

THE SOCIAL DIMENSIONS OF CLIMATE CHANGE IN VIET NAM

Tran Thuc, Dao Minh Trang

The Viet Nam Institute of Meteorology, Hydrology and Climate Change

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Abstract: *Global trends in inequality and climate change are closely related. The poorest and most vulnerable individuals suffer the worst effects of climate change while making the smallest contributions to the situation. Millions of people who are vulnerable are being hit disproportionately hard by the effects of climate change, including extreme weather, health issues, food, water, and livelihood security, migration and forced displacement, loss of cultural identity, and other threats. Children, people with disabilities, ethnic minorities, older people, and other socially marginalized groups are some social groups that are particularly vulnerable to crises. Their geographic locations, financial, socioeconomic, cultural, and gender statuses, as well as their access to resources, services, decision-making authority, and justice, are the core reasons of their vulnerability. The paper presents some of the social dimensions of climate change in Viet Nam, including its impacts on migration, various vulnerable subjects, human rights, health, and businesses. Comments, discussions, and suggestions have also been provided in this paper.*

Keywords: *Climate change, social dimension, vulnerability.*

1. Introduction

Although Viet Nam has historically had extremely low greenhouse gas emissions, over the past 20 years, it has had some of the world's fastest rates of emissions growth. Viet Nam, like the majority of other nations, is increasingly noticing how climate change is affecting its development.

Climate change is not just an environmental disaster; it is also a social crisis that forces us to deal with inequality on many different levels. Millions of impoverished people face escalating risks connected to migration and forced displacement, extreme weather events, health repercussions, food, water, and livelihood security, as well as other concerns associated to the changing climate. The most vulnerable are frequently disproportionately affected by climate change mitigation efforts. Without thoughtfully crafted and inclusive policies, attempts to combat climate change may have unforeseen effects on some groups' way of life,

including increasing the financial burden on low-income households.

Aside from cultural and political economics considerations, there is a need to understand and address the social inclusion, as well as chances to alleviate social inequality, in these processes. This is in addition to addressing the distributional implications of decarbonizing economies.

This study focuses on the key social dimensions of climate change in Viet Nam, including impacts on migration, vulnerable groups (women, ethnic minorities, children, the elderly, people with disabilities), human rights, health, and business activities. Data and information are synthesized from various sources, including reports from international organizations such as UNDP, World Bank, IPCC, academic studies, and official statistics from Viet Nam. The main methodology employed is a review and analysis of secondary literature, combined with synthesis and evaluation of evidence from previous studies on the impact of climate change on social aspects in Viet Nam. The study also references results from several field surveys, such as the survey by VCCI

*Corresponding author: Dao Minh Trang
E-mail: daominhtrang@gmail.com*

and Asia Foundation on the impact of climate change on Vietnamese businesses. Through comprehensive compilation and analysis of these information sources, the research provides an overall picture of the social dimensions of climate change in Viet Nam.

2. Social dimensions of climate change in Viet Nam

2.1. The impacts of climate change on migration

When just considering migration from one province to another, economic factors dominate migration in Viet Nam, followed by family and marriage-related factors. Migration is mostly impacted by climate and environmental change through the agricultural sector. A lack of adaptive capacity enhanced the decision to relocate, according to many studies. Poorer households were more susceptible to the effects of climate change and more likely to choose migration as a form of adaptation (particularly those with little or no land). Compared to households without land, those with it migrated less frequently.

Displacement due to climate change is one of the most significant non-economic consequences, including forced migration and cultural loss. Extreme weather events such as tropical storms and rising sea levels force many communities to relocate, losing their homes and valuable assets. For example, the entire population of Ragged Island in the Bahamas was displaced as a result of Hurricane Irma in 2017. This migration may bring economic benefits but often results in the loss of language, food and other cultural elements, deeply affecting the spiritual and social lives of the people [1], [2].

A practical example is that in the Pacific Islands, the Unitarian Universalist Service Committee (UUSC) has undertaken an initiative to model a community engagement approach to resource allocation to address loss and damage associated with climate-induced migration. At the Fiji conference, frontline communities, grassroots organisations and regional partners came together in decision-making, ensuring the equitable and meaningful participation of women, youth and older people in the Pacific Islands [2].

Climate change has been causing significant impacts on population displacement in Viet Nam. From 2008 to 2022, the country witnessed over 5.3 million instances of internal displacement, including 4.8 million related to major storms and 558,000 due to other natural disasters such as floods. The year 2020 stood out with 1.3 million people displaced by tropical storms, illustrating the increasing frequency and scale of extreme weather events. More recently, Typhoon Noru in September 2022 forced over 400,000 people to evacuate, causing severe damage to infrastructure, homes, and agricultural and industrial centers. Looking ahead, forecast models suggest this trend may continue to escalate, with estimates of up to 3.1 million Vietnamese potentially facing internal displacement by 2050 due to rising sea levels, natural disasters, and other climate-related events. These figures underscore the importance of developing adaptation strategies and mitigating the impacts of climate change to protect vulnerable communities and ensure security for the people of Viet Nam [3], [4].

2.2. The impacts of climate change on vulnerable subjects

The groups on the list below are the most susceptible to the effects of climate change because of structural injustices, but it should be noted that they also possess a powerful force and could significantly aid in climate adaptation in Viet Nam as change agents if the right financial, technical, and human support programs were in place.

2.2.1. The impact of climate change on gender equality, especially women

The current and future effects of climate change will affect women more severely because of the wide-ranging disparities between men and women in terms of education, health, employment, access to and control of natural and financial resources, and participation in policy and decision-making processes [5].

In addition to adhering to traditional norms and practices, there is a gap between men and women in terms of access to education, literacy, income-generating opportunities,

land ownership, access to credit, moral and sexual violence, creating a number of structural barriers that make women more vulnerable to the effects of climate change. Depending on their ethnicity, age, region, socioeconomic circumstances, and degree of education, there are significant variations for women. Women are more dependent on the land and ecosystems that are prone to high levels of exposure to climate change, making them more sensitive to it than men.

There are several variables that make women more vulnerable than men, including the following: In 2019, 71.8% of women and 81.9% of men participated in the labor force, a smaller percentage of women than males [6]. However, compared to other South East Asian nations, there were much fewer women (1 to 8) in high management positions in 2017. In addition, women are more likely to engage in hazardous jobs and the informal sector than males. For example, 5 million women worked as "family workers" in 2019 compared to 2.7 million men [6].

Men frequently serve as the family's primary decision-makers, which prevents women from accessing and utilizing new technological solutions for increased productivity or adjustment of crops, resources, and training. Women's limited capacity for self-determination and decision-making has an impact on their capacity to adapt to climate change [6]. According to the 2019 Labour Force Survey, women continue to devote a lot more time to 'housework' than men do [7]. Women in rural areas are more likely to be exposed to dangers due to transportation restrictions; the biggest threats to Viet Nam are droughts and extended heat waves, which have serious ramifications for both sexes [8].

Natural catastrophes increase the possibility of systemic malnutrition in women, which could have a negative impact on maternal health [8]. Due to fundamental social standards, women are more likely to experience food insecurity, which makes them more prone to skip meals.

Maternal health is faced with major obstacles as a result of the rise in temperature

and climate-related illnesses [9]. Pregnancy suffers as a result of interrupted or subpar maternity health care services. This led to the identification of lactic infections and pregnant women as additional risk populations. The poorest and most disadvantaged people (such as ethnic minorities, the poorest households, and women-owned homes in rural areas) are also more prone to coerced early marriage as a result of natural catastrophes or protracted extreme weather events.

Natural disasters exacerbate stress-related diseases and mental illness. Women are more likely than men to experience mental illness, including PTSD and sexual abuse. Reduced income brought on by changes in rainfall/temperature, food shortages, and loss of livelihoods all contribute to increased stress, pressure, and anxiety in households and can result in intra-household violence against women. Given that 62.9% of Vietnamese women have experienced abuse from their husbands or boyfriends, gender-based violence is still pervasive in Viet Nam. It also involves physical abuse, which "required medical treatment for one in ten injuries caused by physical and/or sexual abuse" [7]. A population that is susceptible is the LGBTI community.

Due to its fast-aging population (20% of the population will be over 60 by 2038 and 25% by the middle of the century), projections indicate that Viet Nam may confront demographic issues. This makes it difficult for the health sector to adapt and fulfill the unique demands of elderly women. Additionally, it raises the price of uncompensated family care for the elderly, which can limit women's access to socioeconomic prospects. Given that older women make up a larger percentage of the population than older males do and that they often retire sooner, it is anticipated that these effects will decrease the income of older women who work in or contribute (officially or informally) to this sector, increasing their vulnerability.

According to the UNDP report (2022), there are still disparities between men and women in Viet Nam in all areas that are considered "capital

assets" (socio-political, human capital, financial, familial, etc.) [10]. This is demonstrated by the fact that more women than men make up the poor population, which increases the likelihood that they will be impacted by climate change. Like all people, women are capable of acting and recovering from shock and disasters, and the extent of their resilience will depend on the social, economic, and governance capacity and structures at various levels [11]. Women cannot ever be viewed solely as "victims."

The burden of unpaid work and the unequal distribution of labor further limit women's possibilities for a living. Women typically have smaller financial assets, which reduces their ability to adapt to climate change and their means of doing so. Therefore, the effects of climate change run the danger of aggravating these disparities. There is also a chance that CCA and disaster risk reduction (DRR), by neglecting to take into consideration their demands and challenges, could unintentionally enhance socio-economic disparities because fewer women hold executive positions at all levels of policy.

Climate change has a negative impact on the advancement of gender equality, and in particular, it is anticipated that by 2100, the gender wage gap will have increased by 0.6% under RCP 2.6 and up to 1.9% under RCP 8.5 (in comparison to the 1986-2005 baseline). Women work harder when the temperature rises, but they also make less money [10].

According to research, women and children are 14 times more likely than males to perish in a disaster worldwide [12]. Due to the fact that kids were left unattended during the day while parents were at work, many Vietnamese children used to die during floods, especially in the Mekong Delta [13].

Disasters are likely to cause more women to move into the unorganized sector, which will aggravate their economic circumstances and vulnerability [14]. Women in Viet Nam make significant contributions to disaster relief operations, but because they are underrepresented in leadership positions, their contributions are sometimes overlooked [10].

Women and girls traditionally do household water-related responsibilities for their families, which can entail traveling great distances to collect clean water. Women are given more work to deliver water for the home as water supplies grow more scarce. Their social and educational potential are limited by the amount of time they spend collecting water. Compared to 17.04 percent of men, only 12.33 percent of rural female employees in 2019 received vocational training [6]. Due to their demand for clean water during menstruation and pregnancy, women's health is therefore more sensitive to water shortages than men's [7], [10].

Due to issues with education and language proficiency, women in various ethnic minority groups typically face greater disadvantages than men. This makes them an especially vulnerable population [10].

2.2.2. The impact of climate change on ethnic minority groups

The bulk of ethnic minority groups reside in remote regions with limited access to basic infrastructure and in provinces with the worst climate impacts. Food security is put at risk by disasters and extreme weather conditions such as flash floods, storms, droughts, and slow-onset climate change effects like saline intrusion and irregular weather patterns, especially for smallholder farmers. This destructive cycle, which has been named as one of the main root causes of poverty suffered by ethnic minority communities, is being accelerated by climate change [15]. Women frequently shoulder the burden of post-hazard recovery in the wake of disasters.

Additionally, particularly for smallholder farmers, natural disasters and harsh weather conditions frequently endanger food security. It aggravates this issue and has been noted as one of the primary factors contributing to poverty among racial and ethnic minorities [15].

Additionally, ethnic minority groups mostly depend on natural resources for their livelihood and source of income. They are able to cope with adverse weather and natural disasters thanks to their traditional knowledge. However,

they are constrained in terms of the policies for catastrophe adaptation and recovery in terms of adaption, market access, and financial services. They run the chance of becoming poor.

In ethnic minority areas, there are 5,468 communes, and 87.3% of them are in rural areas [16]. There are significant differences amongst ethnic minority groups, even though only 2.8 percent of Kinh were deemed multidimensionally poor in 2020 [17].

Most ethnic minority women are more vulnerable to climate change and disasters than ethnic minority men and Kinh, who have lower levels of literacy and knowledge of the Vietnamese language than Kinh women. This is due to cultural, economic, social, and institutional factors as well as inherent inequalities. Since they are often the ones in charge of gathering water and firewood in the poor communities and conducting farming for a living, they are particularly affected by the paucity of natural resources, which further burdens them.

Female-headed families are less able to adapt to climate change because they frequently have less access to information services, technologies, and credit than males do. Additionally, their educational background and/or language proficiency may preclude them from participating in training sessions offered by NGOs and mass groups, which are frequently conducted in Kinh [10].

In some ethnic minority groups, early marriage and lesser educational attainment are still prevalent. In comparison to 3.7 percent in urban areas, 12.6% of women aged 20 to 24 in rural regions have wed or lived together before the age of 18 [19]. In the context of climate change, there is a chance of seeing an increase in the frequency of early marriage. Most people who marry as children in 31 of 53 ethnic minorities lack professional and technical training, which may prevent them from accessing climate change information sources and services and, as a result, from being aware of climate change risks. As a result, the household's ability to respond to climate and disaster events is weakened, making it more

susceptible to the effects of extreme climate change [10].

On the other hand, it's likely that the effects of climate change will make structural socio-economic vulnerabilities worse. Minority ethnic groups do not have tenure rights over forests and useful lands. They run the risk of slipping into extreme poverty because of their limited ability to adjust to the loss of their means of subsistence brought on by disasters or slow-onset events, and this keeps them from moving up the economic ladder. Additionally, they have restricted access to markets and financial services, which hinders potential rapid recovery and reduces their options for adaption strategies.

Finally, ethnic minorities are frequently referred to as "poachers" or "polluters," which feeds the myth that they pose a threat to the region's biodiversity. Their activities as forest stewards are not sufficiently acknowledged or recognized. Additionally, ethnic minority groups are not routinely consulted during land-use planning and CCA operations [10].

2.2.3. The impact of climate change on children

Children may be impacted by climate change in a variety of ways, including how they learn, grow, access to health care, eat, and survive. Children are the most vulnerable population group because they are still in the early stages of their physical and mental development and growth, lack of autonomy, reliance on others, and lack of choice.

Extreme weather conditions have a direct impact on children's health, survival, and general well-being. The occurrence of waterborne infections in children (such as dengue fever, diarrhea, and malaria) has been directly impacted by temperature rise, extended heat waves, droughts leading to water scarcity, and poor water quality. More than 88% of diseases linked to climate change affect children under the age of five (WHO).

UNICEF (2021) has analyzed the impacts of climate change on children worldwide, particularly: About 1 billion children are living in countries at "extremely high risk" from the

impacts of climate change; Approximately 820 million children are currently severely affected by heatwaves; About 400 million children are currently severely affected by major storms; Approximately 330 million children are currently severely affected by flooding; About 920 million children are currently severely affected by water scarcity; Approximately 600 million children are currently severely affected by vector-borne diseases such as malaria and dengue fever and about 2 billion children are currently severely affected by air pollution exceeding WHO standards [18].

Food security, particularly for low-income and rural households, will be impacted by climate change's adverse effects on agriculture and fisheries, which will ultimately undermine children's nutritional security. In Viet Nam, floods pose a serious threat to children [20]. Particularly in rural places, drowning continues to be a major cause of child fatalities or injuries. Children are more susceptible to dengue and hand, foot and mouth disease due to drought, extreme heat, and a lack of water. Damage to the educational infrastructure may also have an impact on children's education. Consecutive hot days have an impact on children's and teachers' abilities to concentrate, learn, and teach. For the most vulnerable kids who depend on family support, losing a job due to hurricanes or flooding can result in dropping out of school. Furthermore, after earaches, kids can be exposed to extra environmental dangers.

2.2.4. The impact of climate change on the elderly

One of the nations in the world with the fastest aging populations is Viet Nam [21]. According to projections, there will be 28.61 million people over the age of 60 in the world in 2049 (24.88%) [22]. Even though 35% of them are still employed, the majority of this age group is made up of "vulnerable workers" who are either self-employed or care for their families. When temperatures or precipitation rise, older workers in the agricultural, forestry, and fishing industries put in fewer hours, which reduces their hourly pay by 20% [23]. In addition, the

burden of caring for their families and offspring that results from young couples leaving their home countries in search of better economic possibilities sometimes falls on grandparents, preventing them from taking advantage of "non-agricultural work" chances.

2.2.5. The impact of climate change on people with disabilities

People with disabilities are particularly vulnerable to the effects of climate change, which limits their capacity to adapt and makes them participants in adaptation planning [24]. According to the research literature, persons with disabilities typically have limited access to education, reliable sources of income, and ICT technology; therefore, their lower socioeconomic status is what makes them more vulnerable to the consequences of climate change. Water shortages, economic harm, infrastructure and housing access, migration, and individuals with health challenges are also at serious risk from climate change. People with disabilities are considered to bear 'a double burden' from climate-related dangers, as they must also deal with the effects of droughts or floods on agricultural productivity, which can result in food poverty or an increase in the incidence of diseases.

Water-borne, vector-borne, and mental illnesses are predicted to become more prevalent as a result of climate change. The number of older persons living with a partial impairment will undoubtedly rise as a result of demographic change and the aging population. Damages and interruptions to medical services (such as vector control and vaccination) could prevent an increase in illnesses and impairments.

2.3. The impact of climate change on human rights

Human rights, including the rights to life, health, food, housing, and employment (ICESCR), as well as civil and political rights (ICCPR), are directly and indirectly impacted by climate change. Such rights are protected under the Paris Agreement's provisions for the preservation of a healthy environment, which Viet Nam has ratified. Climate change is listed as

one of the "most urgent and serious threats to the ability of present and future generations to enjoy the right to life" in General Comment No. 36 (2018) of the Human Rights Commission on the Right to Life (paragraph 62).

In addition to Bangladesh and the Philippines, Viet Nam is one of the co-authors of the Human Rights Council's annual resolution on climate change and human rights, demonstrating its commitment to both problems. The United Nations Human Rights Council adopted the most recent resolution during its 47th session in Geneva in July 2021. In response to the global problems posed by climate change, the resolution underlines the detrimental effects of climate change on the full and effective enjoyment of human rights and urges for the promotion and greater protection of those rights for all, including those who are most vulnerable.

2.4. The impact of climate change on health

Numerous effects of climate change on businesses' production and business operations include disruptions in both [25], declines in labor productivity and revenue, stagnation of distribution, and increases in production costs.

Natural disasters like hurricanes and floods can damage infrastructure, impair the ability of healthcare systems to respond to medical emergencies, and have an impact on the standard and accessibility of healthcare (26) [27].

Particularly in low-and middle-income countries, climate-sensitive diseases might occasionally put more strain on the healthcare system [29]. Malaria, Dengue fever, plague, cholera, and the emergence of new infectious diseases like SARS and influenza A/H5N1 are some of the infectious diseases that have returned to the tropics as a result of climate change, which has also been linked to a faster rate of influenza A/H1N1 and H5N1 virus mutation [27].

With consequences for health and labor productivity, Viet Nam's GHG emissions are currently linked to harmful air pollution in several of its cities [28]. However, no article has yet thoroughly evaluated the nation's private

health sector's participation in initiatives related to climate change adaptation [27].

2.5. The impact of climate change on businesses' activities

The 2020 survey's findings, which included 34 private businesses in Viet Nam, showed that many respondents have experienced the negative effects of climate change, such as storms, floods, rising temperatures, heat waves, seawater intrusion, drought, and freshwater shortages. According to research, losses from climate change and natural disasters account for 70-80% of some enterprises' total revenue each year [30]. Another study's findings revealed that, on a national scale, businesses are most concerned about three phenomena: extended heat (25.6%), high rainfall associated with tropical storms/depressions (17.3%), and floods where it was previously uncommon (10.7%). The majority of firms have chosen these three phenomena [25], [27].

Impacts of climate change affect the private sector, which is also a key resource for boosting adaptation efforts. For the commercial sector, the effects of climate change present both a challenge and an opportunity (innovation, and inventiveness with new raw material sources, opening up new sectors of investment and production). As a result of natural disasters, numerous enterprises have lost assets, which has resulted in bankruptcy and the loss of many employment, totaling many trillions of Vietnamese dong [25], [27].

3. Recommendations and Conclusions

People's susceptibility to different climatic threats, social cohesiveness, and poverty levels differs among locations. Therefore, it is essential to have quick and comprehensive adaptive reactions. The Vietnamese government has devised plans to make sure that the most vulnerable citizens can cope with emergencies and recover fast without suffering terrible long-term effects. Also, social protection and financial inclusion are crucial components of helping businesses and individuals recover from climate shocks.

In addition, Viet Nam has introduced the

Adaptive Social Protection system, launching a pilot program in the provinces of Can Tho and Tra Vinh, drawing on international experience to scale up their support to vulnerable groups. Evidence points to ethnic minorities as being much more susceptible to the effects of climate change than the general population.

Additionally, implementing a modernized, enlarged, and flexible social safety net program is crucial. The improvement of weather risk forecasting and early warning systems requires investment in information technology and other digital technologies. Moreover, placing a higher priority on infrastructure and social service spending in areas affected by climate migration is a necessary step as well.

While there has been significant advancement in the science and the types of policies required to support the transition to low carbon, climate resilient development, Viet Nam still faces difficulties in engaging citizens who may not understand climate change and winning over those who fear that climate policies will unfairly affect them. In order to build coalitions of support or public demand to reduce climate impacts, as well as to generate

new ideas for and ownership of solutions, it is crucial that people are involved in the decision-making process [31]. To do this, transparency, access to information, and citizen engagement on climate risk and green growth are required.

Furthermore, communities provide a variety of viewpoints, expertise, and experience to the task of boosting resilience and combating climate change [31]. Instead of being viewed as only beneficiaries, they should be included as partners in the development of resilience. Community leaders may establish goals, influence ownership, and create and administer investment programs that are sensitive to the needs of their particular community, according to research and experience. The importance of various types of information, including scientific, Indigenous, and local knowledge, in fostering climate resilience is acknowledged in a recent IPCC report [32]. Communities and marginalized groups can access the policy, technical, and financial support they require for development impacts that are both locally relevant and effective thanks to innovations in the architecture of climate finance.

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References

1. Bharadwaj, R et al. (2024), *Taxonomy of climate-attributable loss and damage and scalable responses related to DRR, health and human mobility*, IIED, London.
2. Scottish Government (2022), *Practical Action for Addressing Loss and Damage*, available at: <https://www.gov.scot/publications/practical-action-addressing-loss-damage/pages/5/>
3. International Organization for Migration (2024), *Assessing the Evidence: Migration, Environment and Climate Change in Viet Nam*, Accessed: Jul. 27, 2024. [Online]. Available: <https://publications.iom.int/books/assessing-evidence-migration-environment-and-climate-change-viet-nam>
4. The Ministry of Natural Resources and Environment (2024), *NDC Nationally determined contribution - Update in 2022*, Accessed: Jul. 27, 2024. Available: [http://www.dcc.gov.vn/kien-thuc/1125/Bao-cao-ky-thuat---Dong-gop-do-quoc-gia-tu-quyet-dinh-\(NDC\)-cap-nhat-nam-2022.html](http://www.dcc.gov.vn/kien-thuc/1125/Bao-cao-ky-thuat---Dong-gop-do-quoc-gia-tu-quyet-dinh-(NDC)-cap-nhat-nam-2022.html) (in Vietnamese).
5. UNDP (2022), *Mainstreaming Gender into the National Adaptation Plan (NAP) Process of Viet Nam*, Rivoal, M., and Nguyen, T. (Lead Authors). United Nations Development Programme Viet Nam.
6. GSO (2021), *Percentage of households with clean water sources by urban, rural and region*.

Available at: <https://www.gso.gov.vn/pxeb/?pxid=V1148&theme=Y%20t%E1%BA%BF%2C%20v%C4%83n%20h%C3%B3a%20v%C3%A0%20C4%91%E1%BB%9Di%20s%E1%BB%91ng>, last accessed on 30 July 2024.

7. UN Women (2021), *Country gender equality profile Viet Nam*. Available at: https://asiapacific.unwomen.org/sites/default/files/Field%20Office%20ESEAAsia/Docs/Publications/2021/10/vn-CGEP_Full.pdf, last accessed on 30 July 2024.
8. Few, R., & Tran, P. G. (2010), "Climatic hazards, health risk and response in Vietnam: Case studies on social dimensions of vulnerability", *Global Environmental Change*, 20(3), 529-538.
9. UNFPA, (2021), *Sexual and reproductive health and rights in national climate policy - A review of 50 Nationally Determined Contribution documents*.
10. UNDP (2022), *Mainstreaming Gender into the National Adaptation Plan (NAP) Process of Viet Nam*, Rivoal, M., and Nguyen, T. (Lead Authors). United Nations Development Programme Viet Nam.
11. UNDP & Oxfam (2009), *Responding to climate change in Viet Nam: Opportunities for improving gender equality*. Available at: https://www.researchgate.net/publication/313349350_RESPONDING_TO_CLIMATE_CHANGE_IN_VIET_NAM_Opportunities_for_improving_gender_equality_A_policy_discussion_paper, last accessed 30 July 2024.
12. UNDP (2016), *Training module 2 Gender, climate change adaptation and disaster risk reduction*.
13. Dang Van Chinh et al. (2008), "Knowledge, attitudes, and practices of people on child drowning in the Mekong Delta", *Ho Chi Minh City Medical Journal*, 12 (4), tr.108. [Online] Available at: <https://tailieu.vn/doc/kien-thuc-thai-do-va-thuc-hanh-cua-nguoi-dan-ve-chet-duoi-tre-em-o-vung-dong-bang-song-mekong-2114696.html>, last accessed on 30 July 2024.
14. UNDP (2013), *Oxfam Policy Brief: Gender equality in climate change adaptation and disaster*.
15. World Bank (2009), *World Development Report 2010: Development and Climate Change*, Washington, DC. Available at: <http://www.worldbank.org/sdcc>, last accessed on 30 July 2024..
16. GSO (2020), *The survey results collect information on the socio-economic situation of 53 ethnic minorities in 2019*. [online] Available at https://www.gso.gov.vn/wp-content/uploads/2020/07/01-Bao-cao-53-dan-toc-thieu-so-2019_ban-in.pdf, last accessed on 30 July 2024.
17. UNDP (2021), *Viet Nam multi-dimensional poverty Report 2021*. Available at: <https://www.undp.org/vietnam/publications/viet-nam-multi-dimensional-poverty-report-2021>, last accessed 30 July 2024.
18. UNICEF (2021), *The Climate Crisis is a Child Right Crisis: Introducing the Children's Climate Risk Index*. New York: United Nations Children's Fund (UNICEF). Available at: [UNICEF-climate-crisis-child-rights-crisis.pdf](#), last accessed 30 July 2024.
19. GSO (2019), Results of the Population and Housing Census at 0:00 on April 1, 2019 (in Vietnamese).
20. GSO and UNICEF (2021), *Survey on sustainable development goals for children and women in Viet Nam 2020-2021*. Survey results report. Hanoi, Vietnam: General Statistics Office.
21. Glinskaya, E. E. et al. (2021), *Vietnam-Adapting to an Aging Society (in Vietnamese)*.
22. UNFPA (2011), *The aging population in Vietnam: Current status, prognosis, and possible policy responses*.
23. Espagne E. (ed.), T. Ngo-Duc et al. (2021), "Climate change in Viet Nam; Impacts and adaptation", *A COP26 assessment report of the GEMMES Viet Nam project*. Paris. Agence Française de Développement
24. IPCC (2022a), *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press.
25. VCCI and Asia Foundation (2020), *Adapting to Succeed: Assessing the Impact of Climate Change on*

Vietnamese Enterprises' by VCCI in collaboration with The Asia Foundation in Viet Nam. Available at: <https://vcci.com.vn/doanh-nghiep-tim-giai-phap-thich-ung-voi-bien-doi-khi-hau>, last accessed on 30 July 2024.

26. World Bank (2020), *Climate Change*. Available at: <https://www.worldbank.org/en/topic/climatechange/overview>, last accessed on 30 July 2024.
27. Tran Thi Thu Huong (2023), *Report: Private Health Sector Engagement In Climate Change Adaptation Activities In Viet Nam: Barriers, Opportunities, And Solutions*.
28. World Bank (2022), *Vietnam: Country climate and development report*.
29. WHO, (2014), *Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death, the 2030s and 2050s*, Geneva, Switzerland: World Health Organization.
30. MONRE (2020), *Private Sector Engagement in National Adaptation Plan Development and Implementation in Viet Nam*. Available at: <https://napglobalnetwork.org/wp-content/uploads/2020/10/napgn-en-2020-private-sector-engagement-in-nap-development-and-implementation-in-Viet-Nam.pdf>
31. World Bank (2023), *Social dimensions of climate change*. Available on: <https://www.worldbank.org/en/topic/social-dimensions-of-climate-change>, last accessed on 30 July 2024.
32. IPCC (2022b), "*Summary for Policymakers*" [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löscke, V. Möller, A. Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löscke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–33, doi:10.1017/9781009325844.001.