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EXECUTIVE SUMMARY

IMPACTS OF CLIMATE CHANGE AND DISASTERS ON MULTIDIMENSIONAL INEQUALITY IN VIET NAM

Hanoi, August 2022

Source: The research team

KEY MESSAGES

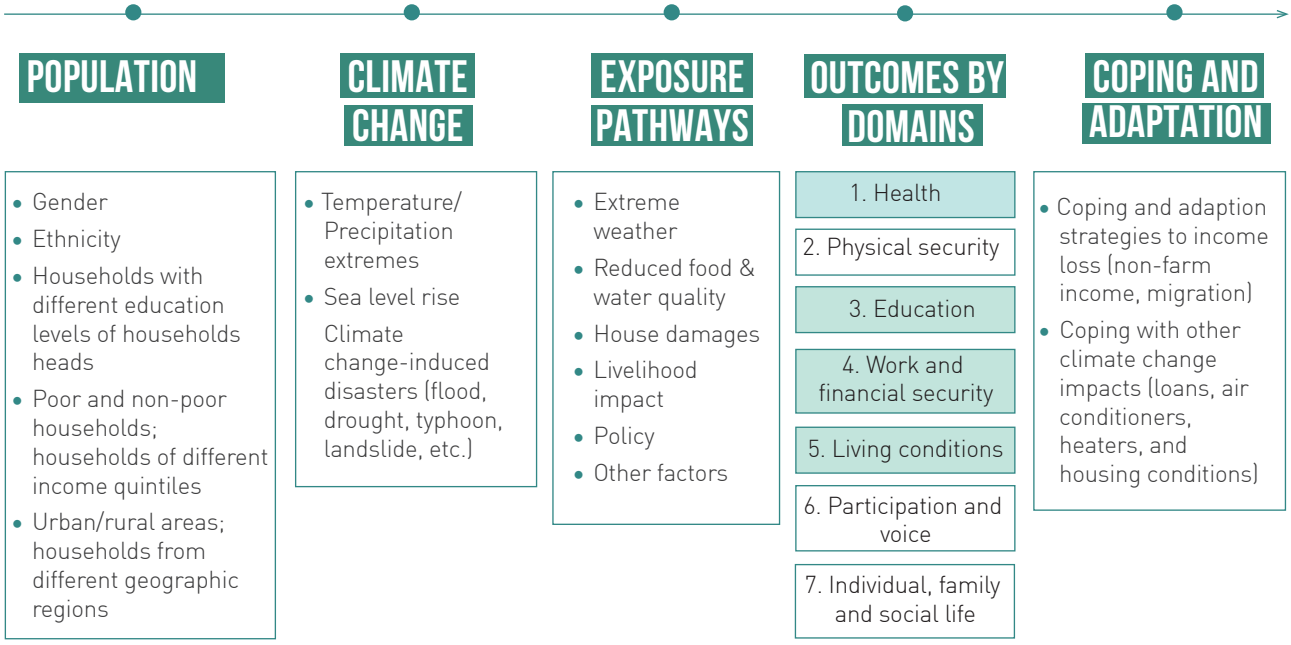
- Climate change is already showing clear and profound impacts in Viet Nam in every dimension of life. Through the lens of the Multidimensional Inequality Framework, those impacts are reported to be unequal between population subgroups.
- The climate crisis exacerbates poverty and inequality in three ways: (i) by increasing disadvantaged social groups' exposure to the negative effects of climate change; (ii) increasing their susceptibility to climate-related problems, and; (iii) decreasing their relative ability to cope with and recover from the damages and losses they suffer.
- In the four selected dimensions taken from the Multidimensional Inequality Framework (life and health, education, dignified work and financial security, and adequate living conditions) the people most affected by climate change are low-income households; those where the head of the household has a low level of education; ethnic minorities; and inhabitants of remote, rural areas.
- The impacts of climate change and disasters are also unevenly distributed among household members, with women, children, and the elderly being particularly vulnerable. Nevertheless, gender-biased labour division, stereotypes, and social norms obstruct women from acquiring the skills and resources they need to cope with and mitigate the effects of climate change.
- From a policy perspective, discussions about the interlinkages between climate change and poverty and inequality have been rather limited. Therefore, there is a need for policy discussions on the integration of climate change adaptation and mitigation policies and poverty and inequality reduction programmes in the future.

INTRODUCTION

Viet Nam is highly vulnerable to climate change and natural disasters as it ranks sixth among countries and territories hit hardest by extreme weather events by Germanwatch. It has been noted that impacts of climate change and extreme climate events are uneven across different populations and regions. Meanwhile, research exploring the relationship between climate change and inequality is still in its infancy and focuses mostly on income and livelihoods.

By applying the Multidimensional Inequality Framework (MIF), this research is one of the first attempts in Viet Nam to highlight how climate change has differently affected population groups in various life aspects. The MIF has been jointly developed by the London School of Economics and Political Science (LSE), the School of Oriental and African Studies (SOAS) of the University of London, and Oxfam. This framework provides an approach to assess inequality through seven key domains covering the core capabilities of individual well-being. In Viet Nam, the MIF is the first tool to assess multidimensional inequality having been successfully piloted in 2020.[1] This research continues to apply the MIF to look for evidence of the climate change impacts on disparities not only in incomes but also in different critical domains such as life and health, education and learning, dignified work and financial security, and living conditions. These MIF domains are considered to be those directly affected by climate change and natural disasters. Therefore, they have been selected for this study with the aim of shedding light on the correlation between climate change and inequality in Viet Nam (Figure 1).

Figure 1. Climate change impacts from a multidimensional inequality approach



* Green cells are the MIF domains used in this study

One of the challenges in this research lies in the limited access to quantitative data to measure climate change impacts in Viet Nam. While climate change is not a new topic, data monitoring climate change in the country remains limited. In fact, most data on temperature, precipitation change, natural disasters, and their damage is counted for the national and regional levels. Meanwhile, a comprehensive monitoring system and database at the grassroots level is lacking. This issue limited the outcomes to be measured and the ability to find latent impacts of climate change by the quantitative assessment. To mitigate this issue, the study employed a mix-method approach, with quantitative and qualitative methods, to cover all impacts of climate change. The quantitative method provided the overall picture and representativeness of the impacts at the national level while the qualitative study detailed and nuanced the impacts at the local level.

The quantitative component was primarily drawn from available secondary data including the Viet Nam Household Living Standards Surveys from 2010-2018 and climate data for precipitation and temperature at the district level from 1981 to the present (retrieved from data of international climate monitoring agencies). The qualitative research phase was completed in Ha Noi (national level) and the two selected provinces of Thua Thien Hue and Ca Mau (province and commune levels).

(1) The MIF was piloted by the Mekong Development Research Institute (MDRI) and Oxfam in Viet Nam. The report for this pilot can be found at the following link: https://bit.ly/3QB5IWX.

IN VIET NAM, CLIMATE CHANGE HAS BECOME INCREASINGLY EVIDENT

The country's average temperature rose by 0.89°C and average annual rainfall increased by 2.1% between 1958 and 2018. Meanwhile, the peak temperature and the number of hot days have dramatically risen across the country, particularly in recent years. The winters of 2008, 2015, and 2016 witnessed unusual periods of extreme cold accompanied by unprecedented snow and ice in the Northern Mountains region. Similarly, heavy precipitation has grown in both quantity and intensity with patterns becoming increasingly abnormal in the past decade.

The greater number of natural disasters has also been causing severe damage to the affected areas. **During the period 2016-2020, Viet Nam suffered numerous natural disasters with an estimated average annual loss of VND 32 trillion (equivalent to 0.5% of GDP), along with hundreds of casualties and missing people.** While some regions, like the Northern Mountains and Central region, face devastating floods, others like the Central Highlands and the Mekong Delta experience extensive droughts and consequent reduction of groundwater availability.

Climate change scenarios predict a difficult future for Viet Nam. Depending on greenhouse gas emission levels, the average temperature is forecast to increase by around 1.9-2.4°C in the North and 1.5-1.9°C in the South by the end of the 21st century. In a high scenario, those increase levels would be up to 3.5-4.2°C and 3.0-3.5°C, respectively. Meanwhile, annual precipitation would be on the rise of 10-20%. Besides, sea levels in Viet Nam could rise by an average of 53-73 cm. These scenarios will create a harsh living environment and, ultimately, lead to negative long-term socio-economic impacts.

THROUGH THE LENS OF MIF, CLIMATE CHANGE IMPACTS ON DIFFERENT LIFE DOMAINS ARE UNEQUALLY DISTRIBUTED

Recent studies indicate that the Mekong Delta region and Central Coast have the highest exposure to climate change. Meanwhile, the Central Highlands and Northern Mountains regions have the most sensitivity due to their high poverty rates with significant ethnic minority groups. The Mekong Delta and Red River Delta also have higher levels of land loss due to permanent inundation than other regions.

By affecting livelihood options and threatening property, homes, and lives, climate change and extreme weather events can affect different population groups differently. Those vulnerable to climate change are assumed to be farmers, fishing communities, ethnic minorities, senior citizens, women, children, and poor people.

Life and Health

Analysis results suggest that both children and adults are more likely to become sick when exposed to cold temperatures. Incidence of sickness and injury also tends to increase when the annual number of days with low temperatures increases. Heatwaves and temperature fluctuations due to climate change are thought to affect the health of people sensitive to weather changes such as the elderly and children (who more easily get coughs or fevers). Rising temperatures and heatwaves can lead to potential health problems, especially for outdoor labourers (heat exhaustion, heat stress, and heat stroke). There are also higher risks of death from lightning and vector-borne diseases as storms and floods increase both in frequency and intensity.

The negative effects of temperature extremes are higher for poor children and adults and those living in households where the household head only finished lower secondary school or below. It is estimated that an additional extremely cold day in a year can increase the probability of getting sick of 4,247 children from poor households and 24,717

Source: The research team

Source: Women's Union of Nguyen Viet Khai commune

children from households in which the household head only finished lower secondary school or below. Children and adults living in both rural and urban areas are more likely to get sick when the number of low-temperature days increases. However, the major health effects of high-temperature extremes are only identified in metropolitan areas.

Safe water scarcity due to extensive drought has the greatest impact on low-income households. This is especially true for the elderly and female household heads because they have no large reservoirs for storage and sedimentation. This results in a remarkably high risk of waterborne diseases.

Climate hazards increase the disadvantaged groups' susceptibility to health problems. Limited access to transportation during a flood has been shown to cause missed or delayed medical appointments and, more generally, limited access to health care, especially for the elderly, children, people with disabilities, and pregnant women. Moreover, crop losses following prolonged droughts have implications for food shortages, hunger, and particularly childhood stunting associated with poor maternal health and nutrition and inadequate infant and young child feeding practices among low-income ethnic minority households.

People are likely to limit their exposure to extreme weather to avoid its negative health impacts. However, this does not apply to everyone. Some poor people and outdoor labourers still have to work even in bad weather conditions. In the case of sickness due to weather changes, local people usually look for primary healthcare at commune health centres. Thus, investments in these grassroots health services will bring great benefits to people living in remote areas.

Education and Learning

Extreme weather, especially low-temperature extremes, is inversely proportional to school attendance. Natural disasters also have devastating consequences on school infrastructure and disrupt children's studies. For instance, the widespread flooding and landslides in the central region of Viet Nam in 2020 damaged at least 862 school buildings and ruined many school facilities and learning supplies, affecting around 153,000 children.

Children from low-income families and/or living in rural settings are more likely to be severely impacted by climate change impacts on education than their non-poor and urban counterparts. The analysis results do not show significant effects of climate change on non-poor and urban households. However, it is estimated that an extra extreme cold day in a year can decrease the enrolment of 1,175 children from poor households and 14,620 children living in rural areas. Income impoverishment caused by climate change and natural disasters can also lead to school breaks or dropout. Besides, nutrition-related issues such as food scarcity, hunger, and childhood stunting following catastrophic crop losses and livestock deaths are projected to hamper children's educational outcomes.

Climate-change-induced migration also puts children's education in jeopardy. Academic disruption owing to school transfer, limited learning opportunities due to policy/social constraints at the host destination, and otherwise poor study accomplishment as well as underdeveloped socio-emotional skills in the absence of parental engagement are some of the noteworthy consequences.

In terms of coping strategies, there is a necessity to educate people on the effects of the climate issue while also providing them with the necessary knowledge, skills, and attitudes to respond to the climate crisis. However, disadvantaged populations – who already suffer from multiple deprivation – will find it difficult to realise and leverage the potential of education in adapting to climate change.

Dignified Work

Temperature extremes tend to have more adverse effects on disadvantaged people and, therefore, exaggerate wage inequality. For example, no significant effect of high-temperature extremes on

wages was found for the whole population. However, regression results estimate that an additional day with high-temperature extremes would decrease the wages of farm people by 0.6%, ethnic minorities by 1%, and people with less than a primary education by 0.6%. Similarly, the effects of low-temperature extremes are significant and negative on the wages of ethnic minorities (reducing by 1.3%) and poor people (decreasing by 0.6%) but not significant for the Kinh and non-poor people.

> *"Speaking of climate change impacts, it is the vulnerable groups such as the poor, near-poor, and women who are more affected. [...] Poor households become poorer because they don't have arable land. They could only work around the house, and thus are highly dependent on nature."*
>
> *In-depth interview in Ca Mau*

Labour mobility may be seen as an impact and also a measure to adapt to climate change and natural disasters. However, not all population groups can afford it. Women, especially those from ethnic minorities, face more disadvantages in terms of language, culture, customs, and traditions. Some groups may opt not to move, e.g., the poorest households who lack resources for migration, or the more resourceful households who face large opportunity costs.

From an employment-creation perspective, existing legislative documents provide urgent support for jobs and production in case of disasters. However, **there is no explicit regulation for vulnerable people, particularly women, to acquire skills and resources for income-generating activities, such as employment and entrepreneurship.** There has been a great improvement in the quality and effectiveness of vocational training for the rural labour force, but the result remains rather modest.

Financial Security

The quantitative results of the study show the negative effects of disasters on household incomes. For instance, one additional storm in the past 12 months can decrease per capita household incomes by 2.4%. Likewise, an additional drought and flood can lead to falls of 1.2% and 0.7%, respectively. Furthermore, exposure to storms increases the probability of poverty among households by 0.7 percentage points.

Exposure to disasters tends to lead to an increase in household borrowing, from both formal and informal sources. However, accessibility to credit varies among households. For formal finance, the provision of many credit lines at favourable terms particularly provided by policy banks such as the Viet Nam Bank for Social Policies (VBSP) makes bank lending products attractive to low-income borrowers. However, not all eligible borrowers are able to get credit from VBSP due to a capital shortage following excess demand in the aftermath of natural disasters. Meanwhile, obtaining credit from family members and close relatives is the most common and the first source of informal finance among local borrowers. In some cases, borrowers have to rely on moneylenders or traders for their emergency loans, varying credit power dynamics between lenders and borrowers in agriculture production.

Ethnic minority women are particularly vulnerable to financial exclusion given financial illiteracy, technical skills gaps, and a lack of awareness of risks of climate change and natural disasters. Particularly, those from low-income households with limited financial buffers or borrowing options following a natural disaster may be inclined to recuperate their income loss by cutting spending on essential things such as food and healthcare.

Adequate Living Conditions

Vulnerable groups such as poor households, ethnic minorities, and those living in remote coastal and mountainous areas seem to be left behind in the process of coping with climate change. On the one hand, poor housing and living conditions have made them more vulnerable to the impacts of climate change and disasters. On the other hand, low living standards also limit their abilities to cope with natural disasters and adapt to climate change. For example, poor households tend to lack telecommunication devices to access live weather forecast information (i.e., TVs, radios, smartphones, etc.)

Housing Conditions

Poor and ethnic minority households tend to have poorer housing conditions than their counterparts. Therefore, their houses are more vulnerable to the damages induced by climate change and disasters. For instance, poor and ethnic minority households have low shares of permanent homes (11% and 18%, respectively). These rates are significantly lower than those of non-poor (41%) and Kinh people (43%). Meanwhile, for temporary housing, the proportion of poor (22%) and ethnic minority households (14%), by contrast, are considerably higher than their counterparts (4%). Poor people are also more likely to live in locations highly susceptible to natural disasters, i.e., on the hillside in mountainous areas or in low-lying land in coastal areas, while non-poor households can choose a better place to build their houses.

Low-income levels represent a big barrier preventing poor households from improving their housing conditions to better cope with climate change and natural disasters. Even housing repairs after a storm

costs considerable time and effort, as they usually have to choose inexpensive and non-durable solutions. For example, after the roof is partly or fully blown off by a storm, poor households at the study sites usually ask their neighbours for old corrugated-cement sheets or old leaves to repair it.

Clean Water and Sanitation

People in rural or remote areas have low access to tap water and depend heavily on rainwater and groundwater. This means that they are more likely to be affected by weather and environmental changes. The Mekong Delta, Northern Mountains, Central Coast, and Central Highlands are regions expected to suffer from water scarcity in the dry season. Water shortages also disproportionately increase the financial burden on poor households as it raises the costs of either purchasing drinking water or of using an electric water pump to get groundwater. In some cases, the high costs of clean water may force poor households to use unhygienic water sources for drinking and cooking. This increases the risk of health problems.

> *"Households with higher incomes can buy compact water filters to drink and cook. [...] A few poor households sometimes have to use water from drilled wells for cooking, although that water is still salted."*
>
> *Male focus group discussion in Ca Mau*

Most households currently having access to hygienic latrines, i.e., flush latrines, did not report notable impacts of climate events and disasters on their sanitary conditions. Nevertheless, poor households, who are unable to afford flush latrines, usually have to face inconvenient use of unhygienic latrines in case of long rains, floods, and storms. In the scenario of heavy precipitation and rising sea levels, water pollution from surface water sources is expected to worsen and cause unhygienic living conditions for households living along the rivers and low-land areas, mostly the poor.

> *"When it rains, rainwater was stagnating around the toilet (a dry toilet next to the house), leading to lots of larvae and adult mosquitoes. This happens only to the houses in the lowland area, not to the upper land."*
>
> *In-depth interview with a poor household in Ca Mau*

Home Appliances and Energy Use

Extreme weather and disasters create an increased need for electric equipment and energy for cooling and heating. **Nevertheless, poor households are less likely to afford electric devices to cope with temperature extremes.** For example, only 1% of poor households own an air conditioner and 4% have water heaters. The proportion of poor households having electric fans (62%) and refrigerators (23%) is also significantly lower than non-poor households (93% and 84%, respectively). The same trend can also be found among ethnic minority households, who fall behind their Kinh counterparts in all these outcomes. Given their lower levels of home appliance ownership, poor and ethnic minority households are reported to have lower capacities to adapt to extreme weather. Therefore, they suffer more negative impacts from climate change than their counterparts. Power shortages and power tariffs are additional barriers for using electric devices among poor households.

Cross-cutting Themes

Stakeholders showed significant differences in climate change awareness. High awareness can be seen among Kinh and ethnic minority groups in communes having climate change adaptation projects in the Mekong Delta. However, a low level of understanding is observed among ethnic groups in mountainous communes of the Central region. At the national level, most people who are neither working on climate issues nor from areas vulnerable to climate change are very likely to perceive it as a distant phenomenon.

From a policy perspective, "vulnerability" and gender equality have been some persistent issues in the climate-change-related policies of Viet Nam. Despite progress, **the discussion of interlinkages between climate change and inequality has been rather limited.** Existing climate-related provisions have generally addressed the direct effects of climate change on those affected, especially vulnerable groups, with relatively less effort devoted to responding to the prospective long-term effects of climate change on human welfare.

To cope with natural disasters and adapt to climate change, poor households and other disadvantaged groups depend heavily on the support of the communities, local authorities, mass organisations, and civil society organisations (CSOs). CSOs and mass organisations have an active role in proposing considerations of social inequality and poverty in climate change impacts and response.

CONCLUSION AND RECOMMENDATIONS

Climate change and natural disasters have aggravated multidimensional inequality through three channels including a rise in the exposure of disadvantaged social groups to the adverse effects of climate change, an increase in disadvantaged groups' susceptibility to problems caused by climate change, and a decline in these groups' relative ability to cope with and recover from damages and losses they suffer in five selected areas of research priorities.

Below are a number of recommendations for formulating policies and programmes that can address the different inequality-enhancing effects of climate change and natural disasters.

On measuring and monitoring the impacts of climate change on multidimensional inequality:

- Elaborate a thorough monitoring system and database of climate change and natural disasters at the district level to support the evaluation and forecast of the different impacts of climate-change-induced hazards to different areas and population subgroups. This data should be collected officially and periodically, and should be widely disseminated to relevant line ministries, agencies, and researchers.
- Ensure a systemic collection of sex, age, ethnicity, and disability disaggregated data and development of inclusive, gender-sensitive indicators in the design, planning, implementation, monitoring, and evaluation of climate policy and action in all sectors and at all levels.
- Conduct and expand rigorous research in both qualitative and quantitative approaches on the inequality-enhancing effects of climate change by sector and region to build an evidence base for climate-change-related policies in the future. Besides, there is a need for policy discussions on the correlation between climate change and multidimensional inequality, and on the linkages between climate change adaptation and mitigation interventions and poverty and inequality reduction programmes.

On capacity building for climate change adaptation and mitigation:

- Enhance institutional capacity building, including short-term and long-term training on inclusive and gender-responsive climate action in ministries, institutions, agencies, and organisations with a mandate to tackle climate change and promote social inclusion and gender equality including for male leaders.
- Empower and train women, ethnic minorities, and other vulnerable groups such as the elderly, people with disabilities, etc. to act as agents of change in climate change action at the community level, building on existing dialogue platforms, participatory, and leadership trainings of development organisations and other agencies.

On support provision to vulnerable groups:

- Evaluate the needs and provide necessary support to the poor, ethnic minority groups, and those living in areas susceptible to climate change and natural disasters (i.e., mountainous and coastal areas). This support can focus on some key domains of life such as improving housing conditions, improving access to clean water, sanitation, quality healthcare services, and weather forecast information, as well as building sustainable livelihoods to adapt to and mitigate the impacts of climate change.

REFERENCE

This executive summary is written based on the findings from the research report "Impacts of Climate Change and Disasters on Multidimensional Inequality in Viet Nam", produced by the Mekong Development Research Institute (MDRI) in cooperation with Oxfam in Viet Nam. Please access the full report for full details of the data sources and analyses.

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