due to inadequate access to electricity, clean water, roads, schools, health infrastructure, and marketing opportunities (McCaskill and Kampe 1997). Growing commoditization and integration into regional and global markets have led to increased dispossession and marginalization of smaller landowners and agricultural workers (Li 1999; 2002; Baulch *et al.* 2002; Taylor 2008; Sikor *et al.* 2011; Dang Hai-Anh 2012). Marketization has also had negative impacts on upland environment and society, leading to environmental degradation, social dislocation, cultural disequilibrium, and social conflicts (Jamieson *et al.* 1998; Friederichsen and Neef 2010). Not all upland experiences are the same, however, as upland localities and groups record strikingly different development outcomes and problems (World Bank 2019).

This article demonstrates the variation and complexity of agrarian change in Southeast Asia by showing the varying ways in which local people in our study sites have transformed their agricultural practices to engage with post-reform marketization in Vietnam. It reflects on the limitations of market-led development by examining the positive and negative outcomes of agrarian transformation in the two localities. Using a comparative framework, the research seeks to portray similarities and differences between the Tay and Dao ethnic groups' experiences, which we track down to local historical, geographical, and social differences.

The article proceeds as follows. After a brief discussion of the history of upland transformations in Vietnam, we review the literature on agrarian differentiation and upland poverty. We then turn to our case studies of how local people have transformed their agricultural production and the outcomes they have achieved. The article concludes with a discussion of how the commonalities and differences between the two localities contribute to our understanding of agrarian change and the impact of place-sensitive policies on agricultural extension for upland farmers in Vietnam.

Background and History of Upland Transformations

Prior to the collectivization period (1960s–80s), ethnic minorities in Vietnam such as the Tay, Tai, and Muong resided along valleys where they cultivated wet rice, kept forest gardens and small areas of swidden (sometimes called "slash and burn") cultivation, and planted cassava and maize to feed livestock. Social differentiation was then based on landownership. Families that had settled in the region early owned the largest and most fertile fields. Meanwhile, people living in the high mountains, such as the Dao, Hmong, and Ha Nhi, practiced swidden cultivation and consumed forest produce for their daily food. Upland rice, maize, and cassava were their main crops. The fallow periods for swidden fields in the earlier days were extended because the population was scattered. The land belonged to the communities, and all people could access it (Castella and Dang Dinh Quang 2002). These traditional production systems were seriously impacted by the agricultural policies of the state after Vietnam ended its nine-year war of resistance against the French in 1954, which introduced land reforms, then collectivization.

In 1960 the first agricultural cooperatives were established in the valley areas occupied by Tay, Tai, Nung, and Muong groups. In 1961 a national program named *định canh định cư* (sedentarization) moved the people living in the mountains down to the valleys to participate in cooperatives. The Green Revolution introduced some advantages—such as rice intensification, new seeds, fertilizers, and irrigation systems—into the cooperatives. However, the irrational management mechanisms of the centrally planned, government-subsidized economy led to a decrease in wet rice productivity. Meanwhile, the government issued a law concerning forestland in the 1970s, which banned upland people from clearing the forests for cultivation; this led to a food crisis in the Vietnam uplands (Castella and Dang Dinh Quang 2002, 55).

Case studies on land-use changes in the northern uplands indicate that decollectivization led to an initial boom in agricultural production in the early 1990s, when local farmers expanded their cultivated land in the hills and increased the agricultural land area

(Sikor and Đào Minh Trường 2001, 46). Besides two wet rice crops, farmers were encouraged to grow potatoes, cabbage, and corn as winter crops, alongside fruit trees (Castella and Dang Dinh Quang 2002, 86). The economic reforms also abolished the ban on trade among localities. Thus, lowland traders came to the mountainous areas to sell consumer goods and buy agricultural products. Through this market formation, upland farmers purchased increasing amounts of chemical fertilizers and pesticides for expanding their crops. People gained access to new seeds of rice and corn—mostly Chinese hybrid varieties that demanded large amounts of purchased inputs (Sikor and Đào Minh Trường 2001, 40; Sikor and Pham Thi Tuong Vi 2005, 413).

After the market reforms there was a common tendency toward agricultural production shifts in the upland and ethnic minority areas of Vietnam. This involved switching from cultivating paddy and upland rice to a diversified agricultural system that combined various crops and livestock (Castella and Dang Dinh Quang 2002, 75). Upland people engaged in a mixed economy of subsistence and cash crop production. The commodity market had become a key source of income (Henin 2002; Sikor and Pham Thi Tuong Vi 2005, 413; Phuc To *et al.* 2016). As a result, household income increased and the poverty rate among ethnic minorities of Vietnam declined from 69 percent before 1998 to 35.5 percent in 2020 (Lâm Nguyên 2020). Meanwhile, various rural development programs were introduced to increase connectivity, improve irrigation, and bring new techniques, skills, and occupations to farmers in the uplands. Ethnic people became more involved in the web of national and transnational markets (Turner 2013).

Explanations for Agrarian Differentiation

Despite the improvement and greater opportunities, agrarian transformation in the uplands has not been without problems. Although the overall poverty rate in Vietnam is low and continues to decline, poverty remains concentrated in minority-dominated and upland regions. The percentage of poor households among ethnic minorities is three times higher than the national poverty rate of 10.2 percent (Lâm Nguyên 2020). The 53 ethnic minorities account for 14.6 percent of the country's population, and yet the poor among them account for more than 52 percent of the total number of poor households (Lê Phương 2019). A common view holds that as the cash income of ethnic people has increased, these people have gained access to better services such as education and health care. In fact, the socioeconomic rifts have increased between the minorities and majority, and among minorities themselves (UNDP *et al.* 2018, 47). Since the reforms, upland areas have been home to growing internal inequalities based on differences in

access to production factors such as land, remittances, power, social capital, and information (Henin 2002; Sikor and Pham Thi Tuong Vi 2005).

Researchers have attributed the poor developmental outcome of Vietnam's upland regions to ecological obstacles such as poor soil conditions, water shortages, and difficult terrain combined with severe weather conditions that cause floods and landslides (Pham Thi Thanh Nga *et al.* 2020). These in turn have compounded the problems of introducing critical development infrastructure such as all-weather roads, school buildings, electricity, water, and sanitation systems. Cultural, customary, social, and environmental considerations influence people's capacity and willingness to accept and adapt to the priorities, lifestyles, methods, and techniques associated with market-based livelihoods (World Bank 2019). Also, state socioeconomic development policies for the upland region sometimes have been inappropriately or ineffectively applied (Lê Phương 2019).

A key issue related to uplands development is the environmental cost associated with marketization. The policies of promoting agricultural expansion, resettling lowland farming communities into upland regions, and intensifying agricultural practices have led to serious environmental problems such as soil erosion, loss of soil fertility, laterization in mountainous areas, and chemical pollution of soils and streams (Henin 2002). While traditional swidden cultivation by upland people used to be friendly to the environment, under population pressure and market demands, many ethnic groups now have no choice but to continue practicing extensive pioneer swiddening methods of farming that cause far more damage to forests (DiGregorio *et al.* 2003, 193; Rambo and Jamieson 2003, 166). In this article, we will pay special attention to the environmental impacts of market-driven uplands development when examining the outcomes of agrarian transformation in the two study sites.

According to existing literature on agrarian change in Vietnam,[1] the distinct geographical, social, and cultural characteristics of upland localities shape the process of agrarian transformation. Thomas Sikor's (2001) case study of three Black Tai villages in Chieng Dong commune of northwestern Vietnam reveals that the trajectory of agrarian change in this community was characterized by a shift from water buffalo to cattle in response to market demands, which allowed local people to save and accumulate surplus in the form of livestock. Jennifer Sowerwine (2004) found that although the Dao people in Ba Vi National Park (Hanoi) responded proactively to spatial constraints and new market demands by cultivating medicinal plants to sell to urban centers, the Dao people in Ban Khoang (Lao Cai Province) expanded lucrative cardamom agroforestry systems beneath the canopy of old forests, which lie within the boundaries but beyond the regula-

1) There are some studies comparing land-use changes in upland Vietnam, such as Meyfroidt *et al.* (2013) and Castella and Dang Dinh Quang (2002).

tory gaze of the state. S. Turner (2010; 2012b) describes how Hmong people in Lao Cai applied their traditions of mobility, kin-based social structure, and economic adaptability to grow cardamom for sale while also becoming transnational textile and buffalo traders. Turner emphasizes that the livelihood strategies of Hmong in response to the market are within the context of their distinctive historical traditions. Yet, it is important to note that not every Hmong community is like the one in Sa Pa, which lies along the Vietnam–China border. In an interior upland area like Bac Kan Province, Hmong people are mostly involved in farming combined with wage work rather than participating in market trade (Lý Hành Sơn 2018, 87). Although Hmong and Dao people in the Vietnam–China borderland area actively grow bananas and pineapples to export to China (Nguyễn Công Thảo 2013), some ethnic minorities in the Central Highlands participated in the cassava boom when Vietnam recently became the second-largest cassava exporter in the world (Phuc To *et al.* 2016).

These works illustrate how upland communities in Vietnam are undergoing idiosyncratic agrarian transformations in response to official market-led development policies. The literature suggests that agricultural intensification, market integration, and population dynamics are the main shaping factors of agrarian change in the region. However, given the diversity of local experiences and unexpected trajectories of development, much remains to be learned about the specific experiences of the people coping with such momentous change. In this article we compare the experiences of two ethnic minority communities in Vietnam's northeast uplands who have been engaged in processes of marketization in order to highlight such local variation.

Case Studies: Agrarian Transformation in Two Upland Communes

For comparison purposes, we chose two communes in two northeast upland provinces of Vietnam to conduct field research—Quang Lang commune, Chi Lang District, Lang Son Province; and Tan Dan commune, Hoanh Bo District, Quang Ninh Province. We visited Quang Lang commune from April to September 2016 and Tan Dan commune from May to June 2018. In each commune we focused on the experiences of the numerically dominant ethnic group, who have recently been engaged in marketization. In Quang Lang commune we focused on the Tay, who live in valley areas and mainly cultivate paddy fields; and in Tan Dan commune we focused on the Dao, who reside in the uplands and whose livelihoods rely on forestland.

The study used both quantitative and qualitative research methodologies. For the quantitative component, among the 205 households in the two villages we studied in

Quang Lang commune, 140 Tay households were randomly invited to participate in the survey to ensure that two-thirds of the households in the village were represented in the sample. The survey questions were intended to determine the socioeconomic changes in the community after the 1986 reforms. In this paper, the survey results on land use, livelihood transformation, income, and living standards of households are presented in order to understand the agricultural transformation in this community. In Tan Dan commune, we used the survey results on related spheres of agricultural change of our colleagues at the Institute of Anthropology in 1993 and 2006 (Viện Dân tộc học 1993; Tran Van Ha and Le Minh Anh 2008) and recent statistics from the local government to examine the agricultural transformation. For the qualitative component, sixty semi-structured interviews were conducted in Quang Lang and 33 in Tan Dan commune. The interviews included open-ended questions on informants' personal information and their families' socioeconomic situation. Villagers were free to share their ideas and opinions on their livelihood, agricultural transformation, and the challenges they faced during the transformation.

Quang Lang Commune

Locale and People

Quang Lang is one of the 19 communes in Chi Lang District that surround the administrative center of Dong Mo town, in Lang Son Province.[2] The commune is 130 km from Hanoi and 40 km from the Vietnam–China border. Although Dong Mo town is small and developing slowly, the strengthening of market exchanges has led to the expansion of the trade and service industries in the town, creating more jobs for suburban residents. The owners and employees of small businesses in Dong Mo are looking to buy peri-urban land in communes such as Quang Lang to reside on. The construction of National Road No. 1A in 2000 had a major impact on the socioeconomic life of the people here. According to locals, the national highway's opening has led to the strengthening of socio-economic and external cultural exchanges, and in turn the agricultural transformation process has become far more pronounced.

In 2016 Quang Lang commune had 1,741 households and over 7,000 inhabitants. The majority of people belong to the Kinh and Nung ethnic groups, with Tay people comprising approximately 31 percent of the commune's population. Of the 13 villages

2) On November 21, 2019, Quang Lang commune was merged with Dong Mo town, Chi Lang District, Lang Son Province, according to Decision No. 818/NQUBTVQH14 of the Standing Committee of the National Assembly.

in the commune, Lang Trung, Khun Phang, and Lang Dang are the three Tay villages. Approximately 90 percent of households in these three villages comprise Tay people, while the other villages are more diverse. The Tay have resided close to one another in villages in the valley for a long time. Our 2016 research field sites were Khun Phang and Lang Dang villages. The total number of households in the two villages was 205.

Changes in Land Use and Natural Resources

Prior to taking part in the cooperative movement of the 1960s, almost all of the Tay families in Quang Lang had wet rice land for cultivation; each household had an average of two *mẫu*[3] of paddy land. The better-off households often owned up to ten *mẫu*. During collectivization, most of the natural capital—including forest and agricultural land—of the Tay people was under the management of the cooperative. After Doi Moi, the natural capital was allocated to back individual Tay households. This decollectivization, along with policies such as Land Contract No. 10 in 1988 and the exemption of agricultural and irrigation fees in 1995, made people feel happy, secure, and self-reliant. They felt that production on their own paddy land was more successful than collectivized production, where "everybody's business is nobody's business."

Although the management of natural capital improved after Doi Moi, the cultivated land area of the people in Quang Lang was reduced. This was due to population growth and urbanization. In the 1960s Lang Dang village had only 39 households, but it now has over 120. When National Road No. 1 was extended through Quang Lang commune in 2000, Khun Phang and Lang Dang villages lost 6 ha of cultivated land, belonging to about thirty households. In the coming years, the construction of the Hanoi–Lang Son highway will take away at least six more hectares of residential and agricultural lands from the two villages. At the time of our study, about 20 percent of the interviewed households in Quang Lang had no paddy land for cultivation, while the remainder had on average 1,032 m^2 (Khun Phang village) and 1,305 m^2 (Lang Dang village) per household. Additionally, a considerable amount of cultivated land had been lost or reduced by natural erosion, sale of land, and house construction. By 2016, there were about ten households in Lang Dang village that had lost a portion or all of their paddy fields due to erosion from the Thuong River. Therefore, some local Tay people lack natural capital for use in their livelihood transformation and development.

The 65 ha of the villages' forestland was better managed under the forestland allocation and reforestation programs of the Viet–Germany project in 1997 and 1999. At that time, the households that already had forestland continued to manage their land and

3) One *mẫu* equals 3,600 square meters.

received contracts for reforestation from the project. Other households were also encouraged to receive reforestation contracts. The main goal of the program was to attach the responsibility and interests of each household to their allocated land to protect and cultivate it. Owing to this, many forested areas that were previously clear-cut (to grow food crops in response to serious food shortages) are now covered by forests. The practice of clear-cutting has been abolished, and trees are harvested only when they are mature enough for wood or intercropped with fruit trees such as banana, litchi, and longan. At the time of contracting care of forestland, 80 percent of the households had forestland; but due to population growth, only 40 percent of the interviewed households now had this type of land. Moreover, the types of trees that were provided by the project are still immature and do not yet provide a steady income.

In addition to cropland and forestland, the Tay people in Khun Phang and Lang Dang also have some small areas of swidden land, totaling about 9 ha. By 2016, only 46 percent of households owned this type of land. Local land for gardening purposes is also limited; these plots are usually less than 360 m^2, and fewer than half of the households in the community have gardens.

Natural resources such as fish and shrimp, birds and herbs, which once played a very important role in the life of the community, are now becoming exhausted. Most people no longer rely on natural food sources as their main means of sustenance and instead buy food at local markets. Many local people say that resources from the forest are no longer reliable for the life of the whole community.

Agricultural Intensification

Interview results revealed that in the early years of Doi Moi, the Tay in Quang Lang focused on investing in fertilizer and new hybrid varieties of rice, maize, and potato to increase food yield in response to food shortages. Throughout the 1990s, the local populace grew these new hybrids and other ground crops to meet household needs and to sell at the local market. As a result, by the end of the 1990s the Tay people had eliminated the food shortages that had previously been endured for seven months of the year.

Besides rice and cash crops, 46 percent of households in Khun Phang and Lang Dang also plant fruit trees such as litchi, longan, and custard apple on their 9 ha swidden land; these were harvested and sold for an average annual income of VND20 million (about USD1,000) in 2016. Households grow vegetables in their gardens mostly for sustenance, but some also sell them in the local market, providing a daily income of approximately VND200,000 (about USD10).

In traditional agriculture, besides crop cultivation the Tay in Quang Lang also devel-

oped animal husbandry, raising a range of domestic animals (e.g., buffaloes, cows, goats, pigs, chickens, and ducks) and also aquatic species in lakes and ponds. However, after Doi Moi there have been changes in the method and purpose of husbandry among local Tay households. Raising buffaloes and cows (especially buffaloes) formerly played an important role in the economic life of the Tay people. Households that had limited capital and lacked labor for tending fields would instead raise several animals to provide power (mainly for ploughing). Some better-off households could raise several head of livestock in case they were needed for a big event such as building a new house, holding a wedding, or conducting a funeral.

With the promulgation of the policy of land and forest allocation to individual households in 1995, the area for raising livestock has been reduced. Moreover, the use of machines in agricultural production has made animal power nearly obsolete. Currently, there are only ten households in Khun Phang and Lang Dang who together raise about 110 buffaloes and 40 goats, mainly for sale and for ploughing small plots of paddy field that are unsuitable for machines. Pig rearing has become more difficult in recent years due to disease, but approximately 80 percent of households continue to raise pigs, totaling around 230 head. Almost all of the households keep around twenty chickens and ducks, which are used or sold when needed. Since the 2000s, animal husbandry has brought some additional income to local households, but it has not developed into industrial production because of the limited range area, lack of financial capital, inadequate techniques, and concern over diseases.

Like many other ethnic minorities in Vietnam, the Tay in Quang Lang started to diversify their household livelihoods with Doi Moi, with small trading, services, or hired labor. Khun Phang and Lang Dang villages' proximity to Dong Mo train station led to some villagers traveling by train to the Sino–Vietnamese border in the 1990s to transport illegal goods or to work as or manage porters and brokers. Each village had several households buying agricultural products within the village to sell at the big markets in the district. Some worked as hired laborers in Lang Son or neighboring provinces.

Market Integration

After 2000, as the national road was built, the Tay in Quang Lang learned how to grow cash crops for sale, but this did not come without struggle. Over the past decade or more, many Quang Lang people have tried to convert from growing rice as a subsistence crop to growing ground crops such as melons and potatoes to sell in the market. They grew large amounts of watermelon without researching the capacity of the regional market to consume this product and did not secure buyers for the product before planting. As a result, much of their produce ended up unsold and wasted.

Potatoes have also been unsuccessful as a cash crop. Although the Tay signed purchasing contracts with several companies for potatoes, they did not pay close attention to the terms and were unable to grasp the technical standards and specifications of potato planting. The potato crops did not meet the contract standards, and companies did not buy the potatoes. The people were forced to sell the potatoes at a price "as cheap as giving away" or use it for animal feed.

Tay people in Quang Lang, like many upland dwellers in Vietnam and Southeast Asia, actively participate in the market and are influenced by market factors (Li 1999; Sikor and Pham Thi Tuong Vi 2005). Before Doi Moi, people mainly used human capital to interact directly with natural capital such as forests, rivers, and paddy fields to generate products for everyday life. In the early stages of Doi Moi, people grew and harvested food for their own use, rarely trading at the market due to a shortage of financial capital. Today, they often sell their crop and husbandry products in the market and work as hired laborers.

Currently, about 60 percent of local households grow cash crops, predominantly chilies. With the average yield of 170 kg of rice and 300 kg of chilies combined per *sào*[4] of a paddy field, a household would earn 340 kg of paddy and VND5 million to 10 million (approximately USD250–500) annually from selling chilies per *sào*. This provides income for needs such as health care, educational expenses, everyday goods, and social interactions. Most households purchase food, necessary personal and household items, and production inputs such as seed varieties, fertilizers, and pesticides at local markets and from shops in the village and the local town. Those who no longer engage in agriculture must buy rice and vegetables from the market.

Increasing interaction with markets helps people improve their living standards but also subjects them to market forces. When the Tay in Quang Lang began producing commodities, they grew accustomed to and accepted the reality of price fluctuations. Lower prices for successful crops forced them to shift from potato to watermelon, then to green pumpkin and chili. Even chili, which is grown to sell to private traders for export to China, is priced differently year after year. At the start of the season the crop price is VND50,000 per kilogram, but it decreases to only VND10,000 per kilogram by the end of the season.

Meanwhile, due to market influence, the cost of productive inputs is also increasing. According to local people, the cost of paddy field cultivation, which includes ploughing, land processing, fertilizer, pesticide, crop varieties, and labor, has become almost equivalent to the price of the rice they produce. When growing cash crops, the cost of each

4) One *sào* equals 360 square meters.

crop variety is one of the most important considerations in selecting crops. For example, the cost of 1 kg of potato seedlings is VND9,000, while the price of the resulting produce is VND4,000 per kilogram (normally 12 kg of produce is grown from 1 kg of seedlings). The shift between crops among the Tay in Quang Lang is usually a rapid response to the market rather than a strategic response. When the price of a crop drops too low or when a crop becomes more susceptible to disease, the villagers shift to a new crop. Local agricultural promotion programs encourage people to produce crops, but they do not provide market information to help people effectively choose crops; so local people have to manage by themselves to the best of their ability.

Population Dynamics and Social Differentiation

Since 2000, with the construction of National Road No. 1, the number of people in Quang Lang who work in non-agricultural jobs has increased. According to our survey in 2016, the proportion of people who worked purely as farmers was only 60 percent, with 34 percent working in non-agricultural sectors such as trading, services, hired labor, and government.

Road construction not only helps local people access more locations to find jobs, it also enables economic activities in towns and communities nearby. After completion of the road, the Dong Banh industrial zone was built. Enterprises there, such as brick and construction material factories, provide jobs for laborers. Construction projects often have a high demand for building-related workers, so porters, mansion coolies, construction laborers, and plumbers are common professions for the Tay people in Quang Lang. Up to 40 percent of local households have someone who works as a laborer year-round. Both men and women work as laborers; however, the number of male laborers is much higher. Among those, approximately 22 percent are young people (18–30 years old) who work in factories (e.g., Samsung Corporation) in their local area and surrounding provinces such as Bac Ninh, Bac Giang, Lang Son, and Hanoi. Middle-aged people, especially men, tend to work for enterprises and projects within the district. Farmers in the village sometimes take up short-term, seasonal jobs within the local region, such as mansion coolies and hired laborers in processing shops or agriculture. Our survey results reveal the diversity of income sources in local households (Table 1).

Before Doi Moi, natural capital (land) and human capital were two of the most important factors that determined success and income levels of household economies in the uplands of Vietnam (Sikor and Pham Thi Tuong Vi 2005, 408). Today, for the Tay people in Quang Lang, knowledge of techniques, market information, and social relations have become vital to economic success. In the production of cash crops, local people must learn about new high-value crops and how to care for them, search for crop varieties, and

Table 1 Income Sources of the Tay Households in Quang Lang in 2015 (%)

Income Sources	Percentage
Cultivation	37
Livestock	22
Trade, crafts, services	8
Work for hire	18
Salary	14
Others	1

Source: Household survey questionnaire result in 2016.

undertake the marketing of outputs. However, very few local farmers can meet this demand.

The Internet has become an important tool for engaging in trades and providing services. Knowing how to use the Internet for research allows people to assess which available local goods are in high demand in a wider market. Social relationships can be helpful for those applying for jobs or networking. Today social capital (and information obtained via social capital) as well as financial capital are decisive factors in differentiating groups within a community.

Almost thirty years after Doi Moi, the social capital and human capital of the local people have changed. We see more villagers investing in education and expanding their social relationships to help them achieve success in the changing economy. Survey results indicate that 19 percent of household members are students, 31 percent have completed secondary school, 30 percent have finished high school, and 12 percent have graduated from college and university. Education is necessary for young people to improve their knowledge, skills, and suitability for jobs, but social relations play a more important role in accumulating social capital in Vietnam today (Luong Hy Van 2003). So far, only a small number of Tay people in Quang Lang have utilized social relationships to build their businesses, while others who have not built or expanded their social ties are missing opportunities.

Our survey of the Tay villages in Quang Lang revealed that only 31 percent of households had savings in 2015. Among them, the saved amounts varied widely. Only 2 percent of the total households saved more than VND70 million (over USD3,000) per year, 27 percent saved between VND40 million (USD1,755) and 60 million (USD2,600) per year, and 2 percent saved about VND20 million (about USD1,000) per year. Survey results on savings are considered estimates because respondents might hesitate to reveal their real income. Statistics provided by local authorities in 2015 show that in the two villages the rate of rich households was 5 percent, better-off 12 percent, average 69

percent, and poor 14 percent. The households with greater incomes could be those that were able to rapidly adapt to the changing economic climate.

Tan Dan Commune

Locale and People

Located in southern Quang Ninh Province, 45 km from Ha Long city, Tan Dan commune is one among five upland communes in Hoanh Bo District. Tan Dan is a highland commune in Quang Ninh Province—the most socioeconomically dynamic province in the north of Vietnam. A transportation system connecting the commune with the rest of the province was established long ago. Changes in agricultural practices, cultural and social life, and urbanization have been apparent in this community since the economic reforms of the 1990s.

Tan Dan commune is the home of the Dao people. Hills and rocky mountains account for 93.75 percent of the natural area, while just over 6 percent of the commune is agricultural and flat land. Of the natural area, 90.56 percent is protected and production forest, while the rest is arid gravel and bare rock slopes that cannot be planted for cultivation. Therefore, the main agricultural production here is forestry based, combined with a small amount of wet rice area. In 2018 the commune had 588 households with 2,478 inhabitants, of whom 92 percent were Dao people and the remainder Tay, Nung, and Kinh. There are eight villages in Tan Dan commune: Dat Do, Khe Dong, Khe Cat, Khe Muc, Hang Tran, Tan Lap, Dong Mung, and Bang An.

Changes in Land Use and Natural Resources

Traditionally, the Dao lived high in the mountains. They relied on shifting cultivation and forest resources. In 1968, under the government sedentarization program, Dao people in Tan Dan were moved from the mountains to settle in the valleys, where they still reside today. Initially, households were brought into cooperatives and the reclaimed land along streams was used to cultivate rice fields. After a few years, seven villages of the commune on additional land area along the stream were converted for paddy cultivation. However, due to the lack of adequate investment in breeds, techniques, and fertilizers and the inefficient and low-yield collective economy, people still faced difficulties in all aspects of production (Trần Văn Hà 1996).

The economy of Tan Dan changed after the implementation of Doi Moi in 1986. In 1990 the practice of contracting fields began, and 95 ha of paddy fields (of which half were one crop and half were double crop) and 125 ha of upland rice fields were allocated to

households in the community. Today about 80 percent of households have water fields, with an area of 1,000 m^2 to 2,000 m^2 per household. What was once upland swidden land was cleared to create fields for crops or allowed to regenerate into forestland. This land was then allocated into areas of 1,000–1,500 m^2 per household.

In the 1990s, 6,430 ha (90.56 percent) of the total forestland area of the commune was protected and production forests allocated to households. By the time of our study in May 2018, only 18 percent of all forestland was allocated to households, and the remaining area was managed by the Provincial Forest Protection Department of Quang Ninh.

Before 1992, drought had rendered the 50 ha of land that was allocated for crops unsuitable for growing. Thus, families relied on the harvest of forest products to ensure their livelihood. In 1992 Program 327 was funded by the government to provide investment capital for sedentary ethnic minorities to develop infrastructure and production. The local government allocated 738 ha of land to 245 households (0.7–3 ha per household). A total of 245 households comprised 80 percent of the total households in the commune in 1992. During this time, people did not realize the benefits of forest contracting and were concerned that if they did not plant the forest, they would have their lands confiscated. Therefore, only 80 percent of the households contracted the forestland, while the remaining 20 percent did not dare to receive the contracted forestland. In 2007, as the Dao population was increasing and there was a shortage of productive land, Quang Ninh Province allowed Tan Dan commune to recover more than 360 ha of protected forest to use for production. In 2012 local authorities again allowed the forest in the Yen Lap reservoir area to be reassigned as productive land.

Now, each Dao household in Tan Dan has an average of 2.2 ha of productive forestland. However, some of the forestland is fragmented and too far from residential areas. Many households have had to sell their allocated forestland, so in fact landownership in Tan Dan is uneven. Forestland ownership has differentiated households into three groups: those in group one own 8–9 ha, those in group two own 3–4 ha, and those in group three own less than 1 ha. For successful forest production, each person requires 2 ha and each household needs about 10 ha of forestland. However, in the context of increasing population, the land resource requirements are narrowed and only households in group three (<1 ha) are considered to lack enough productive land. As of May 2018, according to the statistics of the People's Committee of Tan Dan Commune, there were 82 households lacking productive land (14 percent). This is a common problem in areas with ethnic minorities in Vietnam, where an estimated one in five ethnic minority households have no residential land and too little or no productive land (Nguyễn Cao Thịnh 2015).

Agricultural Intensification and Market Integration

Wet rice fields in Tan Dan were reallocated for long-term use in 1990, and households have since introduced new rice varieties such as purebred CR293, agriculture 8 (NN8), and Ta Linh red (China). New intensive measures of cultivation, fertilizer enhancement, and pesticide have helped to increase rice productivity from 1.7 tonnes/ha in 1993 to 4.2 tonnes/ha in 2018. Our interview results revealed that 80 percent of Dao households in the commune had enough food for their families with the current area of wet rice cultivation.

On dry and flat land, people grow crops such as corn, potatoes, peanuts, beans, vegetables, and fruit to serve the needs of their families and to sell in the market. The area of each crop varies each year, depending on market demand. In recent years people have planted more purple sweet potatoes, purple sugarcane, and guava than before.

On the forestland, which was the main source of livelihood for the Dao people, there have been experiments leading to the constant changing of crops. In 1993 the state allocated eucalyptus trees to the people, in addition to forestland. After the eucalyptus was harvested, the people purchased more eucalyptus seeds from the state. Due to the unsuitability of the land, the trees did not develop well and the income from the harvest was very low. Therefore, people stopped planting eucalyptus trees. From 1995 to 1998, local authorities also experimented with planting other crops such as cinnamon and bamboo, which also failed. From 2000 to 2006, local authorities mobilized people to plant Aquilaria (trees grown for eight to ten years that produce resin used to make incense) on production forestland. After five years, the Aquilaria plants had not grown much because the proper fertilization technique was not used.

In 2013–14, Tan Dan commune implemented a pilot project to grow four hectares of purple morinda plants. The project allocated seedlings to farmers who were paid for planting each tree. After five years, they could start harvesting tubers. Purple morinda must be planted in clean soil, which requires careful care and thorough weeding for the new plants to grow well. It requires a lot of regular care. Many households did not have the patience, and they quit planting morinda. In 2016 the commune authorities put yellow flower tea plants into trial cultivation but again were unsuccessful.

Acacia is the most popular and successful crop in Tan Dan. In 2002 some households experimented with acacia and discovered that it grew and sold well, so now acacia covers 85 percent of the commune's forestland. Acacia trees are referred to as poverty reduction trees by village leaders because acacia plantations have created many jobs and provided income for households. The cost of seeds for each hectare is about VND6 million (USD300). Plants are typically harvested after five to ten years, but poor households harvest young trees after three or four years. After five years of growth, each hectare

of acacia produces about 50 tonnes of wood, which has a current market price of VND30 million (USD1,500). From planting to harvesting, each hectare of acacia requires around a hundred days of work. Although acacia tree production does not provide a high income, locals have found it to be a suitable crop to grow in their soil and it has been easy to sell because traders are always willing to buy for export to China. With this land, the Dao people have few other options. There is a struggle to find new commodity trees that can replace acacia trees and keep the soil from degradation. The Dao community in Tan Dan also has very little agricultural land, which presents further challenges.

In addition to farming, the Dao in Tan Dan have relied on animal husbandry to provide extra income. Traditionally, upland farmers raised chickens and pigs to serve the needs of rituals and Tet holidays for the family. From 1994 to 2004, a number of loan projects for livestock development from local authorities and international organizations like the United Nations Food and Agriculture Organization gave the Dao people assistance in raising buffaloes to provide power for agriculture and timber harvesting. As of 2018, the commune had two hundred buffaloes. Most households also raised one or two pigs and up to ten chickens to serve the family's needs. There were three households that had their own pig and chicken farms with large numbers of livestock. Large farms are not common because the Dao still rear animals according to traditional methods that are not very profitable, and there is always a risk of disease. Over the years, a number of other projects raised livestock such as porcupines, pheasants, and wild pigs, but all were unsuccessful due to low market prices.

Before the agrarian transformation, in addition to shifting cultivation the Dao often harvested products from the forest to serve their needs for food and daily life. Since the exchange of goods between Tan Dan and other places has expanded, the use of traditional Dao products has changed. From 1991 to 1993, almost all Dao households in Tan Dan had members participating in the logging of local forests for sale to the market. At that time, Tan Dan annually lost two hectares of primary forest, exclusive of plantation forest, to illegal exploitation. In addition, people collected orchids, snakes, and incense to sell to traders from cities like Hai Phong and Ho Chi Minh City to export to China.

Before the economic reforms, there were 16 households in Tan Dan picking medicinal plants for curing rheumatism, hepatitis, milk loss in lactating mothers, etc. By 1993 more than fifty households were collecting medicinal plants for sale in Hai Phong, Quang Ninh, and Hanoi. There are still more than ten households practicing this profession today. Since the 1990s, the Dao people have engaged with the mechanism of the market economy by linking traditional economic activities with market activities within and outside the local region. Career structures in the community have begun to shift, and social differentiation has become more exaggerated.

Population Dynamics and Social Differentiation

In 1993 Tan Dan's income structure was as follows: agriculture accounted for 47.5 percent, wood and forest products 46.23 percent, and other industries 6.27 percent (Viện Dân tộc học 1993). By 2006 income from agriculture and forestry had decreased to 70 percent, and industries and services made up the remaining 30 percent. In 2017, although the economic structure of Tan Dan was still predominantly agriculture and forestry at 57.9 percent (cultivation 18.6 percent, forestry 21.1 percent, animal husbandry 18.2 percent), there had been a steady increase in services and trade (42.1 percent). There were 145 households and 185 laborers who had stable incomes from service activities, trade, and non-agricultural occupations such as state officials, teachers, and soldiers. In the whole commune, there were thirty households with food, grocery, electronic entertainment, and service shops and eight households with trucks used for transport, material supply services, and agricultural production.

The survey results in the three periods revealed that in 1993, 30 percent of households were classified as poor (with an income of 5–15 kg of rice per month) (Trần Văn Hà 1996, 61), but by 2017 the average annual income in the commune had increased to VND22.5 million (about USD1,000) and 17.5 percent were classified as poor. The poverty threshold in 2015 was 3.9 percent. By 2017, the number of poor households in the commune had reached 7.8 percent; in addition, there were 56 households (9.7 percent) belonging to the near-poor group.[5] Obviously the average income trap in Tan Dan always created some instability among groups escaping poverty due to the impact of market prices of agricultural and forestry products and labor wage (Table 2).

Table 2 Dao Households in Tan Dan Commune, Categorized by Living Standard in Three Research Years (%)

Living Standards	1993	2006	2017
Rich/well-off	4.81	10.20	32.5
Average income	37.54	67	50
Poor, near poor, and in hunger	30.61	22.8	17.5

Sources: Survey result of Viện Dân tộc học (1993), Tran Van Ha and Le Minh Anh (2008), and statistics of People's Committee of Tan Dan Commune in 2017.

5) The criteria for determining poor households in 1993 were different from the criteria in 2017. Poor households in 1993 were evaluated based on the criterion that the household lacked food for three to six months per year. The poor household category in 2017 was a multidimensional measure with an average monthly income of VND700,000 (USD30). In addition to income estimated through the characteristics of household assets, it also takes into account access to basic social services such as health, education, housing, domestic water and sanitation, information, and physical products (Decision No. 59/2015/QD-TTg dated November 19, 2015 on the poverty standard of a multidimensional approach for the period 2016–20).

In 2018 the main commercial service activities were offered by Kinh people[6] living along Highway 279, which runs through Tan Dan commune. For the Dao people, the main sources of income were agriculture, forestry, animal husbandry, labor in coal mines in Bang Anh village (managed by Vietnam Coal and Mineral Corporation), and other hired labor. The commune had two hundred young workers (18 to 30 years old), many of whom worked in Ha Long city, Hanoi, and Hai Phong and a few in China as laborers or traders. These young workers returned to the commune only on holidays. Middle-aged workers (30 years and up), often engaged in seasonal agricultural work (such as cutting grass and peeling acacia bark) and masonry and carpentry in workshops in neighboring communes, in addition to their regular agricultural and forestry production. This work provided a daily income of VND100,000–200,000 (USD5–10).

The better-off Dao households made their income from businesses and services and/or productive land that they inherited or accumulated from trading. The availability of capital and land allowed these households to invest in many valuable crops and animals such as ironwood, Aquilaria, and large-scale livestock (pigs and buffaloes) and engage in diversified economic activities. Average-income households in Tan Dan struggled to combine agricultural production on 3–4 ha of forestland with job-seeking and service development opportunities. Many poor and middle-income households depended on working as hired laborers and collecting additional forest products such as bamboo, herbal medicine, and honey to sell. Our 2018 interviews revealed that some households were poor due to circumstances of social isolation or illness, but many were young new households that lacked productive land and had no capital to invest in production and business. Therefore, their only source of income was pay from working for hire. Lack of land and inequality in forestland-use rights were among the main causes of poverty for the Dao people in Tan Dan commune.

Discussion and Conclusion

Our case studies of the Tay in Quang Lang and Dao in Tan Dan confirm that marketization has advanced well in Vietnam's uplands. Since 1986, local people have shifted from a semi-subsistence to a market-oriented agricultural economy, combined with small trade and hired services. There are similarities and differences in the process of agricultural transformation between the two communities, as evidenced by local people's varying experiences and challenges. When market production commenced, the biggest constraint

6) Kinh or Viet people form the majority in Vietnam.

was limited natural resources. For the Tay, natural conditions of the valley did not allow for expansion of paddy fields, and as the population increased the land tenure of households became more constricted. The Dao, meanwhile, could use only 18 percent of the forestland instead of freely practicing shifting cultivation as they had done before 1968 given the state's forest protection and management policies. As a result, more than thirty years after the reforms, the economic structure of the majority of Tay and Dao households in our two study sites still consisted of small-scale agricultural and forestry production, combined with animal husbandry, petty trading, and hired services. In Quang Lang commune, each household had on average only 1,100 m^2 of farmland and 2.03 ha of forestland for production. The output was also low, averaging 1,000 kg of rice, 600 kg of chilies, and several hundred kilograms of fruit per household per year. In Tan Dan, on average each household had 1,615 m^2 of farmland, 2,100 m^2 of cropland, and 2.2 ha of forestland. Each year income from agriculture, augmented by income from forestry, was just enough to meet the food needs of the family. In these communities, we see the limits on marketization imposed by the landscape and other natural capital factors.

To meet the demands of the market, uplanders in both communes have had to invest in new production systems and improve their production processes. Many of these new production projects have been unsuccessful due to a lack of knowledge and skills and the fact that the products do not sell well in the market. In Quang Lang, since 2000 local farmers have tried many crops, ranging from watermelons to potatoes and chilies. In Tan Dan, since 1993 people have been continuously searching for new suitable industrial crops and converting their land for such crops, including eucalyptus, Aquilaria, cinnamon, bamboo, and purple morinda. However, none of these crops have been successful.

Field surveys in the two communes show that when local people start producing agricultural products for sale in the market, many do not possess the required skills and knowledge (on inputs such as source materials, plants, and seedlings as well as product outputs). Many also lack the land required to turn around production and diversify crops, ensuring that there is always a source of income for the family and preventing the risk of crop failure and price depreciation. Most of the farmers' social networks are in the villages. The farmers thus have few opportunities for expanding their relationships with outsiders to gain new production knowledge or information about storing, transporting, and trading agricultural products.

Meanwhile, the local government program for technical assistance and agricultural knowledge is known to be inadequate and ineffective (Henin 2002, 18). According to local people, government officers do not communicate technical knowledge well, while seedlings are not planted in a systematic way as part of a long-term strategy. There is also a gap caused by the loss of government advice and support in extension services

such as fertilizer and pesticide use (Lee *et al.* 2010; Phuc To *et al.* 2016, 178). While the local government's extension projects in the two communes introduce new crops, they do not provide support in product marketing; thus, no cooperatives or agricultural entrepreneurs are ready to enter into contracts with farmers. Meanwhile, credit programs sponsored by the government are unfocused and unevenly implemented; they do not reach households that are most in need of loans (Hoàng Thị Bích Loan and Đinh Phương Hoa 2016). As a result, people stop producing the crop or livestock variety promoted by the program as soon as the program ends. Upland farmers feel they have been on their own during the transformation to a market economy and have had to take risks without any support.

In both communes, in the current farming system local people are forced to use seeds, fertilizers, and pesticides purchased at very high prices in order to increase crop productivity and protect crops from pests. Quang Lang residents spoke about the high price of potato seeds and the amount of pesticides they had to use when growing chilies. Similarly, Tan Dan residents had to invest in inputs for growing acacia, even though this plant is harmful to the soil. The consequences of this intensification process are high production costs, environmental pollution, and overexploited land. This makes some local farmers think about returning to the crops they used to plant or finding crops that do not require additional funds to purchase inputs, similar to what Turner (2012a, 548) found among Hmong people in Lao Cai Province.

In the narratives of the local people, we often heard comments such as "earning enough to eat now is simple, but getting rich is difficult." Decollectivization and marketization have intensified production, diversified economic activities, and improved the incomes of both the Tay and Dao communities. However, there is a difference between the quantitative and qualitative outcomes of that transformation. Income from agriculture and the number of rich households in the communities have increased. However, the environment in both localities has become more polluted, and natural resources have been exhausted. The income gap between households in the two communes and between rural and urban areas is increasing.

While the agricultural transformation experiences and outcomes of the Tay and Dao in the two upland communities have much in common, there are a few differences between them due to local divergences in historical, geographical, and social factors. As the Tay people in Quang Lang reside in the valley and close to National Road No. 1, locals have long been integrating into the national political and socioeconomic programs. Moreover, the recent urbanization in nearby Dong Mo town has also impacted Quang Lang commune, and the transformation experienced by Tay people in this locality has been more comprehensive compared to that experienced by the Dao in Tan Dan. The close

proximity to the district town as well as to Hanoi and other big industrial parks in the region has also resulted in more diverse jobs and income opportunities for the Tay. More people in Quang Lang own both paddy fields and forestland, allowing them to grow more diverse crops and trees than the Dao in Tan Dan. As a result, the social gap is narrower in Quang Lang than in Tan Dan. Yet, Quang Lang faces more serious problems with environmental pollution than does Tan Dan. While the Dao people raise concerns about the effects of acacia mono-cultivation, the Tay people already suffer serious problems with water and land pollution and riverbank erosion.

Overall, the Dao in Tan Dan are facing greater challenges than the Tay in Quang Lang. As traditional forestry-based uplanders who were moved down to the valley in the sedentarization program of the 1960s and then impacted by forest management policies since the 1970s, the Dao in Tan Dan have had no choice but to rely on state ethnic minority development programs for their livelihoods. Although the Dao in Tan Dan actively participate in marketization, like ethnic people elsewhere (Sowerwine 2004; Turner 2010), they have reached a standstill owing to their limited access to natural resources, market constraints, and the ineffectiveness of ethnic minority development projects (Lê Phương 2019). To date, people in the commune have not been able to find any viable crops other than acacia. In the future, they will face difficulties if overproduction causes prices to decline or the soil to become exhausted. Potential solutions are intercropping other crops with acacia, reverting in part to some traditional practices of forest exploitation, or exploring the development of off-farm services that make use of Dao people's stock of traditional knowledge.

The key lesson of this paper is that the process of agrarian transformation in Vietnam's uplands has been complex and multilinear. It is at once shaped by the restructuring induced by marketization of the uplands and specificities in local histories and natural conditions. With varying levels of market and infrastructural access, upland farmers have found themselves in a position of having to compete as market actors without sufficient institutional support for crop identification, product development, branding, and marketing. Without a viable support structure, they lack access to market information, technologies, and a network of agricultural enterprises to potentially export their products. As such, the causes and consequences of economic and environmental impasse in these two upland localities are both locally specific and traceable to upland farmers' broader institutional and political economic disadvantages as ethnic minorities operating from the margins of the national economy and society.

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