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Shrinking agricultural land and changing livelihoods after land acquisition in Vietnam

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Abstract. The phenomenon of agricultural land shrinkage is widespread in the world. This phenomenon has many causes, of which industrialisation is one. The industrialisation process is supported in most countries by the use of land acquisition as a tool to convert land use from agricultural to non-agricultural. This research surveyed 100 land-lost households to examine the impact of farmland shrinkage on their livelihoods in Vietnam. The study focuses on three factors: employment and income, how compensation money is used, and quality of life after land loss. The results show that revenue increased by USD 1,500 per household compared to before. The rate of employment depends on age and gender. There is a drop in employment among women over 35 years old and men over 40. The use of compensation money focuses on non-farm goals, with the bright spot being an investment in education for future generations. The environment and society tend to be worse according to the subjective assessment of households, but their ultimate choice is still to enjoy life after land acquisition.

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1. Introduction

The phenomenon of shrinkage and abandonment of agricultural land is widespread in the world. In 1994, Faeth and Crosson estimated that about 10 million hectares of arable land were abandoned worldwide each year (Rickson et al., 2015). In 2019, a UN report stated that 12 million hectares, or 24 billion tonnes of fertile soil, are lost each year (Dickinson, 2019). About 20 million hectares (11%) of agricultural land in the EU are at risk of being left abandoned between 2015 and 2030 (Perpina Castillo et al., 2018). This severity is concentrated mainly in countries like Romania, France, Spain, Portugal and Poland (Perpina Castillo et al., 2018). In France, 60,000 hectares of arable land are lost each year to road construction and urban expansion (Morgan, 2013). In Bangladesh, 69,000 hectares of agricultural land are lost to shrinkage every year, and this is tending to increase. From 1976 to 2000, about 13,412 ha of agricultural land was lost, while in the period 2000–2010, more than 30,000 ha were lost (Khan, 2020). In the United States, the American Farmland Trust reported that in 20 years (1992–2012), arable land decreased by 31 million acres (approx. 12.5 million ha). This figure is equivalent to the area of the State of New York (Foodtank, 2018). In India, agricultural land is declining sharply at 30,000 hectares per year (Dabas, 2016).

Shrinkage in agricultural land has many causes. Climate change and soil erosion seem to be the leading causes of this phenomenon. Three million ha of agricultural land is lost, resulting in a loss of 30–40 tonnes/ha per year due to soil erosion (Pimentel, 2006). In addition, the change in the socio-economic structure of a country also narrows the agricultural land. Rural-to-urban migration exerts tremendous pressure on urban areas. Increasing demand for housing and non-farm work requires increased availability of land for non-agricultural purposes. Many researchers have also demonstrated that industrialisation and urbanisation are the fundamental factors leading to today's shrinking agricultural land (Quasem, 2011; FAO, 2017). The rampant construction of hydroelectric facilities or illegal mineral exploitation in mountainous areas with a cultivated area are also making agricultural land more scarce (FAO, 2019). In short, there are three leading causes of rural land shrinkage: climate change, urbanisation and industrialisation.

Vietnam is also experiencing the trend of shrinking agricultural land area for the above reasons. Vietnam's rice land area decreased from 4.47 million hectares in 2000 to 4.12 in 2018, equivalent to nearly 20,000 hectares of rice land lost each year (Ministry of Natural Resources and Environment's statistics). Vietnam also lost 73,000 hectares of arable land annually due to urbanisation. This loss affects the livelihoods of 2.5 million farmers (MoPI, 2019). The 6% reduction in rice area is mainly due to industrialisation and urbanisation. The size of land allocated to rice production is expected to decrease by nearly 10% by 2030. Meanwhile, in order to attract investment, localities have massively opened industrial zones, primarily on former agricultural land. As of 2019, Vietnam had 326 industrial parks with a total area of 95,500 thousand hectares, an increase of 59 industrial parks with 23,500 thousand hectares compared to 2013 (MoPI, 2019). However, the occupancy rate of industrial zones is low, at about 30%. Undeniably, urbanisation and industrialisation are the trends of development. Nevertheless, if developed arbitrarily and without science, there will be many consequences. One is that much land will be bought and abandoned. In 2013, there were over 2,450 organisations to fallow land to 250,000 hectares. The area of delayed projects (in Vietnam called "hanging projects") accounts for 40,000 ha (Dat, 2013). Thus, this paper will examine households' livelihood adaptation after

their agricultural land was acquired to construct a Hi-Tech Park in Hanoi, Vietnam.

2. Effect of land acquisition

2.1. In the world

The workforce in the agricultural sector has shown a sharp decline over the years. About 26.5% of the workforce was involved in agriculture globally by 2020, while that figure was 44% in 1991 (World Bank, 2020). Despite a sharp decline in the number of workers in agriculture, this sector remains the main livelihood for the vast majority of the world's population, especially in low-income countries (World Bank, 2007). Therefore, shrinkage of agricultural land with land acquisition will have many impacts on farmers. With the study of land acquisition in 28 countries, David et al. (2014) estimated that 12 million people globally would be affected by food insecurity and increased poverty rates. Meanwhile, another study conducted in 21 countries by Oberlack et al. (2016) found the causes of weak post-acquisition livelihood outcomes. These were caused by the loss of livelihood assets (land), and these farming households were marginalised in their development. Furthermore, the jobs they obtain after losing land are only temporary. From there, it can be seen that there are many problems caused by shrinking agricultural land through the use of land acquisition.

Although land acquisition for the construction of projects is in the greater public interest, it is undeniable that land acquisition creates insecurity in the interests of income groups associated with land use (Moreda, 2016). It is also a factor that increases the risk of land conflict (Hufe and Heuermann, 2017). In South Africa, local people's biggest challenge is reclaiming suitable land in suitable locations (Quan, 2006). Another African country is Ethiopia, where land acquisition undermines some of the rights of its people. These include land rights, development rights, labour rights, and prosecution rights (Dabala, 2019). Land acquisition has also been a source of political turmoil caused by farmers' agitation to oppose land acquisition projects in India (Hoda, 2018). In Cambodia and Laos, land acquisition challenges smallholder farmers' ability to access and control the land (Gironde and Peeters, 2015; CDE, 2018). In Thailand, conflict and violence resulting from land acquisition are increasing due to the provision of compensation levels that may not be sufficient to sustain the livelihood status of the affected people (CDE, 2018).

Another critical issue is that agricultural land acquisition also raises concerns about long-term food security. In a study in 11 African and 39 other countries, Muller et al. (2021) showed areas where agricultural land transactions threaten local food security, but the degree of influence differs across continents. In Eastern Europe and Latin America, land acquisition does not much affect food security as the crops here are export-oriented, whereas the opposite phenomenon is seen in Asia and Sub-Saharan Africa (Muller et al., 2021). In comparison, a study conducted in six Middle Eastern and North African countries indicated that their food security rankings are at risk of falling by 2030. This issue will soon lead to more dependence on food imports in these countries (Abdullah, 2019). Meanwhile, land acquisition also causes negative impacts on the environment and some other resources. According to a study by Quick and Woodhouse (2014) the impact of land acquisition on water resources in Sub-Saharan Africa and South-East Asia tends to be more harmful than positive. Several studies have also shown the environmental impacts of land acquisition, such as land degradation (Dheressa, 2013), loss of biodiversity (Lazarus, 2014), and greenhouse gas emissions (Kugelman and Levenstein, 2013).

It is also certain that land acquisition will change the livelihoods and lives of households that lose agricultural land. In particular, large land acquisition projects have raised concerns about the natural-resource-based livelihood activities of local people in Ghana (Tsikata and Yaro, 2014), Tanzania (Kusiluka et al., 2011) and Mozambique (Aabø and Kring, 2012). Meanwhile, in India, land acquisition bills admit that the acquisition of agricultural land affects the owner and many others' livelihoods (Singh, 2012). Compulsory land acquisition makes it difficult for farmers because fertile land is acquired, affecting the production of agricultural

products. The consequence of land acquisition in India is affecting farmers' livelihoods, as about 60% of the country's population makes a living from agriculture (Pattanayak, 2016); the land acquisition significantly reduces the income of householders who cultivate and rent land even though they try to increase income from other sources (Ghatak et al., 2012). In comparison, in China, the number of peasants whose land was acquired is over 83 million, and they find it challenging to adapt to a new life as they transition from being peasants to being urban citizens (Zhang and Lu, 2011). Unstable jobs combined with low social welfare and lack of social support are common among these households. Therefore, their long-term livelihood is unsustainable because there is no income (Guo, 2019).

2.2. In Vietnam

"Doi Moi" was the name of the economic reform in Vietnam in 1986. To fulfil this strategy, Vietnam chose to exchange land for industrialisation and urbanisation nationwide. Therefore, people, especially farming households, have to face threats to their livelihood security. Some factors considered to be the primary concern of households after land concessions are compensation, employment, income and public services (Ho and Vu, 2011; Nghi et al., 2016; Thuan et al., 2018). Land acquisition also brings both positive and negative impacts on people who have loset land in Vietnam. Some farming households benefit from this process by having enough resources from their past and making the most of the urbanisation process to obtain better livelihoods. By contrast, many households fall into unemployment, and have vulnerable and unstable livelihoods, even when they receive considerable compensation.

In Hanoi's peri-urban area, land loss positively impacts household income redistribution (Tuyen, 2014). This positive impact is due to the rapid growth of people's natural and financial capital by transforming traditional livelihoods into diversified livelihoods such as renting houses or small businesses (Suu, 2014). Income is also higher thanks to the transition to non-farm jobs, but their livelihoods still have many hidden risks. Some problems that arise after land acquisition are the conversion of labour, the decline in traditional food production, compensation money, and future risks (Nguyen et al., 2016; Minh and Kawashima, 2017). In a province adjacent to Hanoi (Hung Yen province), land acquisition has directly impacted the jobs and food security of these peasants and local people. Many households have incomes unchanged or reduced compared to the past, and this rate is mainly concentrated on households with less than 30% of agricultural land acquired. The cause of this problem is that they are afraid to change their profession, so they try to generate income on the remaining agricultural land (Hanh et al., 2013).

In some central provinces such as Nghe An, Hue and Quang Binh, although household livelihoods have recovered after losing land, many emerging problems challenge equitable and sustainable development (Ty et al., 2013; Nguyen et al., 2019; Nguyen, 2021). Specifically, ineffective compensation measures and inadequate livelihood alternatives have fuelled community resistance (Ty et al., 2013). After the land acquisition, the majority of workers over 40 years old face more difficulties in finding jobs due to a lack of skills, health, education and expertise (Phuc et al., 2017). In comparison, people who lost land in Ho Chi Minh City seem to have a higher post-loss quality life than in other places; because it is the largest city in Vietnam, people have easier access to all types of non-agricultural jobs. Concurrently, compensation packages are greater, so they better support people in regenerating their lives more quickly (Minh and Kawashima, 2017).

3. Methodology

3.1. Research area

Hanoi is the Socialist Republic of Vietnam's capital and is ranked as one of the two particular urban types. In 2008, Hanoi's area expanded after merging some neighbouring localities and ranked in the world's top 17 capitals by area. Hanoi has mountains, hills, and a topography that gradually declines from north to south, and from west to east,

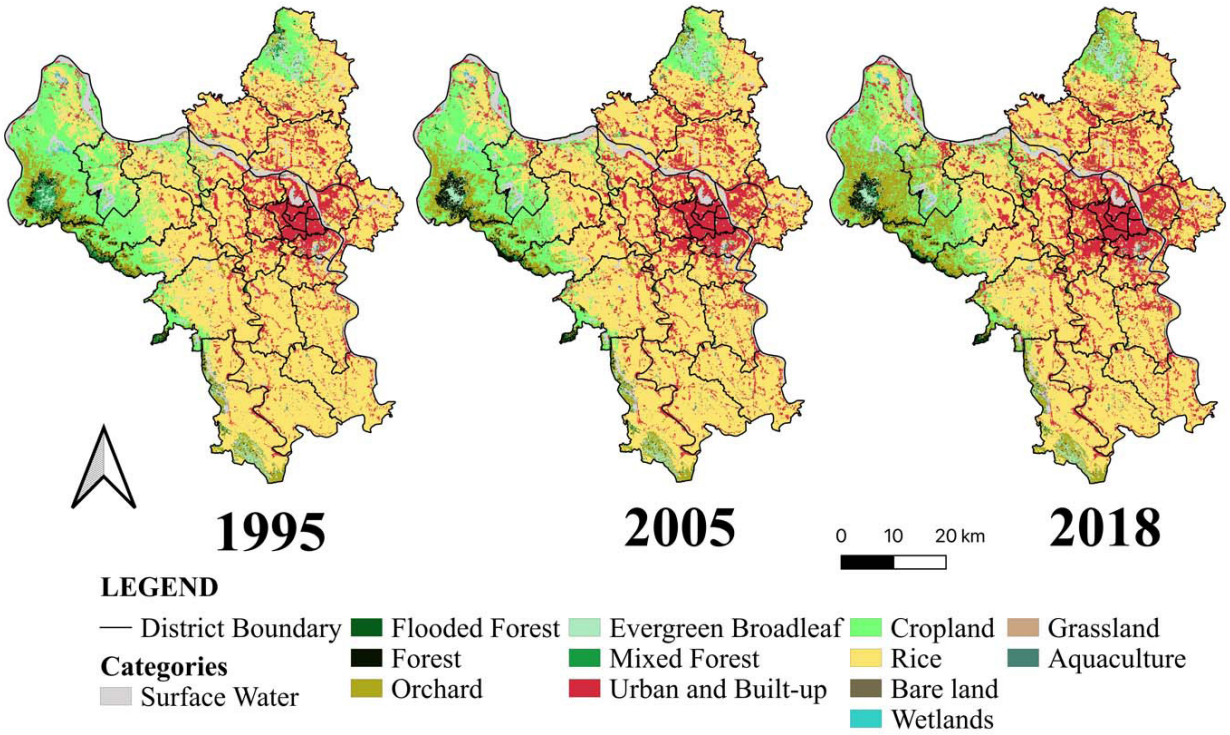

Fig. 1. Land Cover in Hanoi

in which the delta accounts for the natural area of the city (Fig. 1). This locality's land-use structure is still primarily agricultural (accounting for 58.3%), followed by 40% non-agricultural (Statistics in 2018). The growth rate of non-agricultural land area in Hanoi is also assessed to be high in Vietnam. Over nearly 20 years, from 2000 to 2018, the area of non-agricultural land increased by nearly 34,000 hectares. Urban and construction land expanded on all four sides of the city centre as seen in Fig. 1. The development has been seen more clearly in the last ten years since the expansion of the capital (2005–18). The trend of land conversion also comes mainly from agricultural land and, in particular, rice land.

As the country's leading cultural and political centre, Hanoi is home to critical industrial zones and has made many outstanding contributions to Vietnam's economy. By the end of 2018, Hanoi's industrial zones attracted 629 Foreign Direct Investment (FDI) projects with USD 5.4 billion in foreign investment and VND 13.386 billion (USD 579 million) in domestic investment (Kien, 2018). Thanks to that, the industrial zones have relieved much pressure on employment issues for people living in the capital. Each hectare of land in the industrial zone has created new jobs for over 100 employees and paid over VND 1.5 billion (USD 64,900) to the budget (Chau, 2013). Hoa Lac Hi-Tech Park is one of the prominent projects in Hanoi.

Hoa Lac Hi-Tech Park is located in the Hoa Lac satellite town and in the west of Hanoi (Fig. 2). This project is the National Centre for Advanced Technology Research, Development, and Application. According to the plan, this project has an area of 1,586 ha and was established in 1998. Of the land for the project, 94.9% is agricultural land with mainly annual cropland (including paddy land). This data can be verified through Fig. 2 with the processed satellite image. Currently, the project has achieved some outstanding achievements, such as attracting 94 projects with a total registered investment capital of about VND 89,300 billion (USD 3.8 billion), of which, 52 projects are in operation. About 22,000 people are currently studying and working on this project, of which there are nearly 9,000 students and about 13,000 workers. However, the project still has many shortcomings. Despite 22 years of establishment and development, the Hi-Tech Park infrastructure is still disordered, unlike the vision of a Hi-Tech park with an entire infrastructure for education, healthcare, and other

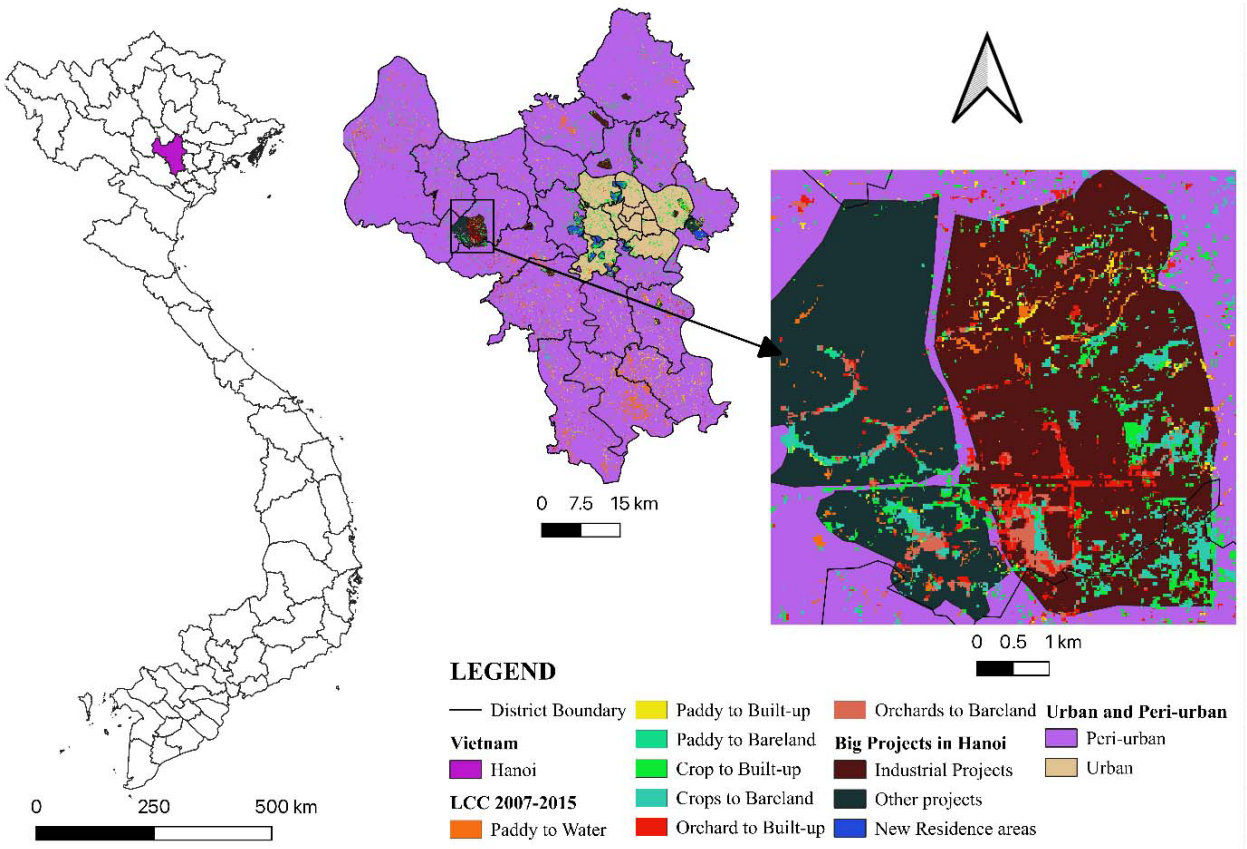

Fig. 2. Location of Hoa Lac Hi-Tech Park

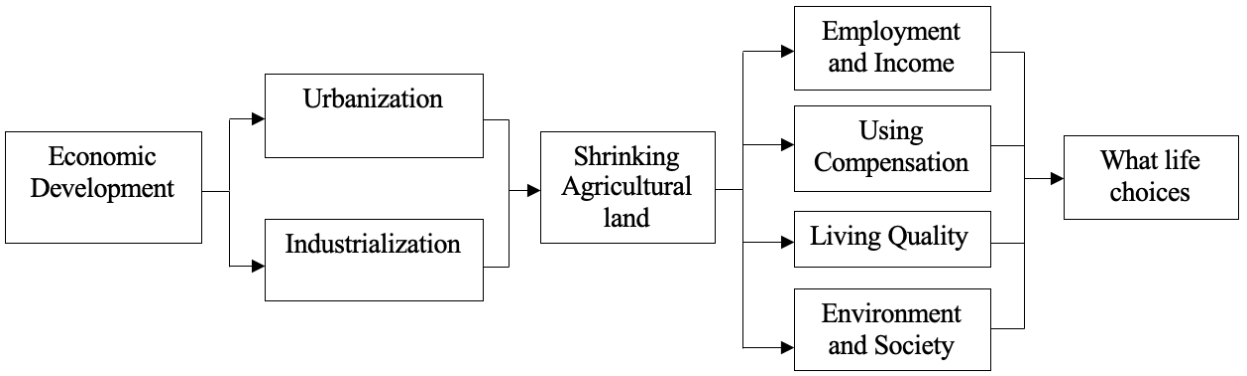

Fig. 3. Research Model

necessary institutions. In particular, over the past 20 years, the project still has not had clean water to use. This problem reduces the attractiveness to foreign businesses.

3.2. Data and research models

Based on the literature review, the author has created a research model for this article (Fig. 3). The general goal of building the Hoa Lac Hi-Tech Park project was to develop the country's economy. It is one of the projects aimed at urbanisation and industrialisation to develop the Hoa Lac satellite urban area. The shrinkage in agricultural land is a result of this process. The project is planned with 1,586 ha, of which 96.2% of the converted land is agricultural land. This data has also been verified by the spatial distribution of land transition factors in Fig. 2. The loss of agricultural land has a significant impact on many factors in the lives of landless households. However, in this article's framework,

the author examines employment status, income, how compensation is used, quality of life, and other environmental and social issues according to these households' assessment and comments. The author checks the assessment results to determine whether life is preferable before or after land loss for the households who lose land.

A survey was conducted among 100 households who had lost land to project construction. Households participating in the survey were selected through two methods – "strategies" and "snowball". According to the plan, the project acquired land in five communes of Thach That district, but during the fieldwork, the project had only been implemented in three communes: Thach Hoa, Tan Xa and Ha Bang. Based on the geographical location and the number of households losing land, the stratification method was applied to select Ha Bang commune, the locality with the most significant number of households losing land. Five interviews were also conducted with the local authorities at all levels in the study area. These interviews were conducted used a semi-structured and in-depth approach. With the consultation and survey of these two types of subjects, the author has a fairer view of the research results. Map data were also collected from two organisations in Japan and Thailand, namely Advanced Land Observing Satellite (ALOS) and the Asian Disaster Preparedness Centre (ADPC). The overall accuracy of these maps being above 90% indicates a high degree of confidence in the map data used.

4. Results and discussion

4.1. Employment and income

According to the data provided by the Land Fund Development Centre of Thach That District, Hanoi, by 2019, the Hoa Lac Hi-Tech Park project had recovered 1,036 hectares out of a total of 1,586 hectares of 8,025 households, of which, 7,383 families had received compensation and support from the State, and the remaining 642 families had not received payment. These lacks of payment have led to lawsuits related to land compensation at the project construction site. Among the acquired land areas, agricultural land accounts for 94.9% (983.5 ha). Table 1 shows data related to the area of farmland lost, population status, labour, and income of surveyed households. The results indicate that these households lost more than 50% of their cultivated land, and the population increased by eight people after several years in these households. The number of employed workers did not show a change, but there was a breakthrough in income. The average revenue per household increased by over USD 1,500 after losing land.

Agricultural land is a means of production, helping farmers generate income, – a condition for them to survive (Maletta, 2014). Labourers whose land is acquired do not have land to participate in production, and lose their rights. It is also difficult for them to change jobs after acquiring land (Zhang

Table 1. General information on labour and income of surveyed households

No	Categories	Unit	Before land-loss	After land-loss	Changes
1	Surveyed households	Household	100		
2	Area of farmland	m^2	161,696	76,573	-85,123
3	Population	Person	450	462	+12
4	Population of working age	Person	341	349	+8
5	Employment with job	Person	286	286	0
6	Average income per household	USD/household	4,567.4	6,081.5	+1,514.1

Source: Household's survey, 2020

and Lu, 2011). Part of this difficulty is because they are accustomed to farming. Meanwhile, they are also unskilled and have no higher education. To get jobs, these farmers have to compete with many workers trained at universities, colleges, and other vocational schools. This issue is a major challenge for them in finding a new job after land loss.

After an interview with an enterprise operating in Hoa Lac Hi-Tech Park, along with a review of recruitment notices from other firms, the author divides the age and gender of the employment seekers into two groups in Fig. 4. The data from this figure answer the question, "What are the jobs of family members before and after land acquisition?" This question is integrated into the general information section of the surveyed households. The survey interviewed households that have lost their land since 2013, and it measures change over five years. It is undeniable that there is a natural change in the labour force as age increases, but this number is insignificant compared to the total number of surveyed households' workers (an increase of eight persons in Table 1).

According to the Vietnam General Confederation of Labour, workers' average age in enterprises is 31.2. There are not many job opportunities for workers after the age of 35. In particular, FDI enterprises only employ workers aged 18–35. This division is due to several reasons, as follows. At an older age, adaptability to work decreases and health deteriorates, so it is difficult to ask these workers to work overtime to increase labour productivity. "The rejection of workers after the age of 35 is fundamental, and this was discovered by the Vietnam General Confederation of Labour a few years ago. The eliminated workers over 35 years old, especially female workers, are mainly workers doing simple jobs." (Mr Q, Deputy Head of Labour Relations Department). Meanwhile, businesses also

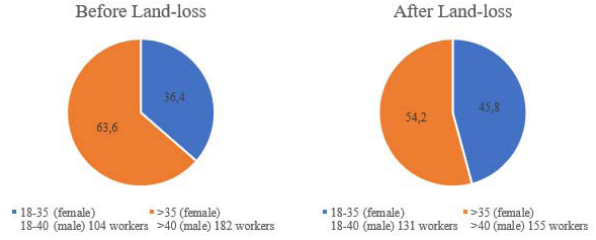

Fig. 4. Division of employed labour by age and sex
Source: Household's survey, 2020

have to pay for this group of social insurance costs by seniority and age. As a result, many employers find ways to circumvent the law to remove older workers from the business. This situation makes it often difficult for workers over 35 to find work in the industrial sector. They often have to choose freelance jobs to become informal workers. This fact shows that the number of employed workers in group 2 (women over 35 and men over 40) decreased by 27 workers (equivalent to nearly 10%), whereas the lower-age employed workers showed growth in the research area. This situation requires local authorities to take adequate measures to solve and support jobs for the workers in group 2.

Shrinkage of agricultural land also changes the employment structure. Survey data from Table 2 shows that the number of households losing their land but still working in the agricultural sector is only about 10%. The majority of families (89%) have converted to non-agricultural occupations. The rate of retired people is also high at 64%, with most being workers over 40. To create jobs for land-lost households, within the five years from 2014 to 2018, the People's Committee of Thach That District organised some job fairs. The aim is that the local government provides job search opportunities for workers by allowing them to meet businesses at these fairs. The number of new jobs created in the past five years is 2,380 in the whole district. In the process of compensation and support for people to stabilise their life after loss of land, the locality has also facilitated land-expropriated households working in factories in the Hi-Tech park and other industrial zones in the area. However, in practice, due to their low educational attainment (37% of surveyed households graduated from secondary school) and being beyond the recruitment age, these people have difficulty finding new jobs, especially heads of households. Only about 37% of the labourers whose land was expropriated have a new job – a relatively modest figure (Data of the People's Committee of Thach That District).

In order to help land-lost people find a new job, the local government has opened many vocational training classes. In 2014–18, the district opened 149 courses to train non-agricultural occupations for households across the district. However, people are not aware of vocational training's importance to

Table 2. Choice of jobs after land loss

No	Categories	Frequency	Households	Percent
1	Continue agricultural production on the remaining land	9	100	9%
2	Continue farm production and also work in another sector	1	100	1%
3	Changing job	89	100	89%
4	Retire because of beyond working age	64	100	64%

Source: Household's survey, 2020

employability relative to labour market requirements. They choose a career based on crowd psychology and attend vocational training classes merely to receive more support from the State. Thus, the training results have not brought excellent jobs.

4.2. Using compensation

Because the locality has no agricultural land funds for compensation, when the State recovers land to build Hoa Lac Hi-Tech Park, compensation and support are offered as cash. This source of compensation and assistance from the State also provides the affected households an additional funding source for their expenses. In addition, 89% of the labour force moved to non-agricultural jobs, causing household income to increase. According to the survey results, 57% of the households chose to use the compensation money for home repairs (Table 3). A bright spot in the use of compensation money is that households paid more attention to their children's education (35%). It also explains why young workers have more jobs after losing land: twenty-three percent of households marked other options among the questionnaire's factors, namely, dividing money between children and daily living expenses. Notably, many households still have not received compensation money even though their land has been taken.

Since agricultural land is shrinking, households do not invest in agricultural equipment, which is evident from Table 3. To offer a more significant impact on agricultural land loss, the author has investigated more in-depth household items to investigate the surveyed households' agricultural production and consumption purposes (Table 4). Agricultural materials decreased by one third after agricultural land was acquired. In particular, the number of buffaloes and cows showed the most

Table 3. Household expenditures after receiving compensation

No	Categories	Frequency	Households	Percent
1	Repairing house	57	100	57%
2	Buying motorbike(s)	14	100	14%
3	Investing in agricultural machines	0	100	0%
4	Doing small business	3	100	3%
5	Building an apartment for rent	0	100	0%
6	Depositing all money in the bank for interest	1	100	1%
7	After spending on some activities as specified, the remaining money being deposited in the bank for interest	10	100	10%
8	Paying debts	8	100	8%
9	Investment in children's education	35	100	35%
10	Others	23	100	23%

Source: Household's survey, 2020

Table 4. Household items of surveyed households

	Categories	Before land loss	After land loss	Change
I. Means of production	1. Tractor	2	1	-1
	2. Thresher	0	0	0
	3. Cattle	119	41	-78
	4. Sprayer	4	1	-3
	5. Hoes and shovels	407	355	-52
	Total	532	398	-134
II. Family Assets	6. Telephone	24	6	-18
	7. Mobile phone	201	348	+147
	8. Motorbike	147	246	+99
	9. (Electric) bike	1	17	+16
	10. TV	102	144	+42
	11. Computer/laptop	13	48	+35
	12. Karaoke machine	1	2	+1
	13. Washing machine	36	80	+44
	14. Fridge	76	96	+20
	15. Gas stove	112	124	+12
	16. Hot shower	58	147	+89
	17. Air-condition	31	138	+107
	Total	802	1,396	+594

Source: Household's survey, 2020

substantial reduction. Meanwhile, other household items were four times the number of production tools. The immense growth was mobile phones and air conditioners. These are the essential items of humans in the digital age and in light of global warming. Motorcycles were also among the most frequently purchased items by households. Because of the transition to non-agricultural occupations, households have to work in more remote locations. Therefore, motorbikes are a popular means of supporting people in their mobility, as public transport in rural Vietnam is undeveloped.

In general, the use of compensation and support money from households does not show a pattern of economic viability. The proportion of households interested in investing in production and business and their children's education is not low; however, the investment amount still accounts for a modest proportion compared to the amount used for construction, home improvement, shopping for appliances, and daily expenses. Although these are essential items, they will lead to an unsustainable situation in people's long life in terms of society. With the amount of compensation, households can develop production and business or learn a profession to create a stable income. From there, life will be more secure after the reduction in agricultural land area. However, most households, when receiving compensation money, used it for different purposes such as purchasing property and repairing houses. Thus, after losing land, most of these households' houses are usually more spacious and fully equipped.

4.3. Quality of life

The World Health Organisation (WHO) has defined Quality of Life as: *"an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns"* (WHO,

1998). From this definition, quality of life is only a subjective assessment by people. Factors such as employment, income, environment and society serve as the criteria for evaluating this subjectivity. In general, households whose agricultural land was reduced to build the Hoa Lac Hi-Tech Park have a higher quality of life than before (Fig. 5). The number of households with savings increased by nearly 20%. In particular, the number of households with more comfortable lives than before increased by 15%. The reason can be mentioned that households' income increased sharply after losing their land. When many resources were focused on agricultural production, agricultural income did not meet living costs for 96% of surveyed households. Thus, the shrinking of agricultural land seems to create an impetus for these households to be bolder in converting their family livelihoods for a better life.

The households' quality of life has shown an improvement, so no household has a one-way negative perspective on their living area's industrialisation and urbanisation. Seventy-eight percent said that although the Hoa Lac Hi-Tech Park project's construction helps them increase their income and create non-agricultural jobs, it also brings many challenges to their life for the future. The most visible and apparent is the effect on the environment. Eighty percent of households said that the construction of the project pollutes the environment. Usable water is contaminated, along with the increase in dust in their daily lives. The Hoa Lac Hi-Tech Park project also attracts many labourers from all over to live and work. This means that social security is no longer guaranteed, since these workers and landless households engage into socially deviant behaviour. Losing land provides many households more free time, and combined with money from land compensation, people participate in gambling more frequently (which is prohibited in Vietnam).

Although the environment and society tend to deteriorate according to the subjective assessment of households, most families are satisfied with their post-loss life. Life is less strenuous now than before, they said. Income is higher and more stable compared to farming. Especially, thanks to more investment in the young generation, these young workers easily find jobs in the Hi-Tech Park. The desire of these households is to have stable jobs and high wages, and to work close to home, and so this wish has come true. From the above analysis, it can be said that income and employment are critical factors for the living choices of households whose land was expropriated.

In general, land acquisition to serve socio-economic development has changed the life of the people whose land was acquired. The home is spacious, and the property is bought more from the compensation and support money. This

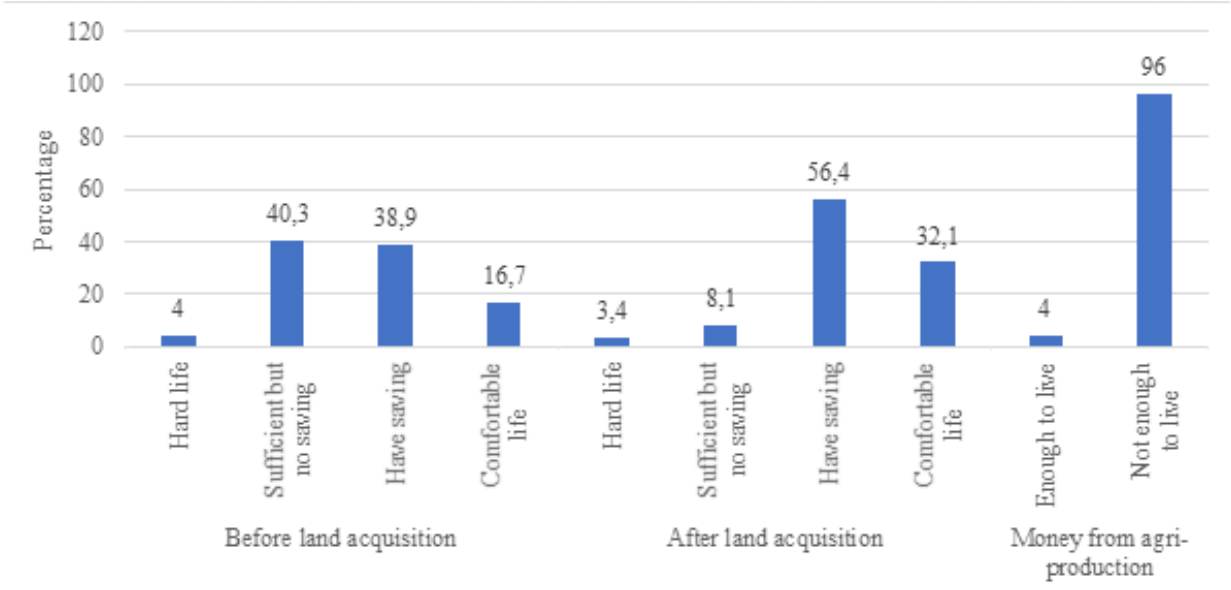

Fig. 5. Quality of life of surveyed households
Source: Household's survey, 2020

means a rotation from financial capital to physical capital. However, material capital is mainly assets for family activities, not means of production to generate income. Only a tiny proportion of people use the financial capital for non-agricultural investment and business purposes to ensure their future income. Therefore, land acquisition has both positive and negative impacts on households in the suburbs of Hanoi. On the whole, the total number of employed workers did not change compared to the past. The land acquisition also creates a great incentive for these landless households to convert jobs to non-agricultural jobs. Along with that is a large amount of compensation to help them buy more new equipment in the house. Although the environment has deteriorated according to the subjective assessment of the surveyed households, they are still evaluating their present life more favourably compared to the previous one.

5. Conclusion

The shrinkage in agricultural land area has many reasons, but in the framework of this article, the main reasons mentioned are urbanisation and industrialisation. Intensive economic development also increases the need to convert agricultural land to non-agricultural land. A popular form of this conversion is the construction of industrial zones on agricultural land through the land acquisition tool. Land acquisition directly impacts farmers' jobs and life in the immediate and long-term perspective. Therefore, it requires that local authorities' measures and the affected people adapt as quickly as possible to post-acquisition life. This article surveyed 100 households giving up land to carry out the Hoa Lac Hi-Tech Park project in Hanoi. The results found both positive and negative signs.

This research shows that the number of employed workers has decreased for women over 35 and men over 40. In contrast, more younger workers are employed thanks to the off-farm jobs created when more enterprises operate in the Hi-Tech Park. The employment structure has changed drastically and shifted towards the non-agricultural direction, so the income of households after land acquisition shows a remarkable growth, with more than USD 1,500 per household. Meanwhile, households tend to use the compensation money for non-profit purposes such as home repairs and purchasing necessary household equipment. However, a highlight is that these households spend a substantial part of their earnings on their children's education. As for the subjective assessment of the environmental and social status, these households evaluated the environmental situation in the areas as declining. Although negative impacts of land acquisition for the Hoa Lac Hi-Tech Park project still exist, households that lost land for this project still choose their current life compared to that of before.

The results of this study provide an opportunity to predict the benefits of future land acquisition projects in Vietnam and to anticipate possible courses of action. Such projects would cause less harm to the local population if law enforcement agencies and the local government in the area whose land is acquired established a support fund to create jobs and stabilise the livelihoods of people whose land was acquired. This fund could be set up from a portion of the land-use levies, and land taxes paid to the State budget of the enterprises (in the area of the acquired land) when using the land. This can also be seen as a form of sharing the profits that businesses get from the use of previous users' land. In addition, State support policies for people outside current traditionally established recruitment age would also help more people engage in economically viable activities and improve their living conditions. A practical solution for the State to support these households is that the State needs to set aside a land fund for renting services to land-expropriated people to organise business activities for the elderly. In other words, the local government needs to promote economic restructuring to create many new jobs. In particular, localities need to promote the development of "handicraft industries" and consider it a breakthrough to shift economic structure and create jobs.

On the other hand, people whose land is acquired could benefit from gradually restoring and developing traditional occupations in rural areas. Since it is usually the older population that tends to stay unemployed after land acquisition projects, their expertise and skills could be used in revising traditional crafts. The advantage of using many local labourers of the craft villages will help solve the

surplus agricultural labour due to urbanisation. In addition, farmers who still have land could boldly accumulate and exchange their land or transfer their land from households with little agricultural land to some specialised agricultural production. Money from the State's land compensation can support households in achieving this. Small and medium farm economic development is also an effective solution to deal with redundant workers who cannot apply for jobs in companies and industrial zones.

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