

Original Article

# Industrial Labours in Ethnic Minority and Mountainous Regions of Vietnam – Situation and Solutions in a Training Innovation Context

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**Abstract** - The mountainous region of Vietnam has great potential for developing the energy industry, agro-forestry product processing industry, mining and metallurgy industry. To promote the development of industry in ethnic minorities and mountainous areas of the country, in recent years, Vietnam has been choosing to follow the path of industrialization development, which poses urgent requirements on the quality and skills of the labour force. The Northern Ethnic Minority and Central Highlands regions of Vietnam are two regions with a lower percentage of trained workers compared to other regions. However, the labour force in the industry in the ethnic minority and mountainous areas is constantly increasing and has many fluctuations. The labour force tends to decrease the proportion of women and increase the proportion of men. Industrial workers' educational and technical qualifications are lower than the national average and many other regions. To increase the quantity, improve the quality and effectively use the industrial labour force, these regions need to carry out synchronous solutions such as stabilizing the quantity, improving the quality of industrial training, and solutions to develop the industrial workforce associated with developing socio-economic, labour market adjustment solutions will contribute to the regulation of labour, use of labour with the right professional capacity, improve labour productivity, stimulate production development.

**Keywords** - Industrial labour, Ethnic minority and mountainous areas, Raining solutions, Innovation in education and training.

## I. INTRODUCTION

Ethnic minority and mountainous areas of Vietnam (EMs and mountainous areas) have been and continue to be the "poor core area". Poverty and near-poor households in EMs and mountainous areas, especially poverty in rural areas, are still the biggest challenges today. As of the end of 2018, there were 720,731 EMs poor households, accounting for 55.27% of the total number of poor households in the

country (while the percentage of the ethnic minority population accounts for 14.6% of the country's population), there are still many EM groups with a poverty rate of over 40%. The rich-poor gap between regions and population groups has not been narrowed, especially in EM areas. These mountainous regions have few favourable conditions, especially for industry and commodity exchange. From these difficulties arises the problem of effective implementation of sustainable poverty reduction solutions associated with sustainable poverty reduction, improving the quality of human resources, especially industrial workers.

This article presents some solutions to the above problem by analyzing the characteristics of industrial labour sources and using industrial workers in EMs and mountainous areas, thereby proposing solutions to train industrial labourers to meet the needs of industrial workers in technological education innovation context.

## II. LITERATURE REVIEW

The ethnic minority and mountainous areas of the countries are mostly sparsely populated, with low levels of education and skills. Industry in ethnic minority and mountainous areas mainly focuses on mining, hydroelectricity, wood processing industry, agricultural product processing and medicinal herbs, and some regions develop light industries using many unskilled workers.

The United Nations Conference on Sustainable Development (UNCSD) or Rio+ 20 was held for the third time in 2012, focusing on two themes in sustainable development: a green economy and an institutional framework for mountainous areas. Rio+20 reports show that to develop mountainous areas sustainably, and we need the cooperation of many organizations global level, regional level, national level, and local level. States still are the most important institutions in creating and enforcing rules and regulations for the use and management of mountain regions. While few states have specific legal instruments or



administrative units for mountains, their wide-ranging sectorial policies have tremendous impacts on mountain regions. Besides trade liberalization, privatization, agriculture and forest policies, energy development, cultural minority policies, tourism development; life support policies, especially the development of the education and training system, the improvement of educational attainment and vocational skills are among the important policies to help ethnic minorities in the region adapt and develop sustainably.

DO, Ha Thi Hai et al. (2020) uses secondary data from 2014 to 2018 collected through Vietnam Household Living Standards Surveys (VHLSS) to analyze the impact of vocational training on wages of ethnic minority areas in Vietnam; this research creates ethnic area variables. The research employs the Heckman Sample Selection Model to estimate the impact of vocation training on labourers' wages in ethnic minority areas. The results show that vocational training plays a crucial role in improving the wages of ethnic minorities and has a positive impact. On the other hand, it is possible that the content of vocational training in ethnic minority areas has not met the market demand, which leads to labourers not willingly promoting the effectiveness of training programs. Thus, with the characteristics of ethnic minority areas: difficult natural conditions and low socio-economic development levels, vocational training for labourers associated with regional practices will be more effective.

The research also shows some main shortcomings for job training in EMs and mountainous areas: 1. Qualifications of ethnic minorities are uneven; 2. Common thinking in ethnic minorities is that vocational training is time-consuming; taking the course would cause them to lose their current job; 3. In many localities, the task of mobilizing ethnic minorities to learn vocational skills, to support job search, to guide on training loans and product sales support has not been the focus; therefore, ethnic minorities have not realized the benefits of vocational training and hence, are not actively participating in the training programs; 4. Local authorities at all levels and responsible agencies are not paying enough attention to vocational training for ethnic minorities. Therefore, there is a lack of vocational training integration in local socio-economic development policies and plans. Based on the findings, some recommendations to ethnic minority labours, enterprises and the Government are proposed to encourage participation in vocational training to promote the efficiency of the labour market.

Peter Chaudhry (2012) also finds the same factors driving the poorer participation of EMs in China in education include household financial restraints, problems of recruiting and retaining staff in remote areas, and in some cases, a lack of ability in the majority language on the part of ethnic minority children, with little flexibility in the education system for bilingual education for minorities in the early

years of schooling. Less urbanized EMs groups also have less access to important safety nets, such as unemployment, pension, or health insurance, as good quality insurance is closely tied to the urban residence.

China's mountainous region has great potential for development in the energy industry development; agro-forestry product processing industry, mining, and metallurgy. To promote the development of industry in EMs and mountainous areas of the country, in recent years, China has been choosing to follow a development path that promotes interaction between industrialization and computerization. This will help accelerate industrial upgrading and reconstruction and place urgent requirements on the quality and skills of human resources. To develop industry in EMs and mountainous areas, China also focuses on developing human resources, including high-quality human resources for the whole country and the region itself. Accordingly, human resource development measures have also been developed and implemented by the Chinese government, focusing on renovating higher education, training talents, and promoting the training of skilled workers in line with market and industry requirements (Ta Ba Hung et al., 2010).

In a study on ethnic minorities in China, Hasmath et al. (2012) analysed the wage disparity between ethnic minorities and Han Chinese in China from 1989–to 2006 through Interviews with minority actors and observations of various enterprises. The study shows that the disparity of wages has created labour market instability and disadvantage for ethnic minority groups, and some inadequacies of government policies create discrimination against ethnic minorities: While Han-minority wage differentials estimated with regression analysis show little evidence for minority disadvantages, both quantitative and qualitative evidence looking at the process of minority labour acquisition and retention finds that minorities are disadvantaged in the job search process. The article assesses potential factors for disadvantages in China's labour market, such as discrimination, social network capital, and working culture. Therefore, the authors issue recommendations to the Government to improve wages for ethnic minorities, contributing to the improvement of the labour market.

Wymann von Dach et al. (2016) showed experiences in developing economies in mountainous areas of some countries: (i) Formalizing the artisanal and small-scale mining sector supported by an enabling legal framework; (ii) Spatial planning of investments in hydro-power requires an initial comparison of all projects in the planning phase, in terms of socioecological costs and macroeconomic benefits of potential locations and contexts; and especially resettlement of hydro-power projects and cumulative impacts of hydro-power on the national and river-basin levels; (iii) Cooperative forms of inclusive entrepreneurial initiatives, linking training and small-scale rural industries, are likely to trigger a more comprehensive economic development. Authors also

Kenichi Ueno et al. (2020) provides insights from a survey of education programs for sustainable mountain development and comment on the findings from the perspective of the United Nations Educational, Scientific and Cultural Organization's Education for Sustainable Development for 2030 framework. Twenty-eight programs implemented by universities, research institutes, and nonprofit organizations fall into 6 categories: traditional university courses to summer schools, university collaborations, distance education, NPO-run skills-focused schools, and research facilities or observatories. Curriculum development toward education programs for sustainable mountain development has seen considerable progress, even if single-discipline and single-topic programs continue to be widespread. It has embraced fieldwork to offer learners hands-on experience and, increasingly, to work with local stakeholders in problem-oriented settings. Key elements of the ESD for 2030 framework are found, including concern for transformative learning and critical reflection on the structural causes of unsustainability.

**III. METHODOLOGY**

**A. Data and collecting methods**

Desk research refers to secondary data to synthesize, compare, and evaluate the contents and experiences of developing industrial labours in the EMs and mountainous areas.

Secondary data is collected from many resources: 1. Reports of the national and international organization, government on related problems in developing industry in ethnic minority and mountainous areas; 2. Results of project-related problems in developing industry in ethnic minority and mountainous areas; 3. Previous theoretical and empirical research, articles in developing industry in ethnic minority and mountainous areas.

Primary data is collected from questionnaires with 119 enterprise managers in EMs and mountainous areas.

**a) Data processing**

Excel was used to synthesize and analyze the data.

**Sample characteristics**

**Table 1. Sample characteristics**

Item	Frequency	Percentage
<b>Legal type of Enterprise</b>	<b>119</b>	<b>100%</b>
Co., Ltd	56	47,1%
Joint Stock Company	29	24,4%
State-owned enterprise	5	4,2%
Private enterprise	23	19,3%
Partnerships	2	1,7%

Joint venture	4	3,4%
<b>Business areas</b>	<b>119</b>	<b>100%</b>
Mining	6	5,0%
Processing, manufacturing	99	83,2%
Production & PP of electricity, gas, hot water, steam and air-conditioning	6	5,0%
Water supply; waste and wastewater management, and treatment activities	8	6,7%

Source: Research results

**V. RESULTS AND DISCUSSIONS**

**A. Actual Situation of industrial labour resources in ethnic minority and mountainous areas**

**Table 2. Characteristics of labour and employment by region in 2020**

Area	Share in the labor force	Labor force participation rate	Proportion of employed people	Employment to population ratio
Northern Midlands and Mountains	14.0	83.6	14.2	82.6
Red river delta	22.2	71.2	22.3	70.8
North Central-Central region	21.1	76.7	21.0	73.6
Centre Highlands	6.3	81.9	6.3	81.2
Southeast region	18.0	69.3	18.2	68.6
Mekong Delta	18.4	72.6	18.0	69.5
<b>Country</b>	<b>100.0</b>	<b>74.4</b>	<b>100.0</b>	<b>76.9</b>

Source: General Statistics Office of Vietnam, Labor force Survey 2020

Due to the sparse population and small total labour force, both the EM and mountainous areas are concentrated in the Northern Midlands, Mountains, and Central Highlands. The employed population to population over 15 years old is higher than in other regions. (Table 2).

However, the labour force in EMs and mountainous areas is mainly engaged in agroforestry work, the proportion of workers in industry, construction and services is much lower than in other regions. In the two regions with a high concentration of EMs and mountainous provinces in the Northern Midlands and Mountains and Central Highlands, in

2011, there were only 12.1% and 7% of workers in industry and construction; by 2020, the proportion of industrial and construction workers in the Central Highlands are increased steadily but slowly, accounting for only 22% and 8% of the total labour force of the region.

**Table 3. Proportion of industrial workers in the labor structure of regions in the period 2011 – 2020 (Unit: %)**

Area	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Northern Midlands and Mountains	12,1	12,1	12,2	12	13,5	15,4	17,4	18,7	20,9	<b>22</b>
Red river delta	30,6	29,8	29,8	31	29	32,6	35,7	36	39,8	<b>40</b>
North Central - Central region	17	16,9	16,9	17,3	18,4	20,6	22	23,2	25,8	<b>28</b>
Centre Highlands	7	8,2	7,5	7,1	6,4	7,1	6,5	6,5	7,8	<b>8</b>
Southeast region	33	33,5	34,2	36,7	39,2	39,6	39	38,1	44,1	<b>44</b>
Mekong Delta	<b>16,8</b>	<b>16,6</b>	<b>17</b>	<b>16,7</b>	<b>18,6</b>	<b>19,9</b>	<b>21,6</b>	<b>22,7</b>	<b>24,0</b>	<b>26</b>

Source: General Statistics Office of Vietnam, Labor force Survey 2011-2020

The ratio of highly trained workers in the Northern Midlands and Mountains and Central Highlands is much lower than in others and only higher than Mekong Delta. In 2020 Ratio of Colleges and above trained workers in Northern Midlands and Mountains and Central Highlands are only 11% and 9,7% (Table 4).

According to the survey results on the socio-economic Situation of 53 ethnic minorities (GSO&CEMA, 2015), the Current Situation in the field of education - training and the quality of human resources still has a number of outstanding issues:

The rate of ethnic minorities going to school at the right age is still low: Currently, about 30% of ethnic minority students have not been able to attend school at the right age (including primary, middle and high school); The average attendance rate at upper secondary school for ethnic minorities is 32.3%. In some ethnic groups such as Brau, Xtieng, Gia Rai, Ma, Mnong, and Lo Lo, the average percentage of pupils attending school at the right age is below 60%, of which less than 10% of pupils from other ethnic groups. The above EM group goes to school at the right age at the upper secondary level.

The percentage of ethnic minorities who cannot read and write Vietnamese is still quite high: Currently, 20.8% of ethnic minorities (equivalent to 2.79 million people) cannot read and write fluently in Vietnamese. Ethnic groups include Ha Nhi, Co Lao, Brau, Mong, Mang, Lu, La Hu, with over 50% of the population illiterate. (Appendix table 20: Percentage of ethnic minorities who are not fluent in Vietnamese).

The percentage of trained ethnic minority workers is low, averaging 6.2%, nearly one-third of the national average. Some ethnic groups have a rate of trained workers below 2%, and there are even ethnic groups with nearly 100% untrained workers, such as Xtieng, Brau, Mang, Ro Mam, Ba Na, Phu La, Raglay, La Hu and Kho Mu.

This number has increased much after 4 years thanks to great efforts of the Government and local authorities; however, the rate is still low compared to other regions in the country: The proportion of the labour force is Ethnic minorities are trained in professional and technical skills (from primary school to higher is 17.7%; the workforce is ethnic minority people without professional expertise accounts for a high rate of 82.3% ethnic minority workers in accessing the labour market and improving labour productivity to generate income (GSO &CEMA, 2019).

The industrial labour force has shifted towards increasing its proportion in the non-state and foreign-invested sectors, decreasing in the state sector; increasing the proportion in the processing industry, producing electricity, water and gas distribution; decrease in the mining industry group. Regarding employment, the non-state industry is capable of creating many new jobs for workers. The state-owned industry is very difficult to attract a labour force. Foreign-invested industries have the highest labour efficiency.

Table 4. The ratio of trained workers in 2020 (Unit: %)

Area	Total	Vocational training	Intermediate	Colleges	University and above
Northern Midlands and Mountains	20.5	4.3	5.1	3.5	7.5
Red river delta	32.6	6.2	6.0	5.2	15.2
North Central-Central region	22.7	4.5	4.6	4.0	9.5
Centre Highlands	16.9	4.0	3.1	2.3	7.4
Southeast region	29.5	5.1	3.8	4.5	16.2
Mekong Delta	14.9	3.4	2.7	2.0	6.8
<b>Country</b>	<b>24.0</b>	<b>4.7</b>	<b>4.4</b>	<b>3.8</b>	<b>11.1</b>

Source: General Statistics Office of Vietnam, Labor force Survey 2020

Table 5. The proportion of industrial workers in the labour structure of regions in the period 2011 – 2020 (Unit: %)

Area	Bac Kan	Thai Nguyen	Hoa Binh	Nghe An	Thanh Hoa	Quang Ngai	Ninh Thuan	Lam Dong	Dak Lak	Can Tho	Kien Giang	Binh Phuoc
Vocational training	0	1,1	2,6	0,7	0,0	0,8	0,4	0	0,5	0,4	0,6	0
Intermediate	6,4	11,1	11,3	9,8	5,8	6,1	7,5	7,9	11,6	15,7	7,1	9,2
Colleges	16	15	8,9	12,4	12,6	15,7	12,8	11,2	15,1	11,2	13,5	12,6
University and above	11,9	9,8	8,1	15,9	21,0	15,1	13,3	18,8	11,2	12,4	9,8	11,3
Worker level	Bac Kan	Thai Nguyen	Hoa Binh	Nghe An	Thanh Hoa	Quang Ngai	Ninh Thuan	Lam Dong	Dak Lak	Can Tho	Kien Giang	Binh Phuoc
1	36,3	18,1	71,1	36,7	53,9	41,5	54,0	43,2	48,0	36,0	44,0	46,2
2	24,3	29,2	12,1	26,2	24,5	35,7	24,8	28,4	25,4	26,9	28,8	27,3
3	19,8	24,5	7,8	18,1	12,4	11,6	12,9	13,1	14,1	16,3	14,0	12,7
4	10,5	16,5	7,4	10,2	7,1	6,7	5,3	9,3	9,1	13,6	8,0	8,2
5	6,8	8,6	1,6	5,9	2,1	4,5	2,1	4,5	2,7	5,4	4,2	4,2
6	1,9	2	0	2,9	0	0	0,9	1,5	0,8	1,4	1,0	1,5
7	0,4	1,1	0	0	0	0	0	0	0	0,6	0,0	0

Source: Research results

According to the primary survey results with 119 enterprises in 12 provinces in the EMs and mountainous areas, it can be seen that the workers in the enterprises in these areas of the surveyed provinces have relatively limited qualifications and skills (Table 5). Untrained workers make up the majority in most provinces (Most of the provinces have a rate of untrained workers over 60%, except for Quang Ngai, Lam Dong and Can Tho, which have a relatively low percentage of EMs than other provinces), in which Hoa Binh and Ninh Thuan provinces have the lowest percentage of workers with intermediate or higher qualifications (Hoa Binh 31.9%; Bac Kan 34.3%; Ninh Binh) Favorable 34.4%).

The survey results also show that the number of workers at levels 1, 2, and 3 accounts for most workers in all provinces (except Thai Nguyen and Can Tho, the remaining provinces have a high rate of labourers). Levels 1,2,3 account for over 80% of the total number of workers in industrial enterprises surveyed in the provinces, which shows that industrial enterprises in ethnic minority and mountainous areas currently mainly invest in the fields of using low trained labour, which makes the added value of the industry in localities in the region often lower than in other regions.

**B. Discussions: Some Solutions for Industrial Development in Ethnic Minority and Mountainous Areas Associated with Training and Sustainable Resource Support**

**a) Solutions that Directly Affect the Quality and Quantity of Labour**

**1) Continue to move towards stabilizing population and labour**

Population and labor resources have a close relationship with economic development. When the population grows rapidly, the large population size will increase the labour source and cause strong pressure on the problem of job creation. Moreover, the current stage of industrialization and modernization requires technological innovation. New technology in socio-economic development will not create many jobs. Therefore, it is necessary to stabilize the number of workers in the near future by lowering the fertility rate to equalise the number of people entering working age and the number of people reaching the end of working age each year.

**b) Vocational education and training development**

The socio-economic development of ethnic minorities and mountainous areas in the coming years requires rapid improvement of workers' qualifications by specific measures such as:

Attract highly technical human resources. Focus on training and attracting human resources to participate in spearhead industries with many preferential policies on working environment, living conditions, salary... Develop an "Attracting talents" policy to meet the shortage of qualified technical and technical workers. In addition, domestic and foreign investors create conditions to cooperate in investment and industrial development, with priority given to modern industries.

Improve the quality of general education, supplement culture close to national and local socio-economic realities. A large industrial workforce and low technical expertise hinder labour cooperation in industrial zones and foreign partners. In parallel with solutions to stabilize population and labour, it is necessary to diversify types of training: at school, at production facilities. Scaling up and improving the quality of professional and technical training is an urgent requirement of the economy in general and industrial activities in particular.

**b) Solutions to Adjust the Labour Market**

Find all directions to facilitate linkages and inter-regions. This is a direction that creates a "demand" for labour. The market mechanism opens up effective linkages and inter-regional directions, enabling each region to bring into full play its existing strengths. It can be said that inter-regional linkage is a mechanism arising in the production of goods based on the principles of equality, mutual benefit, mutual assistance, and exploitation of specific strengths of each region.

Innovate methods of recruiting and employing workers in agencies and enterprises, with appropriate policies to encourage and attract highly qualified human resources. In the market economy, workers must be active to keep up with the market changes. The dynamism corresponds to the qualifications and capacity of the workers. Therefore, in the selection and employment of employees, it is necessary to put qualifications and capacity standards on the top. This standard is often proposed in theory, but it is rarely used in practice.

Should learn from the experience of foreign experts, organize recruitment openly and fairly, expand the scope of recruitment in the whole society.

Organization of employment services in the labour market. Encourage and support the widespread development of job placement centres in areas where the labour market is relatively strong, and many people are looking for work. Creating conditions for improving the operation quality of job placement centres, investing in construction and upgrading of equipment, training to improve knowledge of the staff of job placement centres about the law, on job counselling.

Developing a labour market information and statistics system such as surveying, surveying, gathering, processing and storing information about the labour market; propagate and widely disseminate the Party's and State's guidelines and policies related to the labour market, such as the Labor Law, the policy of lending capital to develop production, and support job creation; promote research on the foreign labour market, build information channels, provide information on labour demand in the international market, requirements on labour quality for foreign countries to serve the job. Training and recruiting export workers.

Organize loans for job creation. One of the basic viewpoints of state support investment in production facilities is that the investment must be based on each facility's production capacity and economic efficiency. Loan funds should be transferred to establishments within the strict framework of investment projects.

Organizing loans for employers to arrange jobs for unemployed people introduced by employment service centres such as small and medium enterprises, agro-processing enterprises for export and businesses that use many employees.

Develop an unemployment insurance policy. Unemployment insurance policies ensure job security and life for directly unemployed or underemployed workers.

The unemployment insurance fund is formed based on contributions from employees, and the employer is obligated and partly supported by the state. Employees and employers are responsible for contributing to the unemployment insurance fund to enjoy benefits when unemployed.

**c) Policy solutions**

The State should have policies and regimes to attract human resources who are ethnic minorities who have been trained in working in ethnic minority areas. Administrative agencies at all levels, especially at the grassroots level, need to standardize staff titles. Currently, the number of cadres at the grassroots level with intermediate qualifications is still low; the rest have a lower secondary school, high school accounts for a high percentage. To standardize the contingent of grassroots cadres, it is necessary to have a training plan and use arrangement. The problem that needs to be solved is to have mechanisms and policies to put students and graduates of universities and colleges into working positions in the commune. At the same time, there are adequate allowances to compensate for difficulties in working conditions at the grassroots.

The State should have regulations for non-business units, production facilities, and businesses in ethnic minority areas on recruiting and accepting students from ethnic minorities who have graduated from training schools. Vocational training and regimes create conditions for children of ethnic minorities to contribute to the construction of their homeland and country. Realizing the Party's viewpoint on developing human resources for ethnic minorities.

The State needs to supplement the policy of using trained ethnic minority human resources. As for training and using high-quality human resources, in order to successfully implement the industrialization and modernization of mountainous areas and ethnic minorities, we need to pay attention to higher education. And graduate school because it will train highly qualified human resources, meeting the requirements of the industrialization-modernization period. In the past time, education in general, higher education and graduate education, in particular, have tried to create the best possible conditions and have set out many priorities and preferential policies for children of ethnic minorities. Number. However, the process of implementing those policies reveals many weaknesses, and some policies are only meant to solve the Situation, not meeting the requirements of forming a stable and long-term strategy. Thoroughly solve the problem. From the above facts, in order to meet the requirements of the quality of human resources in mountainous areas and ethnic minorities, it is necessary to boldly change both policies and educational programs for students in the region. This.

**V. CONCLUSION**

Because of the limitations of industrial labour in EMs and mountainous areas, industrial development in particular and the economy, in general, cannot be separated from human resource development. Lessons from countries show that not only focusing on developing and reforming the higher education system but also vocational education needs attention. For the development and reform of the vocational education system, support from the central and local governments is indispensable. Simultaneously, it is also important to synchronously implement measures to channel, foster, as well as develop an on-the-spot vocational education system.

Building and promoting a national productivity movement for ethnic minorities and mountainous areas should be based on collaborative and coordinated efforts from four parties: The government, private sector, workers, and communities reside. This movement should also be included in the national agendas, industrial development plans and take measures to disseminate and propagate in order to increase broad understanding among the working class, the entire population, and the public. This is what makes the program successful. In order for the movement to develop, it is necessary to build an organization under the government to manage and operate. National productivity organizations also need to regularly improve their capacity and efficiency in operating productivity-related activities, including human resource development, building and developing management systems, IT and communication applications.

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