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# ACHIEVEMENTS AND PERSISTENT CHALLENGES OF THE NATIONAL NEW RURAL DEVELOPMENT PROGRAM IN NORTHERN VIETNAM: EVIDENCE FROM INFRASTRUCTURE, INCOME AND SUSTAINABILITY INDICATORS

Minh-Tuan Nguyen<sup>1</sup>, Huu-Tap Van<sup>2\*</sup>, Tri Doan Quang<sup>3</sup> and Le T. Nguyet<sup>4</sup>

<sup>1</sup>Faculty of Social Science and Humanities, TNU - University of Sciences (TNUS), Thai Nguyen 24000, Vietnam

<sup>2</sup>Center for Advanced Technology Development, Thai Nguyen University, Thai Nguyen 24000, Vietnam.  
Email: vanhuutap@tnu.edu.vn

<sup>3</sup>Center for Multidisciplinary Monitoring, Institute of Earth Sciences, Vietnam Academy of Science and Technology, Hanoi 10000, Vietnam

<sup>4</sup>University of Education, Thai Nguyen University, Thai Nguyen Province, Vietnam

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Corresponding Author: Huu-Tap Van  
(vanhuutap@tnu.edu.vn)

## ABSTRACT

*This study provides a comprehensive assessment of Vietnam's National Target Program on New Rural Development (NRD) in Northern Vietnam over the period 2010–2024, employing a mixed-methods approach combining official national and provincial datasets, commune-level NRD databases, multidimensional poverty metrics, OCOP registries and in-depth case studies in mountainous and delta provinces. Significant achievements are evident: rural per capita income has risen steadily, multidimensional poverty has declined markedly in lowland areas, and access to all-weather roads, electricity, and clean water now approaches 100% in the Red River Delta. Non-farm activities have become the primary driver of structural transformation, with the proportion of rural households relying on non-farm wage employment increasing from 16.8 % in 1992 to 52.5 % in 2024, while non-farm self-employment has declined due to capital and market constraints in upland regions. Community-based tourism (e.g., Sin Suoi Ho, Da Bac) and the One Commune One Product (OCOP) initiative, with 8,478 rated products by 2022, have generated substantial alternative income and preserved cultural heritage. Microfinance and women-focused programs have supported female entrepreneurship, yet rural women still face a 35.2% gender earnings gap and constitute only 21% of formal rural SMEs. Despite these advances, stark sub-regional disparities persist: mountainous and ethnic-minority-dominated provinces (Ha Giang, Dien Bien, Lai Chau) lag considerably in meeting the 19 national NRD criteria, suffer higher poverty incidence, and experience severe labour shortages due to rural-to-urban migration and limited technological adoption. The study concludes that continued success requires prioritised resource allocation to remote areas, accelerated diffusion of precision agriculture and renewable-energy technologies, strengthened community governance, and gender-sensitive financial and training interventions to ensure inclusive, resilient, and environmentally sustainable rural development across Northern Vietnam.*

**KEYWORDS:** Community Development; Economic Diversification; Environmental Sustainability; Rural Infrastructure; Sustainable Agriculture.

## 1. INTRODUCTION

The transformation of rural areas has become a central focus of development policy worldwide, particularly in emerging economies undergoing rapid structural change. International literature on rural transformation and new rural development (NRD)-equivalent programs reveals a diversity of evaluation frameworks and outcomes. In China, the most comparable large-scale program, the “New Socialist Countryside” (initiated 2005) and its successor “Rural Revitalization Strategy” (2017-present), have been evaluated through multidimensional indicators covering infrastructure, income growth, ecological sustainability, cultural preservation, and governance efficiency (Fangfang, 2022; Jia et al., 2024). Studies in India (Saroj et al., 2022), Indonesia (Bunnell et al., 2013), and sub-Saharan Africa (Christiaensen & Todo, 2014; Schneider et al., 2024) emphasise the critical roles of non-farm employment, rural-urban linkages, and decentralised governance in achieving inclusive transformation. Methodologically, recent international assessments increasingly combine quantitative panel data analysis (fixed-effects models, difference-in-differences) with spatially disaggregated indicators and qualitative case studies to capture both aggregate progress and persistent territorial inequalities (X. Zhang & Rozelle, 2022). A recurring finding is that infrastructure-led approaches deliver rapid gains in physical access and poverty reduction but often fail to address sustainability, ethnic minority inclusion and gender equity without targeted complementary interventions (Krupík, 2026; Omran, 2026).

Vietnam’s New Rural Development (NRD) program, launched in 2010, aims to enhance rural living standards, economic opportunities, and social welfare and has achieved significant progress in transforming rural landscapes and improving residents’ well-being, as reported by the Ministry of Agriculture and Rural Development. However, challenges such as regional disparities, particularly in Ho Chi Minh City and Hanoi, rural-to-urban migration, substantial investment needs, and resource shortages threaten its effectiveness. Sustainable practices, including organic food consumption, community engagement, and technological advancements in agriculture, are essential to addressing these challenges. In Northern Vietnam, policies such as the NRD and Building New Rural Areas programs prioritize sustainable development, poverty alleviation, and infrastructure improvement, as well as enhancing access to credit and diversifying livelihoods (Hung & Park, 2018;

Thuy, 2020). Land ownership, microfinance, and non-farm employment are vital for reducing vulnerability, particularly among ethnic minority inhabitants (Vu & Goto, 2020). Gender dynamics, health challenges like anaemia and hepatitis C, and limited healthcare access further complicate development efforts (Kimia et al., 2021; Nguyen et al., 2007; Trung et al., 2012). Migration and environmental factors, including dietary patterns, also impact progress. A comprehensive approach that emphasizes sustainable investment, community engagement and technological advancements is essential for addressing disparities, securing resources and ensuring the long-term success of rural development in Vietnam.

This study addresses these gaps by providing the first comprehensive sub-regional assessment of the NRD program across the entire Northern Vietnam macro-region (24 provinces, stratified into Red River Delta, midland/low-mountain and Northern mountainous sub-regions) over the full 2010–2024 implementation cycle. It introduces a mixed-methods design that combines (a) longitudinal secondary data from official sources (MARD commune-level NRD databases, GSO statistical yearbooks, multidimensional poverty surveys, OCOP registry) with (b) targeted qualitative case studies of community-based tourism villages and women-led enterprises in ethnic-minority-dominated provinces. The analytical framework is grounded in the Sustainable Livelihoods Approach, examining interactions among five capital assets (human, social, financial, physical, natural) and NRD interventions, while explicitly incorporating spatial disparity analysis and gender-disaggregated indicators. The specific objectives of the study are fourfold: To quantify temporal trends and sub-regional disparities in core NRD performance indicators (infrastructure fulfilment, per capita income, multidimensional poverty, non-farm income share, and sustainable agricultural practices) across Northern Vietnam from 2010 to 2024. To evaluate the contribution of non-farm activities, particularly rural tourism, agro-processing, and service-sector wage employment, to household income diversification and poverty reduction. To examine the impacts of rural-to-urban migration, gender constraints, and ethnic-minority status on the inclusiveness and sustainability of rural transformation. To propose evidence-based, spatially differentiated policy recommendations for the post-2024 phase that integrate climate-resilient agriculture, gender-transformative finance, renewable-energy solutions and strengthened community governance.

By filling the identified methodological and geographical gaps, this research offers new empirical insights into the limits of a predominantly infrastructure- and criterion-driven rural development model in a topographically and ethnically diverse setting, while contributing to the international literature on inclusive and sustainable rural transformation in middle-income countries.

## 2. METHODOLOGY

### 2.1. Study Area

The study was conducted across rural areas of Northern Vietnam, encompassing 24 provinces and municipalities within the Northern Key Economic Region and the Northern midland and mountainous region. It should be noted that the provincial data used in this study correspond to the administrative boundaries before 2025, as the provincial restructuring and mergers implemented from 2025 onward have not yet been accompanied by officially published statistical datasets. These include the lowland provinces of the Red River Delta (Hanoi, Hai Phong, Bac Ninh, Ha Nam, Hung Yen, Hai Duong, Thai Binh, Nam Dinh, Ninh Binh and Vinh Phuc) and the midland and mountainous provinces (Bac Giang, Thai Nguyen, Phu Tho, Tuyen Quang, Hoa Binh, Son La, Yen Bai, Lao Cai, Ha Giang, Cao Bang, Lang Son, Quang Ninh, Lai Chau, and Dien Bien). For analytical purposes, the region was stratified into three sub-regions: (i) the Red River Delta, characterised by high population density and favourable agricultural conditions; (ii) the midland and low-mountain areas; and (iii) the Northern mountainous region, which ethnic minority groups predominantly inhabit, exhibits low population density, rugged terrain, and historically limited infrastructure. This stratification facilitated the identification and quantification of spatial disparities in the outcomes of the National Target Program on New Rural Development (NRD).

### 2.2. Data Collection

A mixed-methods design was employed, integrating secondary quantitative data with primary qualitative evidence. Secondary data spanning 2010–2024 were obtained from official national and provincial sources, including annual

reports and mid-term reviews of the National Target Program on New Rural Development issued by the Ministry of Agriculture and Rural Development (MARD), Statistical Yearbooks published by the General Statistics Office of Vietnam (GSO) and provincial statistical offices (General Statistics Office of Vietnam, 2022), multidimensional poverty assessments, commune-level NRD databases, the national One Commune One Product (OCOP) registry (General Statistics Office of Vietnam, 2022), and project evaluation reports from international and domestic organisations (e.g., IFAD, International Fund for Agricultural Development, 2023; World Bank, World Bank, 2019; and Vietnamese research institutes). These sources provided comprehensive, time-series data on infrastructure investment, household income, poverty rates, non-farm employment and environmental indicators.

### 2.3. Analytical Approach

Quantitative analysis relied on descriptive and comparative statistics to evaluate temporal trends and sub-regional differences in core NRD performance indicators, including the proportion of communes achieving the 19 national criteria, rural per capita income, multidimensional poverty incidence, access to all-weather roads, electricity, clean water, education and health facilities, the share of non-farm income in total household income and the adoption of organic and high-tech agricultural practices. Spatial disparities were assessed by calculating sub-regional means and ranking provinces by annual income growth rates and NRD criterion fulfilment percentages.

Qualitative materials from selected case studies, particularly community-based tourism villages in Da Bac district (Hoa Binh province) and Sin Suoi Ho commune (Lai Chau province), as well as women-led enterprises in Bac Kan and Tuyen Quang, were subjected to thematic analysis to elucidate the enabling factors, constraints, and transferable lessons. Policy analysis was framed within the Sustainable Livelihoods Approach, examining interactions between the five capital assets (human, social, financial, physical, and natural) and NRD interventions.

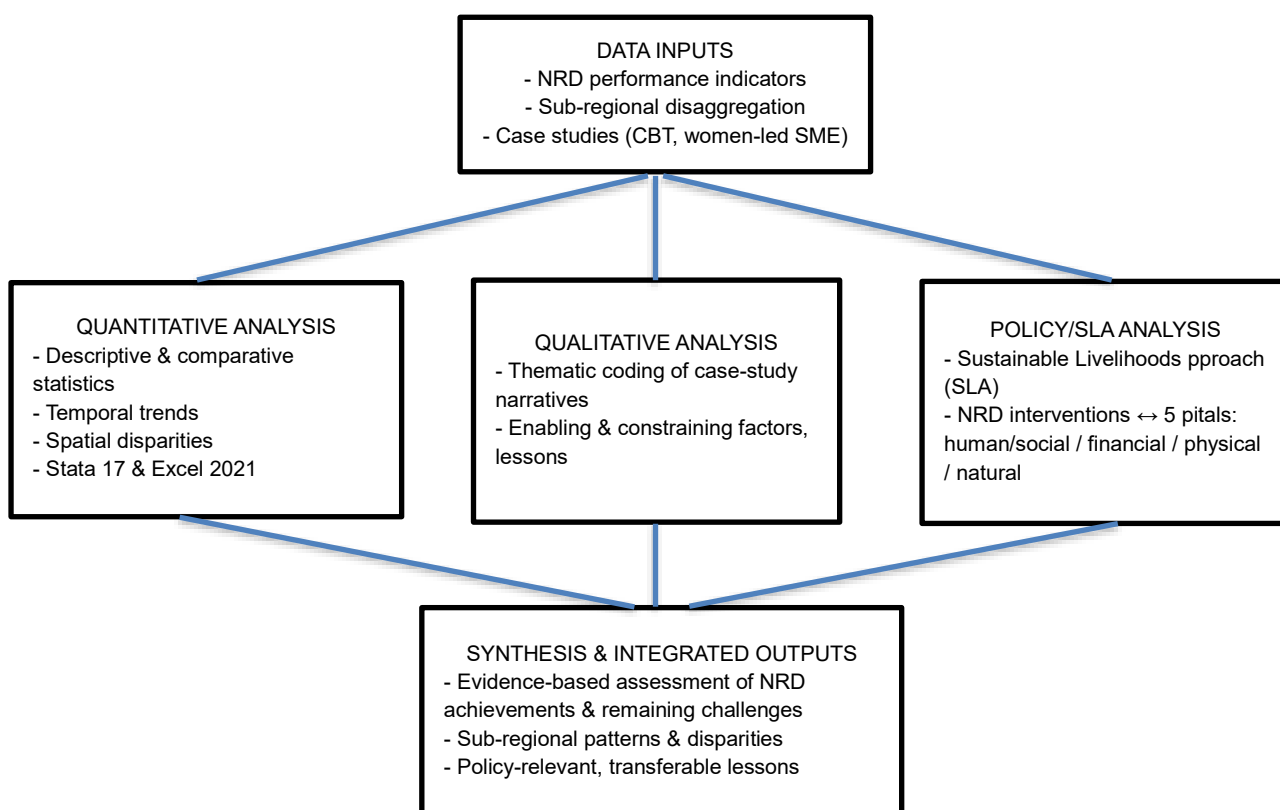


Figure 1: Diagram Of the Analytical Framework.

Statistical processing was performed using Stata version 17.0 and Microsoft Excel 2021. The combined use of nationally representative datasets, sub-regional disaggregation and targeted qualitative case studies ensured a robust and comprehensive evidence base for assessing both the achievements and the remaining challenges of the NRD programme in Northern Vietnam (Fig. 1).

3. RESULTS

3.1. Non-Farm Activities and Rural Development Models in Northern Vietnam

Non-farm activities, particularly in the service sector, significantly contribute to economic growth and poverty alleviation in North Vietnam. These activities provide avenues for income generation and employment, thereby reducing poverty and fostering economic development in rural communities. Research has highlighted the positive impact of rural non-farm activities on growth and poverty reduction, especially as countries transform. The shift from farm to non-farm sectors, such as trade, business and services, has been associated with income growth and poverty reduction (Nargis & Hossain, 2006).

Table 1: Key Elements and Challenges of the New Rural Development (NRD) Program in Northern Vietnam.

Aspect	Key elements	Challenges
Sustainable agricultural practices	<ul style="list-style-type: none"> <li>- Enhance adaptive capacity</li> <li>- Socioeconomic support for farmers.</li> <li>- Psychosocial factors' impact on adoption.</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of accurate information on sustainable agriculture.</li> <li>- Limited funding for government support programs</li> </ul>
Infrastructure enhancement	<ul style="list-style-type: none"> <li>- Positive effects on financial, health, and nutritional status</li> <li>- Policy support for initiatives like home gardens.</li> </ul>	<ul style="list-style-type: none"> <li>- Proper funding and design needed for infrastructure programs.</li> </ul>
Poverty reduction	<ul style="list-style-type: none"> <li>- Reduce household risk.</li> <li>- Sustainable investments in conservation measures.</li> </ul>	<ul style="list-style-type: none"> <li>- Effective targeting needed to reduce poverty and enhance sustainability.</li> </ul>

Based on the data presented in Table 1, the successes and challenges of the NRD program in

Northern Vietnam can be analyzed in the context of sustainable agricultural practices, infrastructure

enhancement and poverty reduction. Sustainable farming practices play a crucial role in helping farmers adapt to changing environments. Socio-economic and psychosocial factors significantly influence the adoption of practices under rural development programs in Northern Vietnam. Provinces with higher per capita income growth rates, such as those that achieved an average annual growth rate of 7.5% between 2010 and 2018, demonstrated greater adoption of new rural development practices (Hoang, 2020; Nguyen, 2015). Similarly, increased public investment played a pivotal role, with provinces receiving higher average public budgets per commune between 2011 and 2019, resulting in a higher proportion of communes meeting the 19 national rural criteria. For example, infrastructure investments in Ha Nam and Nam Dinh provinces facilitated the implementation of transportation and utility upgrade practices. Moreover, education and training programs, particularly in Thai Nguyen and Bac Giang provinces, helped enhance local capacity to adopt modern agricultural practices (Nguyen, 2015). Psychosocial factors, including community engagement, were also crucial. Provinces like Bac Giang and Lao Cai, where local authorities effectively mobilised community participation, showed higher adoption rates (Hoang, 2020). However, adoption remained challenging in disadvantaged areas such as Ha Giang and Dien Bien provinces due to low population density and higher infrastructure costs, which limited the impact of government support. These findings underscore the crucial need for targeted economic incentives, strategic public investments, and community-driven initiatives to enhance the effectiveness of rural development programs.

In Vietnam, the expansion of non-farm activities has been instrumental in diversifying rural economies and providing households with alternative sources of income. Non-farm income has become a crucial component of rural households' livelihoods, contributing significantly to their overall income (Ymeri *et al.*, 2020). The growth of non-farm sectors, including services, has been linked to poverty reduction and economic development in urban and rural areas (Loayza & Raddatz, 2010). Developing non-farm activities, such as tourism and agro-processing, has created employment opportunities and stimulated economic dynamism within rural communities (Huy, 2017). These activities diversify income sources beyond traditional farming, reducing dependency on agriculture and increasing household resilience to

seasonal or environmental shocks. Tourism development attracts visitors, boosting demand for local services such as accommodations, food and handicrafts, thereby generating jobs and supporting small businesses. Similarly, agro-processing adds value to agricultural products by turning raw materials into market-ready goods, increasing profitability and creating jobs along the supply chain. By encouraging entrepreneurship and fostering local industries, these non-farm activities not only raise income levels but also contribute to a more vibrant, sustainable rural economy. In the capital city of Hanoi, initiatives to harmonise rural landscapes with green tourism have empowered local residents to maintain their traditional livelihoods while also contributing to the economic stability and sustainability of their communities. As of August 2022, 8,478 products categorised under the One Commune One Product (OCOP) program received ratings of three stars or higher, produced by 4,351 distinct entities nationwide (General Statistics Office of Vietnam, 2022). Numerous localities have proactively developed service-oriented products, rural tourism, and tourist destinations, thereby transforming agricultural outputs and rural specialties into significant tourism assets. The integration of agriculture and rural tourism has effectively established a dynamic economic sector, generating income for residents and yielding economic benefits for various localities. Nevertheless, the agro-processing industry continues to face challenges, remaining underdeveloped and characterized by small-scale operations and antiquated technology. To foster growth within this sector, more effective policies must be implemented to attract resources and investment.

Microfinance interventions have played a vital role in supporting non-farm activities and entrepreneurship in rural areas. By providing financial services to lower-income clients, microfinance institutions have facilitated the growth of small businesses and entrepreneurial ventures, contributing to economic development and poverty alleviation (Newman *et al.*, 2013). Promoting non-farm activities and access to finance has empowered rural residents to pursue diverse economic opportunities beyond traditional agriculture, thereby improving livelihoods and economic well-being.

### ***3.2. Regional Disparities, Migration and Impacts on Rural Development***

Rural-to-urban migration and regional disparities significantly affect rural development in North Vietnam (Fig. 2). Various factors, including economic

inequality, employment opportunities, and quality of life, have influenced the movement of individuals from rural to urban areas. Studies have shown that rural-to-urban migration contributes to regional disparities and shapes migration dynamics in Vietnam (Nguyen et al., 2021). The impact of migration on rural communities is multifaceted, with both positive and negative consequences on development.

The present study elucidates rural-to-urban migration in northern Vietnam, revealing that households receiving remittances from migrant’s report income increases of up to 30%. In specific rural locales such as Thai Nguyen and Quang Ninh provinces, this migration has exacerbated regional disparities, as urban centers like Hanoi have experienced accelerated economic growth relative to their rural counterparts. Notably, ethnic minority groups in northern Vietnam, including the Tay and H'mong, have derived less benefit from migration due to various barriers, including limited educational opportunities and restricted access to urban labor markets (Nguyen, 2015). The implications of rural-to-urban migration and the resulting regional disparities are significant for rural development in Northern Vietnam. The migration

trend has led to a demographic imbalance, characterised by faster urban population growth than rural population growth. According to Huong Vu (2021) the urban population in Vietnam constituted 34.4% of the total population, with an annual growth rate of 2.64% in urban areas from 2009 to 2019 and 2.7% in 2024 (Fig. 2). This growth rate is approximately double the national average and nearly six times the rate observed in rural areas during the same timeframe. The consequences of this migration are particularly pronounced in major cities, such as Hanoi and Ho Chi Minh City, which have experienced substantial population growth, thereby exerting considerable pressure on urban infrastructure and services. For instance, the People’s Committee of Ho Chi Minh City has reported an annual influx of 200,000 to 400,000 migrants from other provinces in recent years (Vo, 2021). While rural-to-urban migration has contributed to economic growth and poverty alleviation in rural areas through remittances, it has simultaneously intensified challenges such as overurbanization and demographic imbalances between rural and urban regions. These challenges present significant obstacles to achieving sustainable rural development in Northern Vietnam.

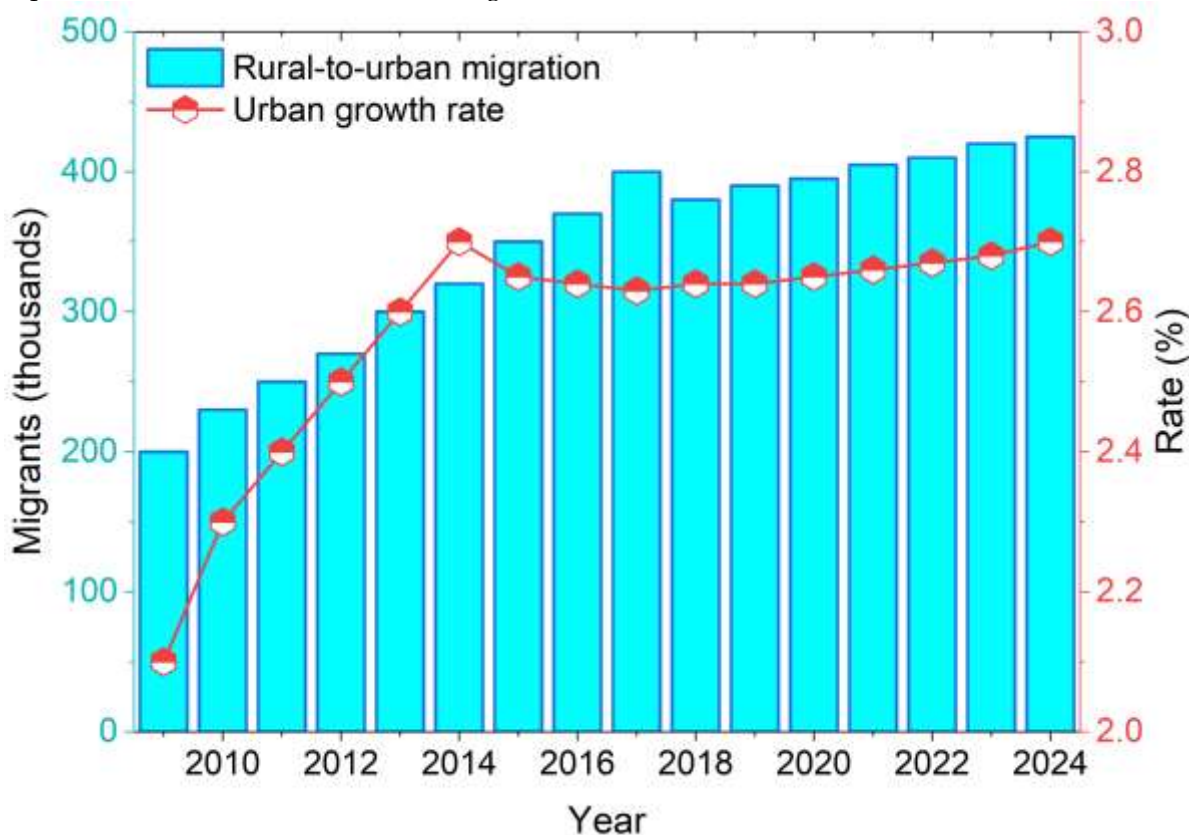


Figure 2: Rural-To-Urban Migration and Urban Growth in Northern Vietnam (2009–2024).

3.3. Female Entrepreneurship in Rural Areas

Female entrepreneurship in rural economic

activities in North Vietnam is a growing area of interest. Studies such as Nguyen et al. (2014) have explored female entrepreneurship in rural Vietnam, shedding light on the motivations, challenges and success factors of female entrepreneurs in the region. The research conducted in rural communities in North Vietnam provides valuable insights into the specific context in which female entrepreneurs operate. Research indicates that women residing in rural and remote areas encounter a myriad of constraints, including societal prejudices, financial limitations and restricted access to entrepreneurial training (Nguyen et al., 2014). Notwithstanding these challenges, Vietnamese women have made significant advancements in entrepreneurship. As of October 2023, women are at the helm of 22% of all enterprises in Vietnam, a figure comparable to those in developed nations such as Sweden (20%), Singapore (24%) and France (24%) (Dung, 2023). In the northern region, various initiatives have been instituted to bolster female entrepreneurs. For

instance, the International Fund for Agricultural Development (IFAD) has played a pivotal role in promoting poverty alleviation and economic growth in Tuyen Quang province through participatory and decentralized community development strategies, specifically targeting impoverished upland ethnic minority groups and women. This program has benefited over 75,700 individuals, comprising 49,000 women and 26,700 individuals from ethnic minority groups (International Fund for Agricultural Development, 2023). These initiatives have yielded tangible outcomes, including enhanced food security, improved access to microcredit and increased agricultural productivity. Notably, 1,000 savings and credit groups have been formed, encompassing over 17,000 members, with 75% of these individuals from ethnic minority backgrounds and 76% women (Huy, 2019). These groups have significantly improved their access to microcredit, thereby facilitating small-scale agricultural activities.

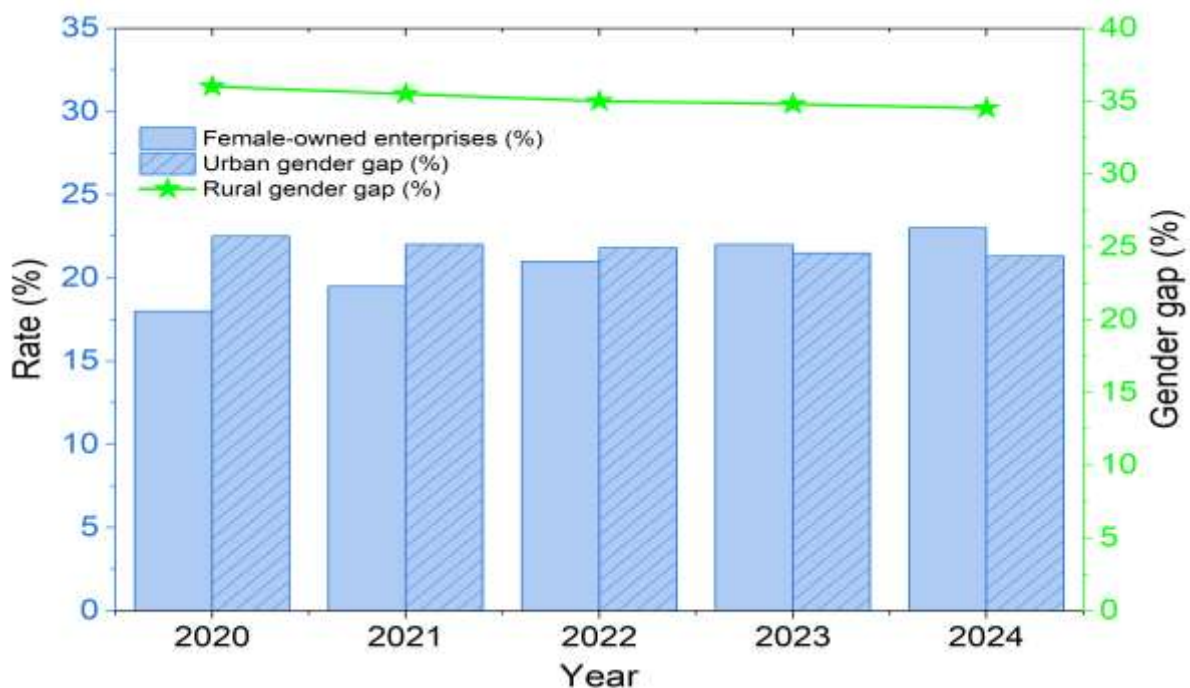


Figure 3: Female Entrepreneurship and Gender Gap in Northern Vietnam (2020–2024).

Moreover, Nguyen et al. (2021) highlight the gender disparities in accessing resources associated with government pro-entrepreneurship policies in Vietnam. Research indicates that male entrepreneurs typically have greater access to resources provided by government initiatives designed to promote entrepreneurship. In the Vietnamese context, male entrepreneurs consistently benefit more from these resources than their female counterparts. Moreover, women entrepreneurs in Vietnam encounter

numerous challenges, including restricted access to financial resources, business development services, and market opportunities. These challenges are particularly pronounced in rural areas, where women-owned small and medium-sized enterprises (SMEs) account for approximately 21% of formal enterprises (Vietnam Briefing). In addition, the gender earnings gap in Vietnam (Fig. 3) is estimated at 29.5%, with disparities of 21.5% in urban areas and 35.2% in rural regions (Nguyen et al., 2021). This

suggests that female entrepreneurs face constraints stemming from societal prejudices, which may be particularly relevant to understanding the dynamics of female entrepreneurship in rural areas, where traditional gender roles are more pronounced. Additionally, Benzing et al. (2005) emphasize that Vietnamese entrepreneur was motivated by the desire to provide employment opportunities for themselves and their family members. Understanding these motivations is crucial for assessing female entrepreneurs' participation in rural economic activities, as it can provide insights into the factors driving women to engage in entrepreneurship in North Vietnam. For example, in Bac Kan province, the deputy director of Bac Ha medicinal materials joint stock company launched her business with turmeric-derived products (Bich, 2023). This entrepreneurial endeavour not only generated employment opportunities for her family but also enhanced community health. On a national scale, enterprises owned by women constitute 31.3% of all businesses in Vietnam, positioning the country sixth among 53 economies surveyed (Hoang et al., 2022). Nevertheless, these enterprises frequently encounter significant challenges, including limited access to financial resources, business development services, and market opportunities. In rural regions, women-owned small- and medium-sized enterprises (SMEs) account for approximately 21% of formal enterprises. To bolster female entrepreneurship, various initiatives have been implemented. One such initiative is the "Empower Her Tech" training program, which aims to cultivate a community of young women entrepreneurs and inspire and

promote the integration of digital technologies into their personal and professional endeavours. These initiatives have yielded tangible outcomes, such as improved food security, enhanced access to microcredit, and increased agricultural productivity. For instance, 1,000 savings and credit groups have been established, encompassing over 17,000 members, of whom 75% belong to ethnic minority groups and 76% are women (Benzing et al., 2005). These groups have significantly augmented their access to microcredit for small-scale agricultural activities. Furthermore, Vu et al. (2016) conducted a study on the relationships among experience, social network participation, and creative capacity among Vietnamese entrepreneurs. This research offers valuable insights into how women in rural northern Vietnam can utilize their prior experiences and social networks to enhance their participation in economic activities.

4. DISCUSSION

4.1. The Role of Non-Farm Sectors and Microfinance in Structural Transformation

Promoting non-farm economic activities through support for microfinance institutions and community-led organisations has played a significant role in driving economic growth and alleviating poverty in Northern Vietnam. Research has shown that the shift from agricultural to non-farm sectors, such as trade, business and services, has led to income growth and poverty reduction by providing rural households with multiple sources of income (Tran et al., 2016).

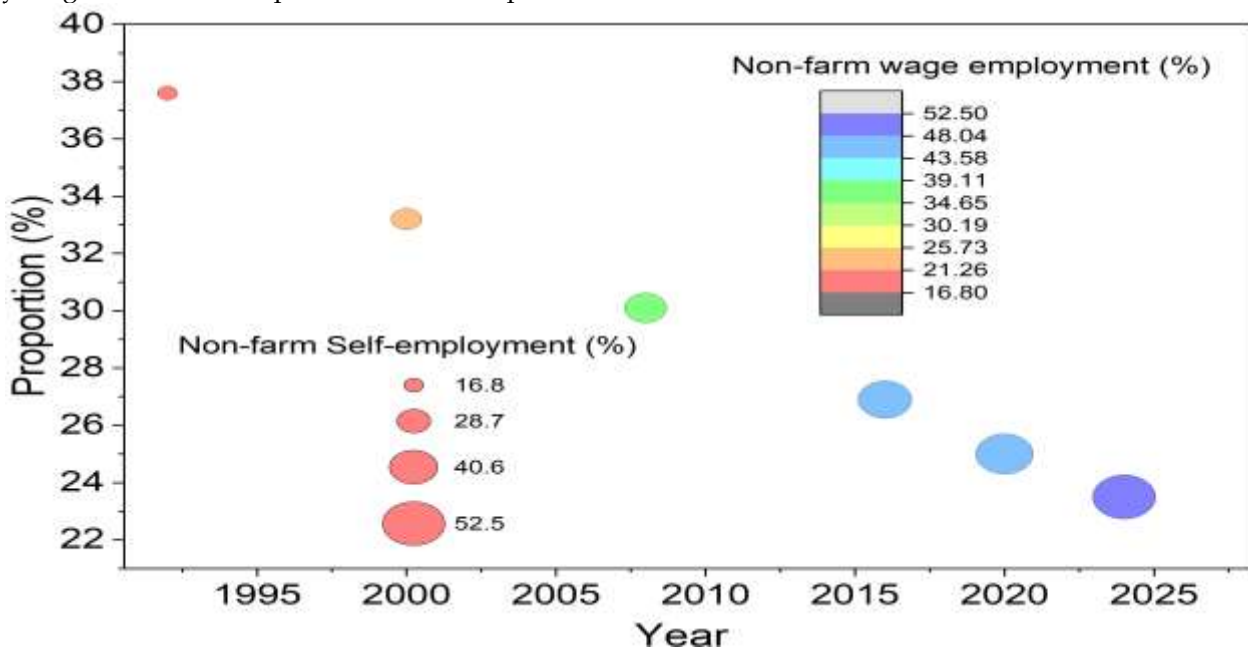


Figure 4: Shift In Rural Income Sources in Northern Vietnam (1992–2024).

Microfinance interventions have played a crucial role in supporting non-farm activities and entrepreneurship in rural areas by providing financial services to lower-income clients, thereby facilitating the growth of small businesses and entrepreneurial ventures (Hemat & Rahman, 2023). Moreover, community-led organizations have created an enabling environment for rural residents to engage in non-farm economic activities, enabling them to access new economic opportunities and develop the necessary skills for business growth (Ampaw et al., 2019). Studies have highlighted the positive impact of rural non-farm activities on growth and poverty reduction, especially during economic transformations in countries (Ruben & Berg, 2001). Sectors such as tourism and agro-processing have been particularly effective in creating employment opportunities and stimulating economic dynamism within rural communities (Mukhlis & Gürçam, 2022). Furthermore, the involvement of rural households in nonfarm activities has been associated with improved economic stability and livelihoods, contributing to the sustainable development of local economies (Micevska & Rahut, 2008). This transformation has enabled households to access diversified income streams, thereby enhancing economic stability and resilience. For example, in the northern uplands, the growth rate of non-farm income has approached that of farm income, suggesting that economically disadvantaged households are increasingly able to engage in non-farm activities (Minot et al., 2006). Nationally, the rural labour force has reached approximately 37 million workers since 2013, while the proportion of rural employment relative to total employment has declined from 77% in 2000 to 67% in 2017 (World B. This trend signifies a structural shift towards non-agricultural sectors. The proportion of farming households engaged in non-farm self-employment in the northern uplands declined from 37.6% in 1992 to 26.9% in 2016 and 23.5% in 2024 (Fig. 4), primarily due to structural and economic factors that constrained diversification opportunities. This decrease can be attributed to limited access to capital and markets, which hampers rural households' ability to sustain or expand non-farm enterprises. Furthermore, inadequate infrastructure, along with insufficient educational and training opportunities, has restricted households' capacity to transition to or maintain self-employment. The observed downward trend also reflects regional disparities, as economic growth and job creation have been predominantly concentrated in urban and lowland areas, resulting in fewer opportunities for non-farm self-employment in

upland regions. These challenges underscore the need for targeted policies to improve access to resources and support non-farm economic activities in these areas. Conversely, the proportion of households with members earning wages from non-farm employment rose significantly, from 16.8% to 44.4% during the same timeframe (Liu et al., 2020). This shift indicates an increasing dependence on wage employment within non-farm sectors. These developments have been instrumental in reducing poverty and enhancing living standards in rural northern Vietnam, underscoring the critical role of non-farm sectors in the region's economic development. Integrating sustainable practices, such as organic agriculture, technological innovations, and community engagement, into new rural models in North Vietnam presents a promising avenue for addressing complex socio-environmental challenges while promoting holistic development. Organic agriculture, characterized by its emphasis on ecological balance and reduced reliance on synthetic inputs, has gained traction in North Vietnam to enhance environmental sustainability and farmer livelihoods. For instance, according to the Ministry of Agriculture and Rural Development, the area under organic cultivation in Vietnam reached 112,000 hectares in 2023, representing a significant increase from previous years (Yen et al., 2019). This growth reflects growing consumer demand for organic products both domestically and internationally, with Vietnam emerging as a key exporter of organic commodities such as coffee, tea and spices. However, challenges such as access to organic certification, technical know-how and market linkages remain barriers to widespread adoption.

#### ***4.2. Sustainable Practices, Technology and Community Engagement in New Rural Models***

Technological innovations are also pivotal in transforming agricultural practices and enhancing productivity in North Vietnam by introducing modern techniques and tools that improve efficiency and output. The use of advanced machinery, such as automated harvesters and irrigation systems, reduces labour intensity and ensures timely cultivation and harvesting, thereby optimising resource use. The use of advanced machinery ensures timely cultivation and harvesting by operating at higher speeds and with greater precision, thereby minimising delays caused by labour shortages or inefficiencies. Furthermore, resource utilisation is optimised, as sophisticated equipment reduces waste of water, seed and fertiliser through accurate, consistent application, ultimately enhancing

productivity and sustainability in agricultural practices. Innovations like precision farming, which employ data-driven methodologies, allow farmers to monitor soil health, weather patterns and crop conditions, facilitating better decision-making and higher yields. Furthermore, adopting improved seed varieties and sustainable farming practices enhances resilience to climate change and pest pressures, ensuring more stable and abundant harvests. These advancements not only increase productivity but also enhance farmers' livelihoods by reducing costs, boosting profits, and laying the groundwork for long-term agricultural sustainability. Precision agriculture technologies, including GPS-guided tractors, drones, and sensors, enable farmers to optimise resource use, reduce input costs, and improve crop yields. For instance, a study conducted by the Vietnam Academy of Agricultural Sciences found that adopting precision agriculture techniques increased rice yields by 20% and reduced water use by 30% in pilot areas (Van Vo & Nguyen, 2023). Furthermore, innovations in renewable energy, such as solar-powered irrigation systems and biogas digesters, are helping farmers reduce their reliance on fossil fuels and mitigate the impacts of climate change.

Community engagement lies at the heart of sustainable rural development initiatives in North Vietnam, fostering local ownership, participation, and empowerment. For instance, participatory approaches such as farmer field schools and community-based natural resource management have been instrumental in promoting knowledge sharing, innovation and collective action at the grassroots level. Moreover, initiatives such as the community-based tourism development program have empowered local communities to diversify their income sources, preserve their cultural heritage, and protect natural ecosystems, while promoting responsible tourism practices. In Da Bac, located in Hoa Binh province, over 42% of the population lives below the poverty line, with a significant proportion belonging to ethnic minority groups that primarily depend on agriculture (Lush, 2018). The implementation of community-based tourism (CBT) has empowered these communities to offer homestay accommodations and cultural experiences, thereby enhancing their livelihoods and preserving their cultural heritage. In Sin Suoi Ho village, Lai Chau province, the development of CBT has led to the establishment of 10 homestays that can accommodate up to 100 guests. The village attracts approximately 100,000 visitors annually, generating considerable income and fostering the preservation

of traditional crafts and customs (An Vu, 2020). In Ha Giang province, despite the challenges posed by the COVID-19 pandemic, tourism experienced a rapid rebound, welcoming 1.5 million visitors in 2020 - a 7% increase compared to the same period in 2019. This growth highlights the resilience of CBT initiatives within the region (Duong & Tai, 2024). These examples collectively demonstrate the positive impact of CBT in northern Vietnam, promoting economic development, cultural preservation and environmental conservation through sustainable tourism practices. However, sustaining community engagement requires ongoing investment in capacity-building, institutional support and mechanisms for inclusive decision-making.

#### ***4.3. Implications Of Migration and Gender Constraints for Rural Development Policy***

Rural-to-urban migration can foster rural community development through remittances and migrants' involvement in community projects (Ajaero & Onokala, 2013). However, migration can also lead to challenges such as overdevelopment, the commodification of rural landscapes, and social exclusion (Costello, 2007). Migration significantly affects rural areas through push-and-pull factors driving movement between rural and urban regions, highlighting underlying disparities. Labour shortages often result when rural residents, particularly the young and skilled, leave for urban centres, thereby impacting agricultural practices and land use. As a result, farmland is sometimes underutilised or requires mechanisation. Economically, migration can provide rural households with remittances, which boost income and living standards; however, it may also increase their dependence on external financial support rather than fostering local economic sustainability (Cattaneo & Robinson, 2020). The disparities in wealth, infrastructure, and access to services between rural and urban areas are key drivers of migration, as people seek better opportunities, healthcare, education, and a higher quality of life in cities. This shift creates demographic imbalances, leaving rural communities with aging populations and reduced social vitality. Moreover, the interconnectedness between rural and urban regions highlights the flow of labor and remittances, but the uneven distribution of development exacerbates rural underdevelopment. Therefore, addressing these disparities through investments in rural infrastructure, education, and economic opportunities is essential to ensuring balanced growth, reducing migration pressures, and fostering

sustainable rural development.

#### **4.4. Comparative Insights from International Rural Development Programs**

A comparative perspective with rural development programs in other regions provides important insights into both the strengths and limitations of Vietnam's National Target Program on New Rural Development (NRD). International evidence indicates that while infrastructure investment and income growth are common entry points for rural transformation, long-term effectiveness depends on governance models, institutional capacity, and the degree of community participation (Foster & He, 2022).

In China, the Rural Revitalization Strategy represents one of the most comprehensive state-led rural development initiatives, characterized by strong central coordination, large-scale fiscal investment, and rapid infrastructure expansion. This model has achieved significant reductions in rural poverty and improved living standards; however, it has also been associated with emerging challenges, including environmental degradation and uneven regional development (Hillyard, 2020; Q. F. Zhang & Donaldson, 2010). Compared to this model, Vietnam's NRD program demonstrates a more balanced fiscal approach but lacks the same scale of investment, particularly in remote mountainous areas where infrastructure gaps remain significant.

In contrast, the European Union's rural development framework, particularly through the LEADER programme and the Common Agricultural Policy (CAP), emphasizes bottom-up governance, local action groups, and participatory planning. These approaches have been effective in promoting social inclusion, local innovation, and territorial cohesion, especially in disadvantaged rural areas (Daniel, 2011; Navarro *et al.*, 2016). However, they often require strong institutional capacity and involve complex administrative procedures, which may slow implementation. Compared to the EU model, Vietnam's NRD program remains predominantly top-down, with limited depth of community participation beyond implementation stages. This difference partly explains why, despite impressive infrastructure achievements, challenges related to local ownership, sustainability, and ethnic minority inclusion persist in Northern Vietnam.

Experiences from developing regions, particularly Sub-Saharan Africa and South Asia, further highlight the importance of institutional effectiveness and policy coherence. Rural development initiatives in these regions often rely on

donor-supported, community-based interventions, with mixed outcomes due to fragmented governance structures and limited technical capacity (Foster & He, 2022). Vietnam's NRD program has performed comparatively well in maintaining policy coherence and nationwide coverage; however, similar to these regions, it still faces challenges in ensuring equitable resource allocation and long-term sustainability in geographically disadvantaged areas.

These cross-regional comparisons suggest that the next phase of Vietnam's rural development strategy should move beyond infrastructure-driven targets toward a more integrated model that combines (i) targeted public investment for lagging regions, (ii) strengthened participatory governance mechanisms, (iii) enhanced institutional capacity at the commune level, and (iv) deeper integration of environmental sustainability and climate resilience. Such a transition would align Vietnam's NRD program more closely with emerging global best practices in inclusive and sustainable rural transformation.

## **5. CONCLUSION**

The National Target Program on New Rural Development (NRD), implemented from 2010 to 2024, has undeniably reshaped the rural landscape of Northern Vietnam and delivered tangible improvements in living standards, infrastructure, and economic opportunity. Near-universal access to all-weather roads, electricity grids, clean water, schools, and basic health stations in the Red River Delta and lowland provinces, coupled with a steady rise in rural per capita income and a sharp decline in multidimensional poverty in accessible areas, stand as the program's most visible successes. The structural transformation of rural livelihoods is particularly striking: by 2024, 52.5% of rural households in Northern Vietnam derived income from non-farm wage employment (up from 16.8% in 1992), while community-based tourism villages such as Sin Suoi Ho (Lai Chau) and Da Bac (Hoa Binh) and the nationwide OCOP initiative (8,478 certified products by 2022) have created robust alternative income streams, preserved cultural identity, and stimulated local entrepreneurship. Microfinance schemes and targeted interventions have empowered women and ethnic minorities, facilitating the creation of thousands of savings-and-credit groups and supporting a growing cohort of female-led rural enterprises.

Nevertheless, the benefits remain highly uneven. Midland and mountainous provinces inhabited predominantly by ethnic minorities continue to exhibit significantly lower fulfilment rates of the 19

national NRD criteria, higher multidimensional poverty incidence, inadequate transport networks, and chronic shortages of both financial and human capital. Rural-to-urban migration has intensified labour scarcity in upland agriculture, accelerated land abandonment in remote areas, and widened the economic gap between lowland and highland communities. Gender disparities are equally persistent: rural women face a 35.2% earnings gap and own only approximately 21% of formal rural SMEs, constrained by limited access to credit, training, technology, and markets.

These findings underscore that infrastructure-led growth and one-size-fits-all targets are insufficient for inclusive rural transformation in geographically and ethnically diverse regions. Sustainable progress now demands a decisive shift toward differentiated, evidence-based policies: (1) substantially increased and ring-fenced public investment in remote and

ethnic-minority communes; (2) accelerated adoption of climate-resilient, high-tech, and organic agricultural practices supported by extension services and certification schemes; (3) systematic integration of renewable-energy solutions and digital infrastructure; (4) gender-transformative financial products and vocational training explicitly designed for rural women and youth; and (5) stronger legal and institutional mechanisms for genuine community participation in planning, implementation, and benefit-sharing.

Only through such a multidimensional, spatially targeted and socially inclusive approach can the NRD program move beyond its impressive aggregate achievements and fulfil its original vision of equitable, resilient, and environmentally sustainable rural development throughout Northern Vietnam in the coming decades.

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