



# Policy overview in Vietnam on the health of precarious outdoor workers in the context of climate change

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# Executive summary

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## Context and Rationale

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Vietnam is increasingly exposed to the health impacts of climate change, with outdoor workers in precarious and informal employment being among the most exposed and least protected. Despite national climate resilience and public health policies, this vulnerable group remains largely invisible in both legal and institutional frameworks. Outdoor workers—such as construction labourers, street vendors, sanitation workers, and platform-based delivery drivers—face heightened exposure to extreme weather, air pollution, and other environmental hazards. However, their specific health needs and social vulnerabilities are insufficiently recognised and addressed in Vietnam's current labour and health systems.

This report presents the first systematic policy review of Vietnamese legal and administrative documents to assess how the climate-health vulnerabilities of precarious outdoor workers are acknowledged and addressed. It aims to identify policy gaps and provide concrete, actionable recommendations for more inclusive and responsive governance. It pursues two main objectives:

- To identify and describe current labour, health, climate and environmental policies in Vietnam that relate to the health of precarious outdoor workers in the context of climate change.
- To analyse implementation challenges and identify policy gaps, and propose targeted policy reforms to protect these workers' health and improve inclusiveness and resilience.

## Methodology

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Using the systematic evidence review (SER) approach, the report analysed 45 national legal and policy documents issued between 2004 and 2024, including laws, decrees, strategies, circulars, and action plans related to climate, health, labour, and environment. It also examined five evaluative reports by government agencies and international organisations (e.g., MONRE, ILO, Fairwork Vietnam). NVivo software was used for thematic coding and keyword analysis, focusing on references to climate hazards, informal labour, occupational health, and social protection. Both qualitative and quantitative techniques were applied to identify patterns, assess gaps, and evaluate coherence across policy domains.

# Key findings

## 1. Climate-health risks faced by outdoor workers are poorly recognised in policy frameworks

Across the 45 policy documents reviewed, very few explicitly acknowledge the unique climate-related health risks associated with outdoor work. Only 16% of the texts referenced climate change in relation to health, and even fewer connected environmental hazards to specific occupational conditions. Risks such as extreme heat, flooding, and air pollution—now common in Vietnam's urban environments—are not systematically addressed as workplace threats. As a result, no policy provides sector-specific guidelines or emergency protocols tailored to outdoor workers, despite the growing evidence of increased vulnerability among this group. This lack of recognition means no policy provides targeted guidance or protocols for outdoor work under extreme weather.

## 2. Social protection systems exclude informal and precarious workers

Vietnam has legal frameworks for health and social insurance—including voluntary schemes for informal workers—but uptake remains extremely limited. Only 0.2% of informal workers participate in compulsory social insurance and 2% in voluntary social insurance. Barriers include high premiums, limited awareness, low trust in public services, and administrative complexity. As the report notes, informal workers typically lack contracts or employer support, making it difficult for them to access or sustain insurance contributions. Even workers in fast-growing platform-based sectors, such as motorbike delivery services, fall outside the scope of existing regulations. They are often classified as independent contractors and denied access to social insurance, occupational safety provisions, or accident compensation. Without legal coverage or practical access to welfare regimes, climate-related disruptions—such as illness from heat exposure or inability to work during floods—translate directly into loss of income and deepening vulnerability.



*Two female scrap collectors working on a street in Hanoi, 2024. (Source: Project team in Hanoi)*

### **3. Fragmentation across climate, labour, and health sectors undermines policy coherence and responsiveness**

Vietnam's policies on public health, labour protection, and environmental management have largely developed in isolation. Ministries and sectors tend to operate within separate mandates, producing laws, plans, and strategies with limited reference to each other. For example, the Law on Occupational Safety and Hygiene focuses on formal employment relationships, while the Climate Change Adaptation Plan prioritises infrastructure and disaster preparedness with minimal reference to occupational exposure. Health strategies refer to environmental factors in general terms but do not include outdoor labour as a specific risk category. This fragmentation creates a policy environment in which no single body is clearly accountable for addressing the compound vulnerabilities of precarious outdoor workers. Consequently, even when relevant policies exist, their implementation is disjointed, inconsistently funded, and often dependent on informal local-level coordination.

### **4. Lack of tailored measures for outdoor labour reflects a generalised approach to worker protection**

Most existing labour protection frameworks in Vietnam are designed with formal, indoor workplaces in mind—such as factories, offices, or industrial parks. They presuppose a stable employer-employee relationship and a fixed worksite. However, precarious outdoor workers typically operate in public spaces, construction zones, agricultural fields, or mobile routes. The legal and policy review found very few references to “outdoor work” as a distinct occupational condition. As a result, protective measures—such as rest breaks, heat protocols, or safety inspections—are either inapplicable or unenforceable in the informal outdoor context. This lack of differentiation leads to policy blind spots: regulations fail to account for constant movement, weather exposure, or the absence of clear employers, all of which define the working lives of this group.

### **5. Data systems and implementation mechanisms fail to capture or respond to informal workers' climate-health exposure**

Vietnam's occupational health monitoring and climate vulnerability assessments primarily focus on formal sectors. Informal workers are often invisible in data collection systems, preventing the development of evidence-based interventions or targeted support mechanisms. Climate vulnerability assessments typically use geographic or household-level indicators, without accounting for exposure by occupation. In the absence of disaggregated data, policymakers are unable to design evidence-based interventions for precarious outdoor workers or track the outcomes of existing schemes. Furthermore, local authorities often lack the mandates, technical tools, or financial resources to monitor and address climate-health risks in informal work settings.

## 6. Equity and intersectionality are largely absent in policy design

A consistent shortcoming across the reviewed documents is the lack of attention to how intersecting social identities—such as gender, age, migrant status, and ethnicity—shape vulnerability. While some policies mention “vulnerable groups” in generic terms, there is no detailed analysis or tailored response for sub-groups within the informal workforce. For example, female street vendors face unique reproductive and safety risks in extreme heat, while elderly sanitation workers may be more susceptible to cardiovascular strain. Migrant workers often lack access to urban healthcare or insurance schemes altogether. The absence of intersectional framing means that many of the most at-risk individuals within the precarious outdoor workforce are excluded not only from broad protections but also from targeted support that could reduce specific vulnerabilities. This gap undermines the equity ambitions of Vietnam’s climate adaptation and public health policies.

# Conclusions and recommendations

Vietnam’s current policy framework offers important starting points for protecting worker health and adapting to climate change. However, it falls short in addressing the specific vulnerabilities of precarious informal outdoor workers. This group continues to be under-recognised in national strategies and poorly supported in both planning and practice.

There is an urgent need to reorient policy around inclusive climate adaptation—one that integrates labour protection, occupational health, and environmental risk mitigation in a coherent, intersectoral framework. The findings of this report highlight not only gaps in coverage but also opportunities for systemic reform that would build resilience, reduce inequality, and enhance public health outcomes in the face of escalating climate risks.

To address these challenges, the report recommends the following priority actions:

1. Issue intersectoral regulation on outdoor work in extreme weather
2. Pilot public rest points for outdoor workers in urban hotspots
3. Legally recognise precarious outdoor workers in labour management policies
4. Integrate climate-health content into informal worker training and livelihood programmes
5. Establish a climate-health monitoring and accountability framework for informal labour



*A waste picker loading and organizing recyclable bags on an overburdened bicycle in a narrow alley in Hanoi, 2024. (Source: Project team in Hanoi)*

# 1. INTRODUCTION AND CONTEXT

## 1.1. Climate change and public health in Vietnam

Vietnam is facing increasingly complex and severe consequences of climate change, with significant implications for public health and social vulnerability. Over the past five decades, national average temperatures have risen by approximately 0.5°C to 0.7°C, contributing to more frequent and intense heatwaves, heavier rainfall, rising sea levels, and the intrusion of saltwater into freshwater systems and agricultural land [1]. Data from the Ministry of Natural Resources and Environment show that sea levels are rising at an annual rate of 2.5–3.5 millimetres, placing millions of people in low-lying coastal areas at heightened risk of displacement, water insecurity, and loss of livelihood [2].

The impacts of climate change are not equally distributed. Exposure to climate-related hazards is shaped by socio-economic status, occupation, and geography, with outdoor workers in the informal economy among the most severely affected. In major cities, high concentrations of fine particulate matter (PM2.5), coupled with elevated temperatures and poor ventilation, increase the incidence of respiratory illness and cardiovascular stress [3]. These environmental pressures intersect with persistent structural inequalities—such as lack of legal labour protections, social insurance, and access to healthcare—compounding the risks faced by precarious outdoor workers. For this group, climate change is not a distant or abstract threat, but a daily reality that exacerbates health vulnerabilities and undermines economic insecurity.

## 1.2. Who are precarious outdoor workers in Vietnam?

In Vietnam, the informal/self-employed workforce is estimated at 33 million people, representing over 50% of total employment [4]. Informal workers – particularly outdoor workers, often do not have labour contracts, have variable and uncertain incomes, and are not entitled to social, health and unemployment insurance benefits and other welfare regimes [4]. This leads to precariousness – a state of insecurity, instability, and vulnerability in work. Precariousness is characterised by unstable incomes, lack of long-term job security, unsafe working conditions, lack of basic worker rights, and vulnerability to layoffs or job loss.



*A female street food vendor carrying dishes on a sidewalk, preparing for impending rain in Da Nang, 2024. (Source: Project team in Da Nang)*

These vulnerable groups are, furthermore, most vulnerable to the impacts of climate change. Outdoor workers, including farmers, fishers, construction workers, sanitation workers, street vendors, and motorbike taxi drivers often have to work in harsh weather conditions and face the physical strain of continuous activity or mobility. In addition, climate change is increasingly affecting this group of workers. High temperatures, storms and other extreme weather events not only increase health risks but also disrupt work, reduce labour productivity and income of workers [5]. For informal workers, these impacts are even more severe because they lack the necessary protection and support from the social security system.

## 1.3. Policy context and rationale for review

Vietnam has made notable progress in developing climate, health, and labour policies. National strategies such as the Law on Occupational Safety and Hygiene 2015 [6] and the Law on Social Insurance 2014 [7] provide important legal foundations for protecting worker health. Similarly, environmental policies such as Decree 64/2010/ND-CP on urban tree management and Resolution 20/2017 on minimising pollution demonstrate increasing state concern with climate impacts [8]. However, these efforts are typically sectoral and do not comprehensively address the intersection of precarious employment, outdoor exposure, and health vulnerability in the context of climate change.

Most policies focus on occupational safety for formal sector workers, leaving outdoor informal workers without clear protections. Social security coverage remains extremely limited for this group, and enforcement mechanisms for existing health regulations are weak or absent [9]. Furthermore, Vietnam's platform economy—including app-based delivery and transport services—remains largely unregulated, and its workers are excluded from both health protections and labour laws [10].

Fragmentation between climate, health, and labour policies is a key structural issue. There is minimal integration between health and environmental policies, and funding for worker protection programmes remains inadequate. The lack of intersectoral planning impedes efforts to support precarious outdoor workers in building resilience to climate-related health threats.

## 1.4. Objectives of the Report

The overarching aim of this report is to assess the adequacy and inclusiveness of Vietnam's policy frameworks in addressing the health impacts of climate change on precarious outdoor workers. It does so through a systematic evidence review of legal documents, administrative instruments, and institutional assessments published between 2004 and 2024.

**The two specific objectives are:**

- To identify and describe current labour, health, climate and environmental policies in Vietnam that relate to the health of precarious outdoor workers in the context of climate change.
- To analyse implementation challenges and identify policy gaps, and propose targeted policy reforms to protect these workers' health and improve inclusiveness and resilience.

# 2. METHODOLOGY

This policy review employs a systematic evidence review to examine how Vietnam's legal and policy frameworks respond to the health vulnerabilities of precarious outdoor workers under climate change conditions. Conducted between February and May 2024, the review addressed two core research objectives:

- **Objective 1:** Identify and describe current national policies in labour, health, climate, and environment that affect precarious outdoor workers.
- **Objective 2:** Assess how these policies acknowledge climate-related health risks and evaluate gaps in protection and implementation.

## Research Questions

Three guiding questions were formulated to support these objectives:

1. What labour and climate change policies exist in Vietnam that are relevant to the health of precarious outdoor workers?
2. How do these policies reflect and respond to the health impacts of climate hazards on this population?
3. What implementation gaps and systemic challenges limit the effectiveness of these policies in protecting vulnerable workers?

These questions helped frame both the content and administrative scope of the review.



*A bicycle loaded with recyclable materials parked on a sidewalk in Can Tho, 2025. (Source: Project team in Can Tho).*

## Types of Documents and Sources

Two main categories of materials were reviewed:

- Legal and administrative documents, sourced from the National Database of Legal Documents of Vietnam, including laws, decrees, decisions, circulars, national strategies, and official dispatches.
- Evaluative and implementation reports, sourced via Google, Google Scholar, and Vietnamese academic libraries (Hanoi Law University, Vietnam National Library), including documents from MONRE, ILO, and Fairwork Vietnam.

## Keyword Strategy and Search Process

Search terms targeted four main areas: climate, health impacts, working conditions and types of documents. Due to technical constraints in some databases, simplified search strings were used. This ensured broad yet relevant document coverage across all sources.

## Document Selection and Screening

Inclusion criteria focused on:

- Documents published from 2004–2024
- Official, final versions (not drafts)
- Relevance to the health impacts of climate change on outdoor informal workers

For legal and policy texts, a total of 129 documents were identified through initial searches. After removing duplicates and screening by title and abstract for relevance, 45 documents were selected for full-text analysis. These included:

- 2 laws
- 11 sub-law documents (7 decrees, 4 resolutions)
- 32 administrative texts (plans, dispatches, etc.)

For reports and evaluations, 106 documents were screened across the three main sources. After applying inclusion criteria, 5 reports were retained for full-text analysis.



*A waste picker sorting recyclable materials beside a parked car on a street in Hanoi, 2025. (Source: Project team in Hanoi)*

## Data Extraction and Analysis

Information from the selected documents including issuing agency, date of publication, types of documents, and relevant contents (climate health, target populations) were extracted.

Documents were translated into English when needed and uploaded to NVivo software for qualitative analysis. Texts were cleaned of non-substantive content (e.g., national slogans, footnotes) to avoid distortion of keyword frequency results.

The NVivo word frequency and word cloud tools were used to:

- Identify dominant and underrepresented topics
- Quantify the presence of climate-health-worker relationships
- Highlight patterns across sectors and document types

For full detail of the Methodology, please see Appendix 1

# 3. KEY FINDINGS

This chapter presents six key findings from the systematic review of Vietnamese laws, policy documents, and institutional reports. Each finding corresponds to a structural issue in how the country's policy landscape addresses (or fails to address) the health and wellbeing of precarious outdoor workers in the context of climate change.

## 3.1. Climate-health risks faced by outdoor workers are poorly recognised in policy frameworks

Vietnam's policy frameworks insufficiently address the specific climate-related health risks impacting precarious outdoor workers, such as farmers, construction workers, street vendors, and motorbike taxi drivers. Despite the increasing frequency and intensity of climate-related events, such as heatwaves, floods, and storms, these risks are minimally integrated into labour and health policies. This gap leaves outdoor workers, who constitute a significant portion of Vietnam's informal workforce (over 50% of total employment, approximately 33 million people), highly vulnerable to environmental hazards without adequate legal or practical protections.

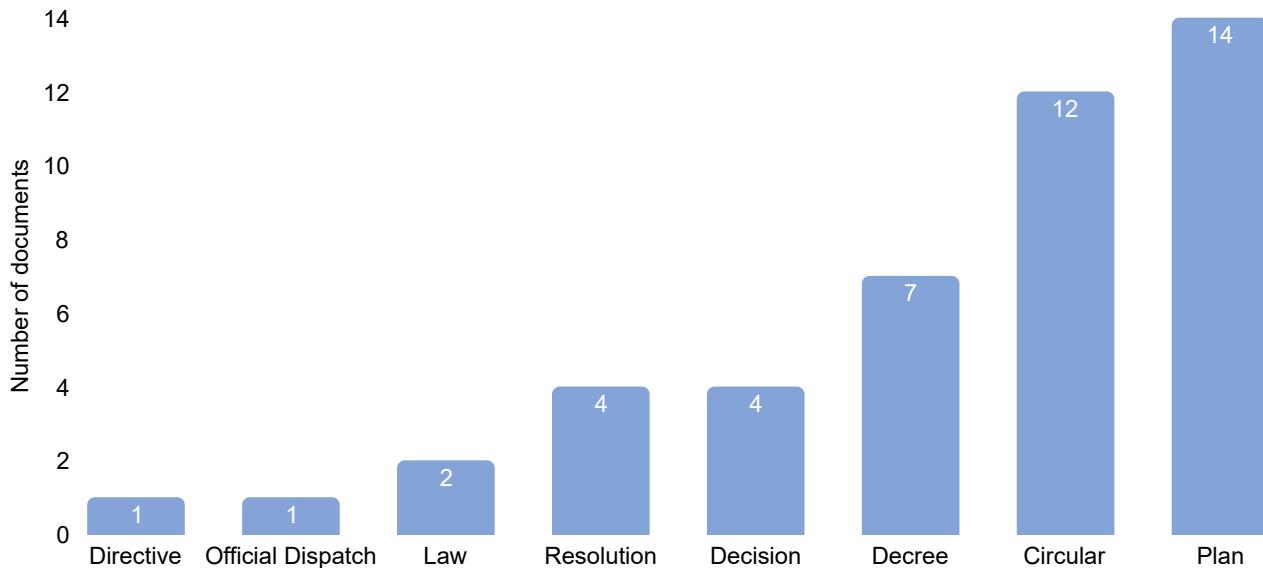
### **Evidence of limited policy recognition**

Across 45 national legal and policy texts, only 16% link climate change to worker health; key climate hazards are scarcely named. Keywords related to specific climate phenomena, such as "floods", "storms", "cold weather", and "rising sea levels" appear in just 2% of documents, while critical terms like "heat waves", "prolonged rain", "high tides", "weather fluctuations", and "extreme weather" are entirely absent. This indicates a significant oversight in addressing the full spectrum of climate-related risks that outdoor workers face daily.



*A waste picker sorting paper and recyclable packaging on a sidewalk in Hanoi, 2025. (Source: Project team in Hanoi)*

For instance, outdoor workers are exposed to prolonged high temperatures, which can lead to heatstroke, dehydration, and reduced productivity. The Report on the National Climate Change Adaptation Plan 2021-2030 highlights the vulnerability of social systems to climate impacts but fails to specify measures for outdoor workers, focusing instead on broader infrastructure and environmental goals. Similarly, labour-related policies, such as the Law on Occupational Safety and Hygiene (2015) and Decree No. 39/2016/NĐ-CP, emphasise general workplace safety but do not incorporate specific provisions for climate-induced risks like extreme heat or UV radiation exposure. The absence of tailored regulations for temperature control, rest breaks during heatwaves, or protective equipment for extreme weather underscores the policy gap.



Plans (31 %), Circulars (27 %), and Decrees (16 %) dominate Vietnam's policy landscape on outdoor workers' health, indicating a focus on technical guidance rather than high-level lawmaking. This distribution underscores a fragmented framework—heavy on implementation documents but lacking overarching legal coherence for addressing climate-health risks.

**Figure 3.1. Types of legal documents included in the thematic report**

Plans (31 %), Circulars (27 %) and Decrees (16 %) dominate the policy landscape, showing emphasis on implementation guidance rather than high-level law. This shows that Plans, Decrees and Circulars play an important role in guiding and detailing issues related to the health of precarious outdoor workers in the context of climate change in Vietnam. In addition, there are 2 Laws, 4 Resolutions, 4 Decisions, 1 Directive and 1 Official Dispatch included in the thematic report. This shows the multi-layered legal system in managing outdoor workers' health issues in Vietnam, in which the number of low-level documents (Plans, Circulars, and Decrees) significantly exceeds that number of high-level documents (Laws), reflecting the trend of concretising policies through detailed instructions. The large proportion of Plans and Circulars not only shows the focus on planning and implementing policies, but also shows the need for specific guidance in terms of expertise and techniques. The diversity of types of documents from Laws to Official Dispatches, together with the significant number of Decrees (16%) and Decisions, this reflects a policy landscape that is limited, fragmented, and insufficient, rather than a comprehensive approach and special attention from the competent authorities. Current frameworks recognize 'environment' broadly but still lack climate-specific safeguards for outdoor work.

## Word Cloud Analysis

A word cloud generated from the 45 policy documents further illustrates this disconnect. Dominant terms such as “occupational” (2%), “insurance” (1%), and “organizations” (1%) reflect a focus on traditional labour protections, while climate-related terms like “environment” (mentioned in 78% of documents) are used broadly, often referring to workplace conditions rather than specific climate risks. The low frequency of terms like “climate” (11%) and “natural disasters” (16%) reinforces the limited attention to climate-specific health risks.



Policy documents on worker health in the context of climate change emphasize general labour and environmental terms—such as “environment,” “occupational,” and “insurance”—while climate-specific risks like “heat,” “flood,” or “extreme weather” are rarely mentioned. This visual reinforces the limited policy recognition of climate-related health challenges faced by outdoor workers in Vietnam

**Figure 3.2. WordCloud of existing policy documents on the health of outdoor workers in the context of climate change in Vietnam**

## Practical Implications

Outdoor workers, such as sanitation workers and street vendors, still lack mandated heat- or rain-protection gear, leaving them exposed to respiratory and heat-stress risks. For example, Circular No. 24/2016/TT-BYT requires employers to provide labour protection equipment, but it does not specify equipment suited for climate-related hazards like intense heat or heavy rainfall. Similarly, Circular No. 19/2016/TT-BYT mandates monitoring of workplace harmful factors but omits climate-specific risks like air pollution or heat indices, which are critical for outdoor settings.

The Informal Employment Report 2016 notes that informal workers, including outdoors workers, often work with outdated tools and lack access to clean water or hygienic facilities, exacerbating health risks in extreme weather. Without policy provisions addressing these conditions, workers remain unprotected against climate-induced health threats, such as respiratory issues from urban air pollution or heat-related illnesses. These policy omissions shift risk to workers and set the stage for gaps in social protection.

## Policy gaps and recommendations

The minimal integration of climate risks into labour and health policies stems from a broader focus on macro-level climate strategies, such as greenhouse gas reduction (Decree 06/2022/NĐ-CP) and disaster-resilient infrastructure (Decision 896/QĐ-TTg). These strategies, while critical, overlook the micro-level impacts on outdoor workers. To address this, policies should:

- Incorporate specific guidelines for outdoor work in extreme weather, such as mandatory rest breaks during heat waves or the provision of UV-protective gear.
- Update occupational safety standards to include climate-related risk assessments, such as heat indices and air quality metrics.
- Enhance data collection on climate-related occupational health incidents to inform targeted interventions.

By failing to recognise the intersection of climate change and health risks for outdoor workers, current policies leave a critical gap in protecting one of Vietnam's most vulnerable labour groups. Addressing this requires a shift toward integrating climate-specific health protections into labour frameworks, ensuring that outdoor workers are not left to bear the brunt of environmental changes without support.



*A female street vendor carrying a boxed load with a shoulder pole in an alley in Ho Chi Minh City, 2025. (Source: Project team in Ho Chi Minh City)*

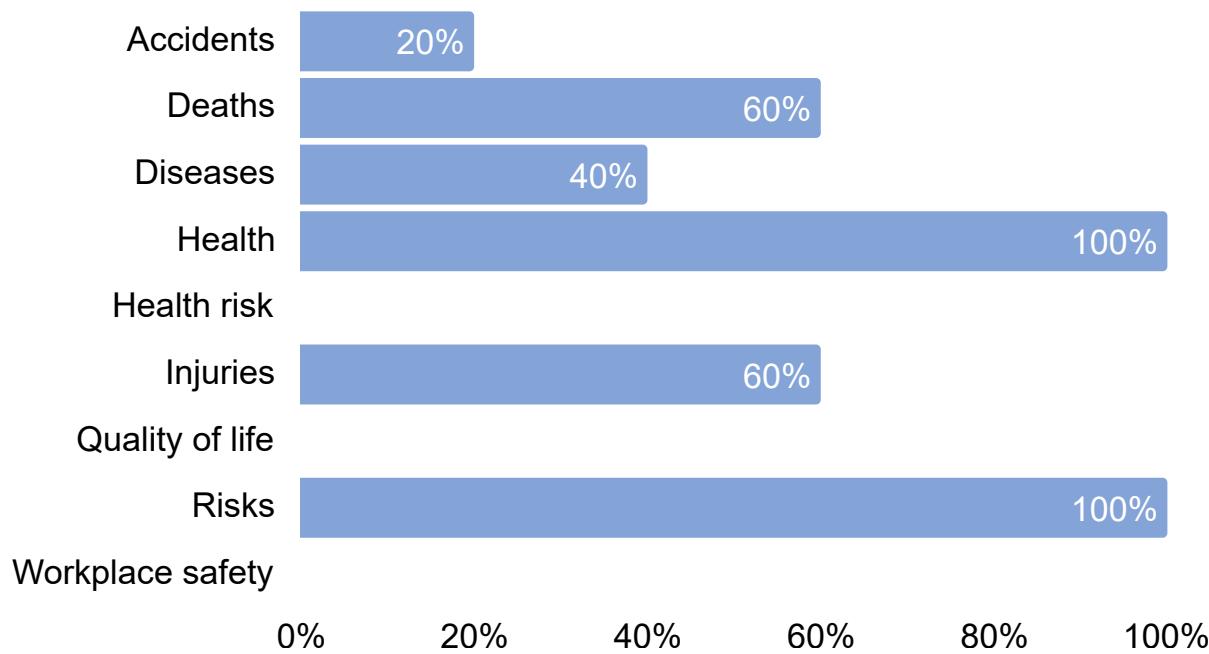
## 3.2. Social protection systems do not effectively include informal and precarious workers

Vietnam's social protection systems—including social insurance and healthcare access—remain largely inaccessible to informal and precarious workers, leaving them exposed to both economic insecurity and climate-related health risks. Despite forming a significant portion of the national workforce, informal workers have very low uptake of social insurance schemes, highlighting a critical gap in protection.

This gap is especially acute for outdoor workers in informal roles—such as street vendors and delivery drivers—whose jobs require constant exposure to environmental hazards like extreme heat, air pollution, and heavy rainfall. These workers typically operate in public or mobile settings, without access to shade, rest points, or protective equipment.

Limited measures tailored for informal workers. Resolution 28-NQ/TW promotes expanding voluntary social insurance with state support for farmers, low-income individuals, and informal workers, focusing on pension and death benefits, but Document No. 58/2014/QH13 and Decree No. 134/2015/NĐ-CP only address voluntary insurance for low-income workers, leaving most informal workers without mandatory coverage. Plan No. 2520/KH-UBND (Quang Ninh province) aims to integrate health care for non-contracted workers into primary health care by 2025, but lacks implementation details, underscoring the challenge of reaching this group.

The Informal labour Report 2016 illustrates the severity of this gap, showing that only 0.2% of informal workers participate in compulsory social insurance and 2% in voluntary social insurance, compared to 81% of formal workers. Similarly, the Informal Economy Report (2011) notes that in 2008, only a few thousand self-employed workers joined voluntary social insurance out of millions eligible. This low coverage is critical for outdoor workers, as Figure 3.3 demonstrates, with “health” and “risk” appearing in all five evaluation reports, reflecting broad concern for health issues, while “death” and “injury” appear in three reports, indicating severe risks without insurance. The absence of “health risks” and “quality of life” in these reports suggests social protection systems overlook comprehensive needs, leaving workers exposed to climate-related health threats like heatstroke or storm-related injuries.



*While all five evaluative reports refer broadly to “health” and “risk,” few explicitly address comprehensive health risks or quality-of-life concerns. This pattern underscores that existing social protection systems emphasize immediate physical harm—such as injury or death—while neglecting broader, climate-related health vulnerabilities of informal outdoor workers.*

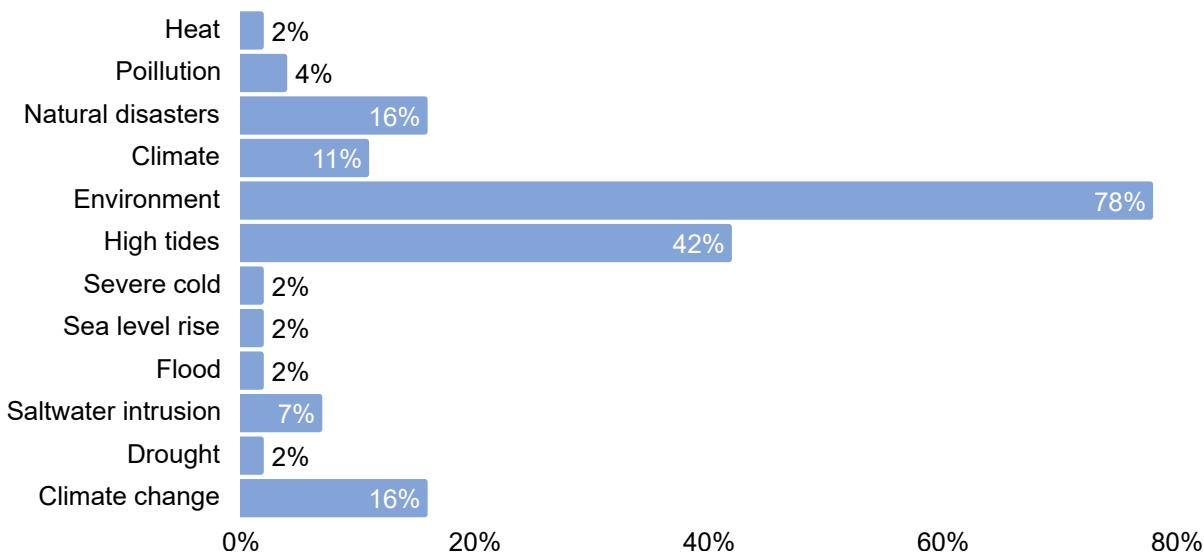
**Figure 3.3. Percentage of reports mentioning health-related keywords**

Platform workers face additional barriers, as highlighted by the Economica Viet Report on Informal Employment (2022), which notes that delivery drivers and ride-hailing workers are often classified as independent contractors through business cooperation agreements, allowing platforms to evade social security obligations. This leaves workers bearing climate-related risks, such as accidents during adverse weather. The report also states that neither the Ministry of labour, Invalids and Social Affairs nor the Vietnam General Confederation of labour has clarified platform workers’ employment status, stalling policy progress. The Vietnam Platform Economy labour Standards Ranking 2023 assessed nine platforms and found no adequate labour or environmental policies to ensure fair work for outdoor workers, reinforcing the protection gap.

The Informal Employment Report 2016 further emphasises that informal workers’ inadequate income, lacking decent wages and social protection, makes voluntary insurance contributions unfeasible. This economic barrier, combined with the lack of mandatory coverage, exacerbates the vulnerability of outdoor workers to climate-induced disruptions, such as income loss from extreme weather events, highlighting the urgent need for targeted social protection reforms.

### 3.3. Fragmentation across climate, labour, and health sectors undermines policy coherence and responsiveness

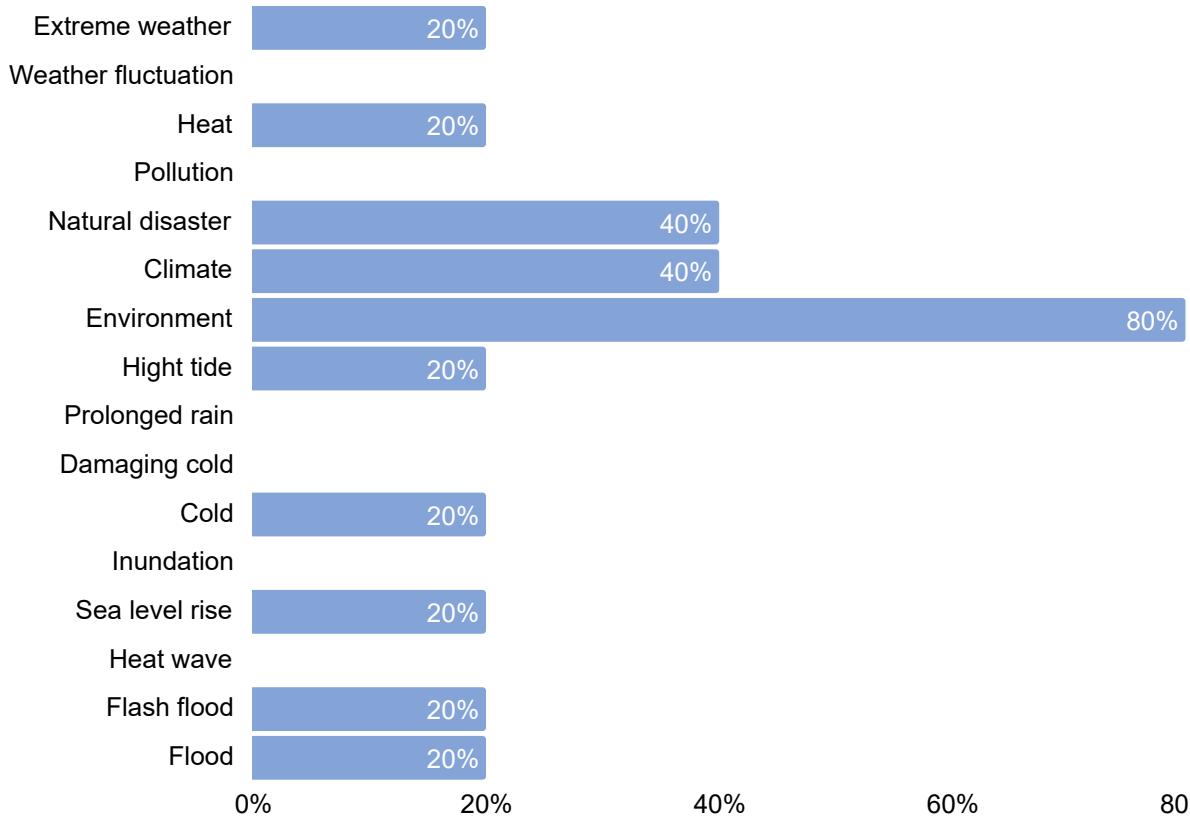
Vietnam's climate, labour, and health policies lack integration, resulting in fragmented approaches that fail to address the interconnected impacts of climate change on precarious outdoor workers' health and livelihoods. This lack of coherence reduces the effectiveness of measures to protect workers like farmers and street vendors, who face increasing climate-related risks. Labour policies focus narrowly on traditional occupational hazards, often ignoring growing climate-specific challenges. For instance, the Law on Occupational Safety and Hygiene (2015) and Circular No. 07/2016/TT-BLDTBXH address workplace accidents and occupational diseases, but Circular No. 19/2016/TT-BYT, which mandates monitoring of harmful workplace factors, does not include climate-related risks such as extreme heat or air pollution. This gap is evident in Figure 3.4, which shows only 16% of policy documents mention "climate change," with related terms like "climate" (11%) and "natural disasters" (16%) also appearing infrequently, underscoring the limited integration of climate concerns into labour frameworks.



*Only a small fraction of Vietnam's policy documents explicitly reference climate change or related terms such as "heat," "drought," or "flood," while general environmental terms dominate. This illustrates how climate-specific health risks for workers remain under-acknowledged within the broader policy landscape, highlighting a significant gap in integrating labour protection with climate adaptation frameworks.*

**Figure 3.4. Percentage of policy documents mentioning key words related to climate change**

Climate policies, meanwhile, prioritize broad environmental goals over worker-specific protections. Decree 06/2022/NĐ-CP focuses on greenhouse gas emission reduction, and Decision 896/QĐ-TTg outlines the National Strategy on Climate Change to 2050, emphasizing energy security and sustainable agriculture but omitting measures for workers' adaptation to climate impacts. The Report on the National Climate Change Adaptation Plan 2021-2030 acknowledges institutional weaknesses and "large unmet financing gaps," noting uneven progress in adaptation and incomplete policy frameworks, particularly for informal workers. This is reinforced by Figure 3.5, where evaluation reports mention "environment" in 80% and "natural disasters" in 40% of cases, but specific weather events like "heat" and "flood" appear in only 20%, highlighting a disconnect between policy objectives and the practical climate challenges workers face.



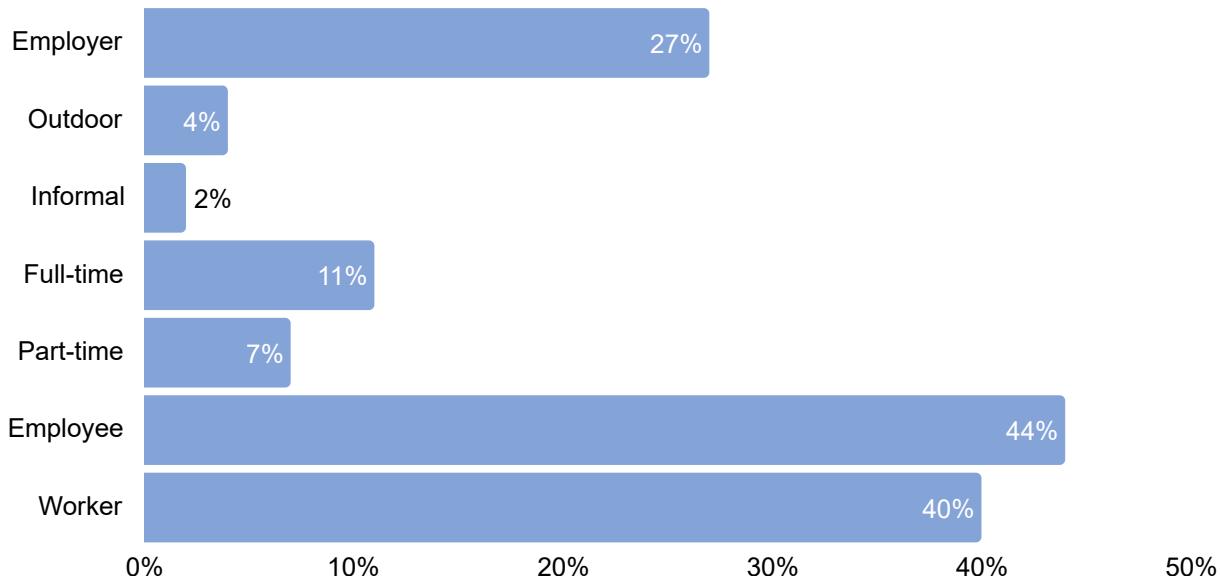
While broad terms like “environment” (80%) and “natural disaster” (40%) appear frequently in evaluation reports, specific climate hazards directly affecting workers—such as heat, flood, or extreme weather—are rarely mentioned (20%). This highlights a policy-practice disconnect: reporting focuses on general environmental conditions rather than the concrete climate threats shaping outdoor workers’ health and safety.

**Figure 3.5. Percentage of reports mentioning climate change-related keywords**

Fragmentation is further evident in the platform economy, where regulatory delays exacerbate vulnerabilities. The Vietnam Platform Economy labour Standards Ranking 2023 notes that the Ministry of Justice’s denial of employee status for platform workers, such as delivery drivers, excludes them from social insurance and safety nets, reflecting poor coordination with the Ministry of labour, Invalids and Social Affairs. Local action plans, like Plan No. 172/KH-UBND (Da Nang) and Plan No. 99/KH-UBND (HCMC), prioritize infrastructure and disaster response over workers’ health needs, further illustrating sectoral silos. Policy conflicts arise, such as when Decree 06/2022/ND-CP mandates new technologies for emission reduction without corresponding safety training updates, increasing occupational risks, or when fisheries policies limiting exploitation lack vocational training support, leading to unemployment and mental health challenges among workers, as noted in the original report.

### 3.4. Lack of tailored measures for outdoor labour reflects a generalised approach to worker protection

Vietnam's labour and health policies adopt a broad, generalised approach that fails to address the specific needs of precarious outdoor workers, such as construction workers, street vendors, and platform-based drivers, who face unique climate-related risks like extreme weather exposure. Only Directive No. 31-CT/TW (2024) explicitly addresses challenges for informal and outdoor workers, citing inadequate occupational safety practices and rising occupational diseases, but it lacks detailed guidance for outdoor-specific risks. This is reflected in Figure 3.6, where "workers" (40%) and "employees" (44%) are frequently mentioned, yet "outdoor" appears in only 5% of documents, indicating minimal attention to outdoor working conditions.

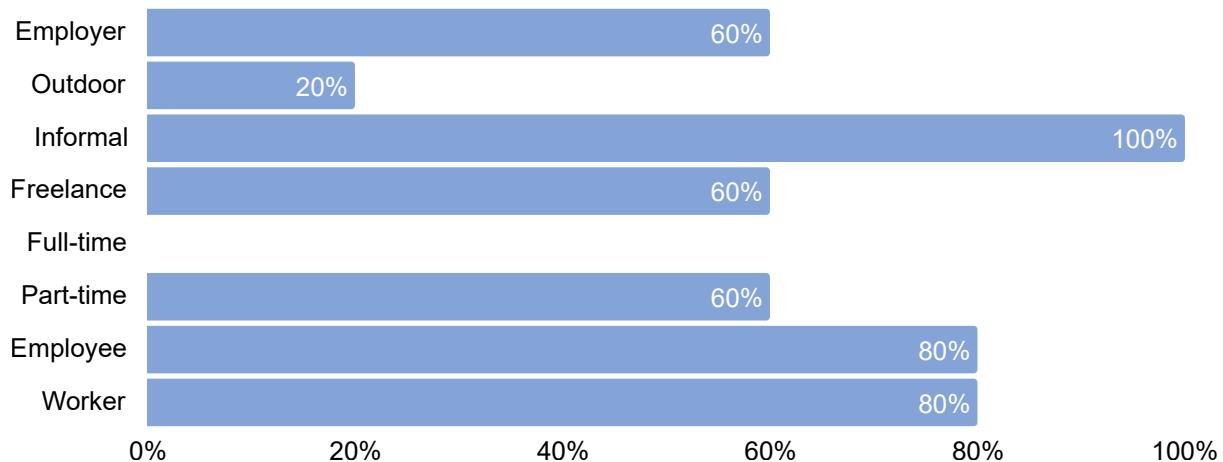


*While terms like "employees" (44%) and "workers" (40%) appear frequently across policy documents, "outdoor" is mentioned in only 5%, indicating limited policy recognition of outdoor work as a distinct occupational condition. This gap highlights how existing frameworks address generic labour groups without tailoring measures to the specific climate-related risks faced by precarious outdoor workers.*

**Figure 3.6. Proportion of policy documents mentioning the keyword group related to precarious outdoor workers**

Similarly, Figure 3.2, a word cloud of policy documents, highlights dominant terms like "occupational" (2%), "insurance" (1%), and "organizations" (1%), with "environment" (78%) used broadly rather than specifically for outdoor contexts.

Existing policies, such as the Law on Occupational Safety and Hygiene (2015), apply to both formal and informal workers but do not distinguish between indoor and outdoor environments. Circular No. 19/2016/TT-BYT requires employers to manage health records and monitor workplace conditions, but omits climate-specific risks like UV exposure or extreme heat, while Circular No. 24/2016/TT-BYT mandates protective equipment without specifying gear for weather-related hazards. Plan No. 235/QD-UBND promotes occupational safety training, but lacks programs tailored for outdoor workers. The Economica Viet Report (2022) emphasizes that informal workers, including those outdoors, use outdated tools and face accident risks in adverse weather, as supported by Figure 3.7, where "informal" (100%) and "worker" (80%) dominate in five evaluation reports, but "outdoor" appears in only one, underscoring the generalized policy focus.



*“Informal” (100%) and “worker” (80%) are the most frequently mentioned keywords across the five evaluation reports, while “outdoor” appears in only one report (20%). This pattern highlights that policy discussions broadly acknowledge informal labour but seldom address the specific conditions of outdoor work, revealing a persistent generalisation and lack of focus on climate-related vulnerabilities among outdoor workers.*

**Figure 3.7. Percentage of reports mentioning keyword groups related to outdoor workers**

The Informal Employment Report (2016) further highlights that informal workers, many of whom work outdoors, lack decent working conditions and social protection, making them particularly susceptible to climate impacts like storms or heat waves. In the platform economy, the Vietnam Platform Economy labour Standards Ranking 2023 found no policies among the nine assessed platforms ensuring fair work for outdoor workers, such as delivery drivers, who face unregulated conditions despite constant exposure to weather-related risks. This is reinforced by Figure 3.8, a word cloud of evaluation reports, where “informal” (2%) and “workers” (1%) are prominent, but “outdoor” is underrepresented, confirming the lack of specific attention to outdoor labour conditions.



Terms such as “informal” and “workers” appear most frequently, reflecting a general focus on labour protection rather than specific recognition of outdoor working conditions. The minimal presence of climate-related or “outdoor” terms underscores the limited policy attention to the environmental health risks faced by precarious outdoor workers in Vietnam.

**Figure 3.8. WordCloud of existing policy documents on the health of outdoor workers in the context of climate change in Vietnam**

Certain vulnerable groups within the outdoor workforce, such as women, low-income workers, and migrants, are particularly neglected. Only three documents—Plan No. 2733/KH-UBND, Plan No. 117/KH-UBND, and Directive No. 31-CT/TW—address female workers' needs, such as reproductive health and HIV/AIDS prevention, appearing in just 3/45 documents. Four documents—Document No. 58/2014/QH13, Decree No. 134/2015/ND-CP, Plan No. 2733/KH-UBND, and Plan No. 117/KH-UBND—mention low-income workers in the context of social insurance support, but migrant workers, who are highly mobile and exposed to environmental risks, are not referenced in any document. This oversight leaves outdoor workers inadequately protected against the specific climate-related challenges they face daily.

### 3.5. Data systems and implementation mechanisms fail to capture or respond to informal workers' climate-health exposure

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The lack of comprehensive data on informal workers in Vietnam significantly hinders the development of effective policies to address their climate-health exposure. As noted in the “Vietnam’s Informal Economy Report,” knowledge about the informal economy is extremely limited, with researchers paying little attention to this sector despite its substantial economic contribution. This data gap makes it challenging to design targeted interventions that address the specific vulnerabilities of informal outdoor workers, who face heightened risks from climate change, such as extreme heat, air pollution, and natural disasters. For instance, the “Informal Employment Report 2016” highlights that informal workers, including street vendors, motorbike taxi drivers, and scrap collectors, are particularly vulnerable due to their direct exposure to adverse weather conditions and lack of social protections like insurance. However, the absence of detailed data on their health, working conditions, and environmental exposures limits the ability to quantify these risks or monitor their impacts effectively.

Implementation mechanisms further exacerbate these challenges. The “National Climate Change Adaptation Plan 2021-2030, Vision to 2050” identifies gaps in institutional frameworks and resource mobilization, noting that adaptation efforts remain uneven and incomplete. Informal workers are often excluded from disaster preparedness and adaptation plans, lacking access to early warning systems or resources to mitigate risks during extreme weather events. The “Informal labour Report 2016” underscores that the precarious nature of informal work—characterized by unstable income, lack of contracts, and poor working conditions—makes these workers particularly susceptible to economic and environmental shocks. Yet, current policy implementation lacks mechanisms to monitor enforcement or ensure that support programs reach these workers. For example, the high mobility of informal workers, such as delivery people and street vendors, complicates outreach efforts, while complex administrative procedures and technological gaps in digital platforms further limit access to support. The “Report on Informal Employment in Vietnam - Economica Viet (2022)” also highlights that inadequate supervision and resources result in limited enforcement of policies like the Law on Occupational Safety and Hygiene (2015), leaving informal workers without adequate protection against climate-related health risks such as heatstroke or respiratory issues from air pollution.

### 3.6. Equity and intersectionality are largely absent in policy design, leaving many sub-groups doubly disadvantaged

Current policy frameworks in Vietnam fail to adequately address the specific needs of vulnerable sub-groups within the informal workforce, such as women, the elderly, migrant workers, and low-income labourers, resulting in compounded disadvantages in the context of climate change. Among the 45 legal documents reviewed, only one—Directive No. 31-CT/TW (2024)—specifically addresses challenges faced by informal and outdoor workers, such as inadequate occupational safety and hygiene practices. However, even this directive lacks detailed provisions for sub-groups. For instance, content related to occupational safety, reproductive health, HIV/AIDS prevention, and breastfeeding for female workers appears in only three documents: Plan No. 2733/KH-UBND (2023), Plan No. 117/KH-UBND (2024), and Directive No. 31-CT/TW. Similarly, low-income workers are mentioned in just four documents, including those addressing voluntary social insurance and support for poor households, while migrant workers are not specifically addressed in any document. This lack of focus on specific groups overlooks their unique vulnerabilities, such as women's reproductive health needs or migrants' lack of access to local support systems.

The absence of intersectional considerations in policy design exacerbates inequities. The "Informal Employment Report 2016" notes that informal workers, who constitute about 50% of Vietnam's workforce, often lack access to social protection, health care, and climate-adaptive services, with women, migrants, and low-income workers facing additional barriers due to their socio-economic status. For example, female workers may face heightened health risks from climate impacts, such as heat stress, which can affect pregnancy or breastfeeding, yet these concerns are rarely addressed. Similarly, migrant workers, who often work in precarious outdoor roles like construction or street vending, are particularly vulnerable to climate-related disruptions due to their lack of formal recognition and access to services. The "National Climate Change Adaptation Plan 2021-2030" emphasises strengthening social system resilience but fails to include tailored measures for these sub-groups, highlighting a gap in addressing equity. This lack of targeted policies risks leaving these groups doubly disadvantaged, as they face both the general challenges of informal work and the specific impacts of climate change without adequate support.



*Waste pickers sorting and stacking cardboard in a residential area in Can Tho, 2024  
(Source: Project team in Can Tho).*

# CONCLUSION

This report provides the first systematic review of Vietnam's policy frameworks on the health of precarious outdoor workers in the context of climate change. The analysis of 45 legal and administrative documents – including laws, decrees, circulars, and implementation plans – shows that while climate, labour, and health policies exist, they fail to adequately recognise or address the intersecting risks faced by this large and vulnerable group.

**First**, precarious outdoor workers remain largely absent from policy discourse. Existing laws and strategies refer to “informal workers” or “disadvantaged groups” in general terms but rarely connect climate change, occupational health, and social protection in ways that address outdoor work. Where provisions exist, their scope is narrow and uneven, often excluding workers in mobile, informal, or platform-based employment.

**Second**, systemic weaknesses reinforce these gaps. Responsibilities are fragmented across ministries with little coordination; implementation is underfunded and inconsistent; and monitoring systems do not capture the realities of outdoor work. Critically, the absence of disaggregated data prevents evidence-based interventions and leaves these workers invisible in national reporting.

**Third**, equity and intersectionality are also neglected. Gender, age, migrant status, and other social factors that compound vulnerability receive little attention, despite their centrality to health outcomes. This risks deepening inequality, as those most exposed to climate hazards are excluded from both mainstream protections and targeted adaptation measures.

Without deliberate reform, these weaknesses will intensify the cycle of vulnerability: workers are excluded from protections, their exclusion prevents evidence from shaping better policy, and gaps widen as climate pressures escalate. To build resilience and fairness, Vietnam's adaptation and health strategies must explicitly recognise precarious outdoor workers, integrate intersectoral protections, and embed equity at the core of policy design and implementation.



A female fruit street vendor selling from a bicycle in Hanoi, 2025. (Source: Project team in Hanoi)

## Recommendations

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Vietnam's current legal and institutional frameworks lack specific, actionable provisions to protect precarious outdoor workers from climate-related health risks. This absence stems from a generalised approach to labour protection, institutional fragmentation, weak local capacity, and the near-total absence of outdoor informal work from monitoring and data systems. Additionally, social protection systems remain inaccessible to many informal workers, while policy frameworks have yet to integrate intersectional perspectives into design or delivery. The following recommendations are grounded in existing laws and programmes, and offer feasible pathways for reform.

### **1. Issue intersectoral regulation on outdoor work in extreme weather**

An official joint circular should be developed by the Ministry of Home Affairs - (formerly the Ministry of Labour, Invalids and Social Affairs), the Ministry of Health, and the Ministry of Agriculture and Environment (formerly the Ministry of Natural Resources and Environment) to establish minimum safety standards for outdoor work during heatwaves, storms, and other hazardous weather. This regulation should update and harmonise provisions across existing circulars (e.g., 07/2016/TT-BLĐTBXH, 20/2021/TT-BYT, and 32/2023/TT-BYT), and offer practical guidance on working hours, rest periods, hydration, and emergency response protocols for informal and mobile occupations.

### **2. Pilot public rest points for outdoor workers in urban hotspots**

Local governments should establish designated rest points for outdoor workers in areas such as construction sites, markets, and transport intersections. These rest areas should provide drinking water, shade, cooling equipment, and shelter from extreme weather. They could be integrated into existing climate adaptation or urban infrastructure plans (e.g., 814/KH-UBND, 25/KH-UBND), or co-funded through smart city and green urban development initiatives.

### **3. Legally recognise precarious outdoor workers in labour management policies**

Existing decrees should be revised to explicitly recognise precarious outdoor workers as a specific sub-category within informal labour. This legal recognition would establish the basis for developing tailored policy responses, including targeted access to social protection, vocational support, and simplified insurance schemes that reflect the realities of unstable, informal work.

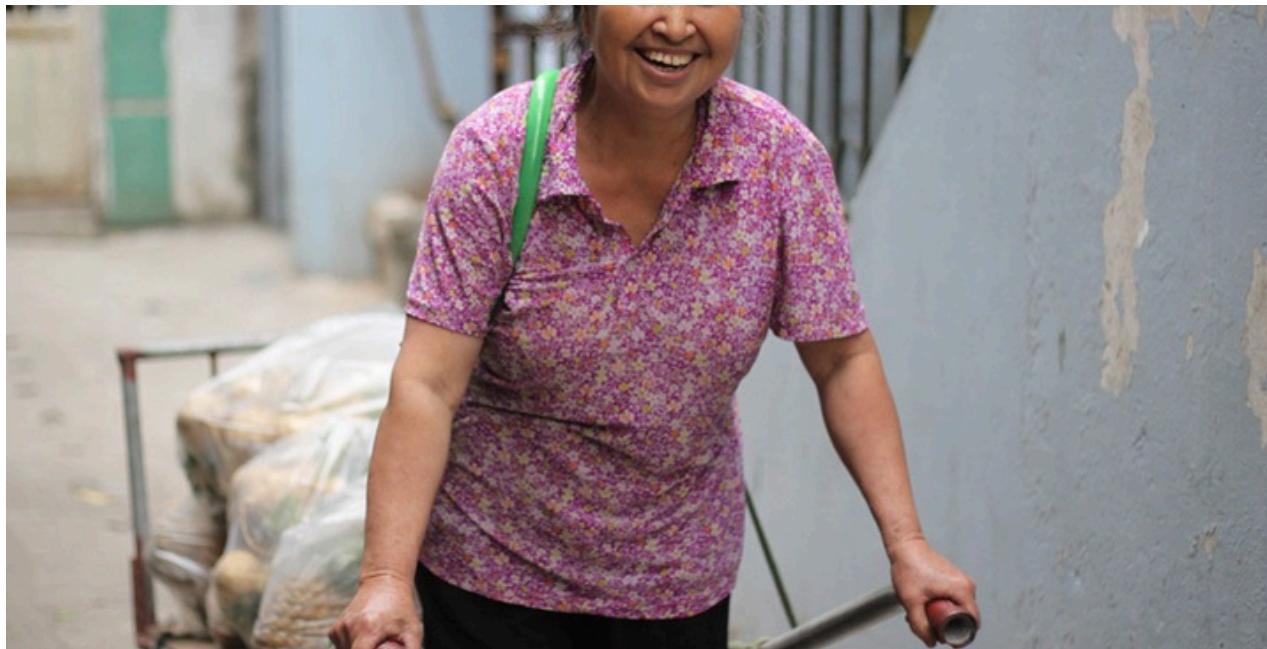
## 4. Integrate climate-health content into informal worker training and livelihood programmes

Commune-level employment service centres and vocational training institutions should incorporate basic modules on occupational health, climate adaptation, and environmental risks into courses for informal workers. Furthermore, key national policies should be updated to prioritize this group, starting with foundational documents like Resolution 20-NQ/TW and Directive 31-CT/TW. Resolution 20-NQ/TW, which sets the strategic vision for the Vietnamese working class, should be broadened to formally recognise precarious outdoor workers, who are currently overlooked in its traditional focus on industrial labour. Concurrently, Directive 31-CT/TW, the country's key policy on occupational safety and health, requires updates to explicitly address the unique and intensifying climate-related health hazards, such as heat stress and extreme weather, that this group faces. Revising these high-level strategic documents would establish a clear top-down mandate, ensuring that the protection of outdoor workers is systematically integrated into national programmes and resource allocation, rather than being treated as a marginal issue.

## 5. Establish a climate-health monitoring and accountability framework for informal labour

A national system should be created to track the exposure and vulnerability of outdoor informal workers to climate-related health risks. This framework should assign specific monitoring responsibilities to Ministry of Home Affairs, Ministry of Health, and Ministry of Agriculture and Environment, and be implemented through local climate action plans (e.g., 99/KH-UBND, 82/KH-UBND). Key indicators could include the number of days lost to extreme weather, reported cases of heat-related illness or accidents, and informal worker access to rest points or protection schemes.

Together, these measures can help bridge Vietnam's current protection gaps and build a more inclusive, resilient policy system for workers at the frontlines of climate exposure.



*A female street vendor pulling a cart loaded with pineapples through an alley in Ho Chi Minh City, 2025  
(Source: Project team in Ho Chi Minh City).*

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# Appendix 1. Methodology

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Based on the classification and system of documents in Vietnam, the main research questions are proposed to guide the process of evaluating the document system including:

- RQ1 – What are the current labour and climate change policies in Vietnam that relate to the health of precarious outdoor workers?
- RQ2 – How do these policies relate to the health of precarious outdoor workers?
- RQ3 – What challenges and gaps exist in the content and implementation of policies related to climate change and the health of outdoor workers in Vietnam?

These questions will help guide and focus the collection and analysis of documents, thereby contributing to achieving the set research objectives.

## 1. Systematic review strategy for objective 1: Describe worker and climate change policies that impact the health of informal outdoor workers in Vietnam

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### **Step 1: Identify the research question**

- RQ1 – What are the current labour and climate change policies in Vietnam that relate to the health of precarious outdoor workers?

### **Step 2: Identify the source of the document**

To ensure comprehensiveness and update, this report uses the “National Database of Legal Documents” as a source of information. This is the main source for the first research question – RQ1, due to its legitimacy and completeness, which is especially important when researching law.

### **Step 3: Determine document search keywords**

Search keywords were derived from the research questions, including topics on policy, climate, climate change, health, outdoor workers.

RQ1 focused on identifying climate change policies that impact the health of informal outdoor workers in Vietnam. To identify and capture existing literature relevant to this research question, we selected a combination of search terms, including the following key words: 'heat', 'drought', 'saltwater intrusion', 'storm', 'flood', 'flash flood', 'heat wave', 'sea level rise', 'inundation', 'cold weather', 'damaging cold', 'prolonged rain', 'high tide', 'environment', 'climate', 'natural disaster', 'risk', 'pollution', 'health risk', 'climate change', 'weather fluctuations', 'extreme weather', 'health', 'disease', 'quality of life', 'accident', 'injury', 'illness', 'workplace safety', 'death', 'worker death', 'worker', 'employee', 'part-time', 'full-time', 'no labour relationship', 'precarious', 'informal', 'outdoor', 'employer law', 'policy', 'circular', 'decree', 'resolution', 'decision', 'constitution', 'regulation', 'guideline', 'telegram', 'strategy', 'standard', 'norm', 'plan'. These terms were selected based on findings from preliminary literature surveys to guide the selection of search terms.

From RQ1 and the above keywords, below is the list of keywords for the first objective.

**Table 1.1. Keyword list for the first objective**

Filter	Problem	Search string
	Climate change	(“heat” OR “drought” OR “saltwater intrusion” OR “storm” OR “flood” OR “flash flood” OR “heat wave” OR “rising sea level” OR “inundation” OR “cold” OR “damaging cold” OR “prolonged rain” OR “high tide” OR “environment” OR “climate” OR “natural disaster” OR “pollution” OR “climate change” OR “weather fluctuations” OR “extreme weather”)
AND	Health	(“health” OR “disease” OR “quality of life” OR “accident” OR “injury” OR “risk” OR “health risk” OR “disease” OR “work safety” OR “death” OR “death”)
AND	Outdoor precarious worker	(“employee” OR “no employment relationship” OR “worker” OR “employee” OR “part-time” OR “full-time” OR “precarious” OR “informal” OR “outdoor” OR “employer”)
AND	Policy	(“law” OR “policy” OR “circular” OR “decree” OR “resolution” OR “decision” OR “constitution” OR “regulation” OR “instruction” OR “telegram” OR “strategy” OR “standard” OR “norm” OR “plan”)

In practice, when implementing a search, due to technical limitations when using multiple keywords to search using database tools, specifically the limit on the number of keywords that can be used, the search strings selected to conduct searches in the databases are presented in the table below.

**Table 1.2. Search string for first objective**

Filter	Problem	Search string
	Climate change	“environment” OR “climate” OR “natural disaster”
AND	Health	“health” OR “disease” OR “work safety”
AND	Outdoor precarious worker	“worker” OR “outdoor” OR “no employment relationship”
AND	Policy	“law” OR “policy” OR “circular” OR “decree” OR “resolution” OR “plan”

**Step 4: Determine document selection and exclusion criteria****Table 1.3. Document selection and exclusion criteria**

Standard	Selection criteria	Exclusion criteria
Content	Policy documents on climate change, health and workers relevant to the impacts of climate change on the health of workers/self-employed/precarious outdoor workers	Documents that do not address the health of workers/self-employed workers
Policy Type	<ul style="list-style-type: none"> <li>Policy documents issued by Vietnam, including: laws, decrees, decisions, guidelines, national strategies, plans, circulars, official dispatches</li> <li>Administrative documents</li> </ul>	Unofficial documents, drafts
Time	Policy documents within the last 20 years, still in effect (from 2004-2024)	Documents that lie outside this temporal range

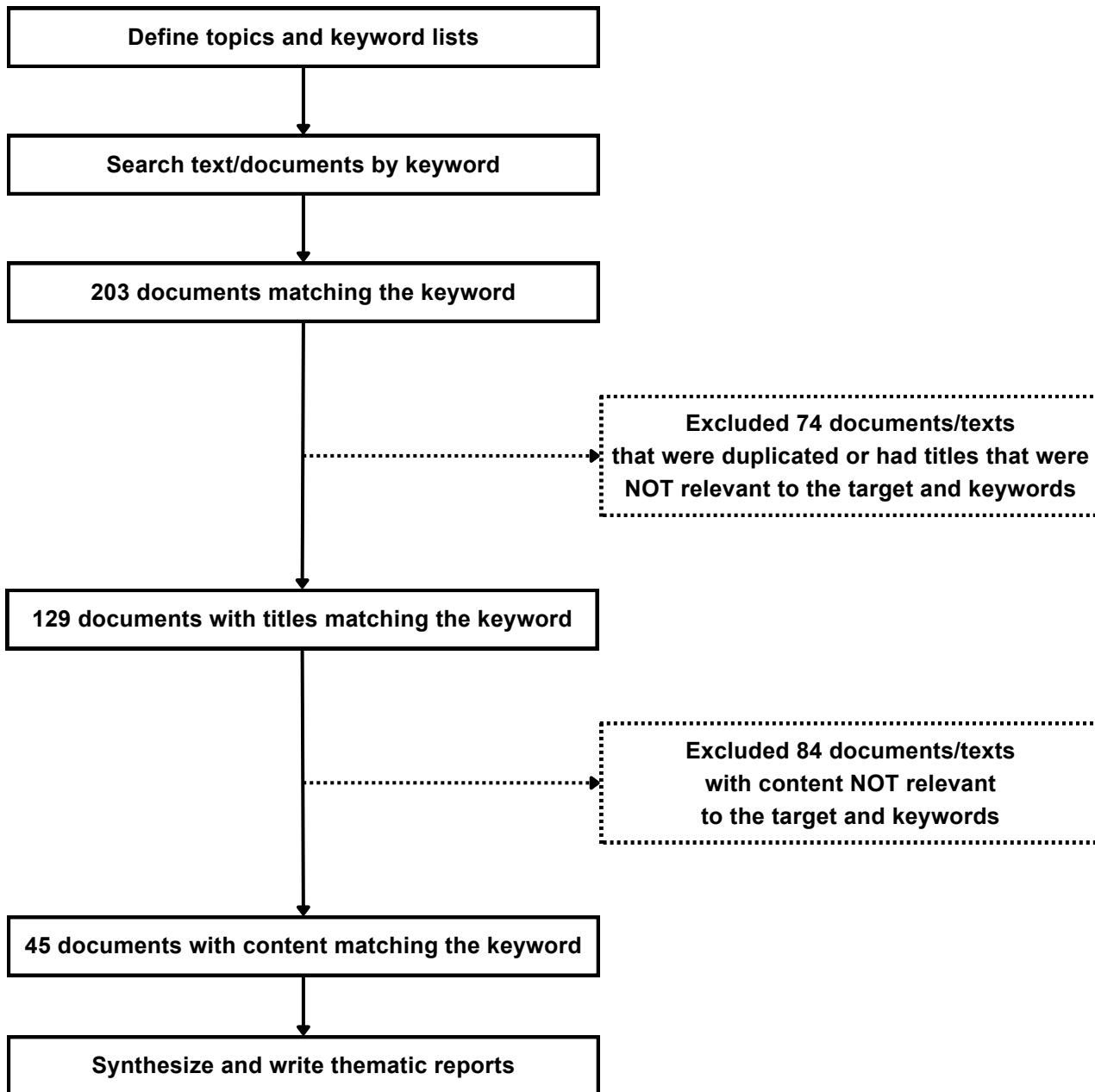
**Step 5: Conduct a search**

To answer the research question RQ1 of the first objective “What are the current labour and climate change policies in Vietnam that relate to the health of precarious outdoor workers?”, we conducted a document search using the search string on the national database of legal documents, which resulted in 129 documents. The documents were manually screened at the title and abstract levels.

After evaluating each document/text by title and abstract, applying the selection and exclusion criteria, 45 documents were identified as relevant to the topic, including 2 legal documents, 11 sub-law documents (including 7 Decrees and 4 Resolutions) and 32 administrative documents. These documents were evaluated in full text to find content related to research question RQ1.

**Table 1.4. Search results for the first objective**

Keyword group	National database of legal documents
Climate change	5112
AND Health	1123
AND Outdoor Workers	203
AND Law/Resolution	9

**Document search results****Step 6: Extract data**

After full-text screening, data were extracted from the selected documents into an Excel file. This data extraction file allowed for a tabular arrangement of the data, with rows representing each document/document reviewed and columns representing major and minor topics. Such an arrangement ensured efficient data interpretation, allowing for the linking of document/text summaries to research questions. The tabular format allowed for the synthesis and organization of information in a scientific manner and facilitated the assessment of the availability of policies for the health of outdoor workers in the context of climate change.

**Table 1.5. Data extraction framework**

Main topic	Sub-topics
Administration	<ul style="list-style-type: none"> <li>• Policy/document name</li> <li>• Policy Type</li> <li>• Issuing agency</li> <li>• Date of issue</li> <li>• Effective Date</li> <li>• Number of documents</li> </ul>
Content	<ul style="list-style-type: none"> <li>• Target</li> <li>• Scope</li> <li>• About</li> <li>• Content</li> </ul>
Policy Actions and Recommendations	<ul style="list-style-type: none"> <li>• Action Plan</li> <li>• Recommendation</li> </ul>
Evaluate	RQ1: What are the current labour and climate change policies in Vietnam that relate to the health of precarious outdoor workers?

### **Step 7: Analyse data and write report**

To systematically analyse the main themes and recurring terms in the policy documents, NVivo software was used for word frequency analysis and word clouds. This method allows for the quantification of common terms, providing an objective basis for identifying common concepts in the reviewed texts.

Due to software limitations, all texts that were eligible and extracted were translated into English and imported into NVivo. Each text was stripped of irrelevant information, such as national emblems, mottos, references, and appendices, to ensure that the analysis focused only on the actual content of the text. This was done to avoid biasing the results by minimizing the influence of words that were irrelevant to the content.

Word frequency analysis using NVivo's word frequency analysis function generated a list of the most frequently occurring words across the entire dataset. Parameters were set to exclude common, non-essential words (e.g., "the", "and", "of") and focus on content-specific keywords. Frequency thresholds were adjusted to capture both highly recurring terms and less frequent but contextually significant words, providing a comprehensive overview of the main topics of the text.

Word Cloud is another result of word frequency analysis that visually represents the frequency of key words. This tool facilitates quick understanding of key topics and allows for deeper exploration of specific areas, based on the visual prominence of terms.

## 2. Systematic review strategy for objective 2: Analyzing the impacts of climate change policies on the health of outdoor self-employed workers in Vietnam

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### **Step 1: Identify the research question**

- RQ2 – How do these policies impact the health of precarious outdoor workers?
- RQ3 – What challenges and gaps exist in the content and implementation of policies related to climate change and the health of outdoor workers in Vietnam?

### **Step 2: Identify the source of the document**

To ensure comprehensiveness and up-to-dateness, this report uses a variety of reliable sources, including:

- Google: This search engine provides extensive access to reports and assessments from domestic and foreign government and non-government agencies and organizations, supporting answers to the second and third research questions.
- Google Scholar: This database provides scholarly literature studies that support answers to the second and third research questions.
- Hanoi Law University Interlibrary System: This system includes the Law University Library , the National Library of Vietnam and the Ho Chi Minh City Law University Library Information Center, providing a treasure trove of specialized academic documents, including theses, dissertations, scientific journals and specialized books, especially useful for in-depth research on law.

The combination of using many diverse sources of documents ensures that the report has a solid, rich and reliable information base, from which conclusions and recommendations of high scientific value are drawn.

### **Step 3: Determine document search keywords**

Search keywords were derived from research questions, including topics on policy, climate, climate change, health, outdoor workers.

- RQ2 focuses on the impact of the policy on the health of outdoor workers. To answer this research question, in addition to the same keywords as the first research question, the report uses additional keywords including 'impact', 'effectiveness', 'report', 'evaluation'.
- RQ3 focuses on finding the difficulties and gaps in policies on climate change and outdoor worker health. To answer this research question, in addition to the same keywords as the first research question 'impact', 'assessment', 'difficulties', 'gaps', 'limitations'.

From RQ2, RQ3 and the keywords above, below is the keyword list for the second objective.

**Table 1.6. Keyword list for second objective**

Filter	Problem	Search string
	Climate change	(“heat” OR “drought” OR “saltwater intrusion” OR “storm” OR “flood” OR “flash flood” OR “heat wave” OR “rising sea level” OR “inundation” OR “cold” OR “damaging cold” OR “prolonged rain” OR “high tide” OR “environment” OR “climate” OR “natural disaster” OR “pollution” OR “climate change” OR “weather fluctuations” OR “extreme weather”)
AND	Health	(“health” OR “disease” OR “quality of life” OR “accident” OR “injury” OR “risk” OR “health risk” OR “disease” OR “work safety” OR “death” OR “death”)
AND	Outdoor precarious worker	(“employee” OR “no employment relationship” OR “worker” OR “employee” OR “part-time” OR “full-time” OR “precarious” OR “informal” OR “outdoor” OR “employer”)
AND	Policy	(“law” OR “policy” OR “circular” OR “decree” OR “resolution” OR “decision” OR “constitution” OR “regulation” OR “instruction” OR “telegram” OR “strategy” OR “standard” OR “norm” OR “plan”)
AND	Impact	(“impact” OR “assessment” OR “report” OR “difficulty” OR “gap” OR “limitation” OR “impact” OR “effectiveness” OR “report” OR “assessment”)

In practice, when implementing a search, due to the limitation of using multiple keywords to search using database tools, specifically the limitation of the number of keywords that can be used (although Google's algorithm does not limit the number of keywords but focuses on providing the most relevant results, but using too many keywords can dilute the search focus and provide results that are not relevant to the search goal), so the search strings selected to conduct searches in the databases are presented in the table below.

**Table 1.7. Search string for second objective**

Filter	Problem	Search string
	Climate change	“environment” OR “climate” OR “natural disaster”
AND	Health	“health” OR “disease” OR “work safety”
AND	Outdoor precarious worker	“worker” OR “outdoor” OR “no employment relationship”
AND	Policy	“law” OR “policy” OR “circular” OR “decree” OR “resolution” OR “plan”
AND	Impact	“report” OR “assessment”

**Step 4: Determine document selection and exclusion criteria****Table 1.8. selection and exclusion criteria**

Standard	Selection criteria	Exclusion criteria
Content	Reports on climate change, employment, health/wellness related to the impact of climate change on the health of workers/self-employed/outdoor precarious workers	Reports do not address health concerns for outdoor precarious workers in the context of climate change
Policy Type	Reports of domestic and foreign government and non-government organizations: reports, summary reports	<ul style="list-style-type: none"> <li>• Unofficial reports, personal opinions of leaders of ministries and branches</li> <li>• Opinions in meetings</li> </ul>
Time	Reports from the last 20 years (2004-2024)	Documents that lie outside this temporal range

### Step 5: Conduct a search

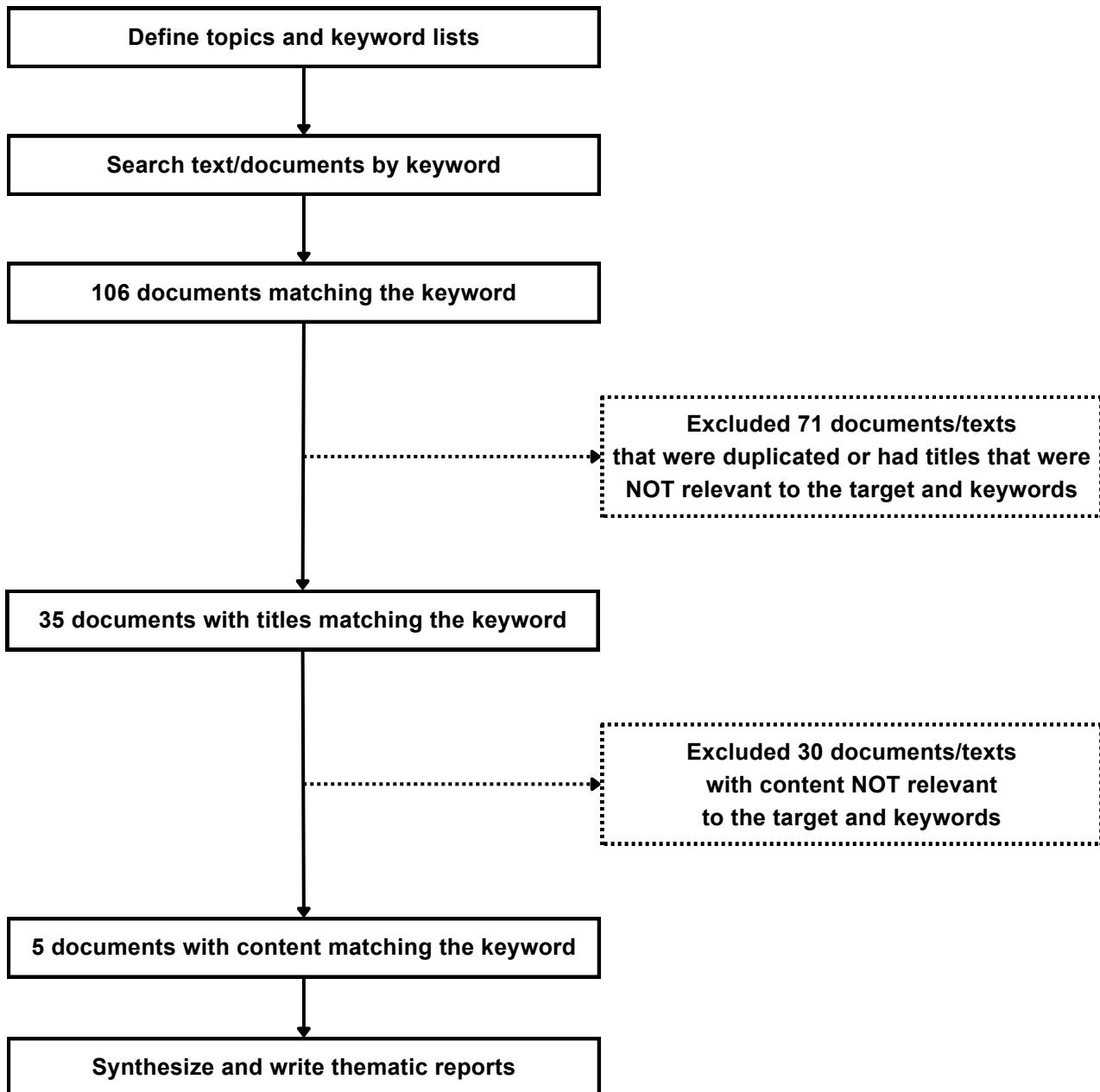
To answer the two research questions RQ2 and RQ3 of the second objective, we conducted a search with keywords related to policy reports and evaluations from the Google, Google Scholar and Interlibrary System databases. Hanoi Law University. Google always gives the highest number of results, followed by Google Scholar, and the lowest is the interlibrary system. This is because the scope and nature of each source is different. The Google database includes both academic and non-academic content; Google Scholar focuses only on academic documents; the interlibrary system only contains documents available in member libraries (the library of the University of Law, the National Library of Vietnam, the Library Information Center of the University of Law, Ho Chi Minh City). These differences reflect the different scope, purpose, and operation of each data source, as well as the level of interest and research on each topic in different fields.

Searching on the document source with the search string, the result is 106 documents including: 95 documents from Google search engine, 4 articles from Google Scholar, 7 documents from the library of the University of Law. The documents were manually screened at the title and abstract level.

After evaluating each document/text by title and abstract, applying the inclusion and exclusion criteria, five reports were identified as relevant to the topic. These reports were evaluated in full text to find content relevant to the two research questions RQ2 and RQ3.

**Table 1.9. Search results for the second objective**

Keyword group	Google	Google Scholar	Hanoi Law University Interlibrary System
Climate change	4,440	3,090	3,090
AND Health	1,270	64	2215
AND Outdoor Workers	421	12	65
AND Policy	98	9	7
AND Report	95	4	

**Document search results****Step 6: Extract data**

After full-text screening, data were extracted from the selected reports into an Excel file. This data extraction file allowed for a tabular arrangement of the data, with rows representing each report reviewed and columns representing major and minor topics. This arrangement ensured efficient data interpretation, allowing for the linking of the summaries of the reports to the research questions. This tabular format provided a scientific synthesis and organisation of the information and facilitated the analysis and assessment of the impact of policies on the health of outdoor workers in the context of climate change.

**Table 1.10. Data extraction framework**

Main topic	Sub-topics
Administration	<ul style="list-style-type: none"> <li>• Report Name</li> <li>• Author/Unit/Organisation</li> <li>• Year of publication</li> </ul>
Content	<ul style="list-style-type: none"> <li>• Target</li> <li>• Content</li> <li>• Recommendation</li> </ul>
Evaluate	<ul style="list-style-type: none"> <li>• RQ2: How do these policies impact the health of precarious outdoor workers?</li> <li>• RQ3: What challenges and gaps exist in the content and implementation of policies related to climate change and the health of outdoor workers in Vietnam?</li> </ul>

### **Step 7: Analyse data and write report**

To systematically analyse the main themes and recurring terms in the policy document reports, NVivo software was used for word frequency analysis and word clouds. This method allows for the quantification of common terms, providing an objective basis for identifying common concepts in the reviewed texts.

Due to software limitations, all reports that were eligible and had their data extracted were translated into English and imported into NVivo. Each report was stripped of irrelevant information, such as introductions, references, and appendices, to ensure that the analysis focused only on the actual content of the text. This was intended to avoid biasing the results by minimizing the influence of words unrelated to the content.

Due to software limitations, all reports that were eligible and had their data extracted were translated into English and imported into NVivo. Each report was stripped of irrelevant information, such as introductions, references, and appendices, to ensure that the analysis focused only on the actual content of the text. This was intended to avoid biasing the results by minimizing the influence of words unrelated to the content.

Word frequency analysis using NVivo's word frequency analysis function generated a list of the most frequently occurring words across the entire dataset.

Parameters were set to exclude common, non-essential words (e.g., "the", "and", "of") and focus on content-specific keywords. Frequency thresholds were adjusted to capture both highly recurring terms and less frequent but contextually significant words, providing a comprehensive overview of the main topics of the text.

Word Cloud is another result of word frequency analysis that visually represents the frequency of key words. This tool facilitates quick understanding of key topics and allows for deeper exploration of specific areas, based on the visual prominence of terms.

# Appendix 2. List of legal and administrative documents in the review

## 1. List of reviewed policy documents

STT	Documents	Types
1	Decree 64/2010/ND-CP on urban tree management	Decree
2	Telegram No. 397/CD-TTg: Deploying measures to respond to heat, drought, and protect people's health	Telegram
3	Circular 18/2021/TT-BLDTBXH: Guidance on reasonable working hours for employees	Circular
4	Circular 15/2021/TT-BXD: Regulations on wastewater drainage infrastructure	Circular
5	Circular 19/2016/TT-BYT: Guidance on management of occupational hygiene and workers' health	Circular
6	Decree No. 146/2018/ND-CP: Detailing and guiding measures for the implementation of certain articles of the Law on Health Insurance.	Decree
7	Decision 162/QD-BYT 2024: Guidelines for diagnosis, treatment and prevention of tuberculosis	Decision
8	Law on labour Safety and Hygiene 2015: Regulations on ensuring safety and preventing diseases for people with work-related accidents and occupational diseases	Law
9	Law on Social Insurance 2014: Regulations on compulsory social insurance, including occupational accident and disease insurance	Law
10	Circular No. 07/2016/TT-BLDTBXH: Regulations on a number of contents on organizing the implementation of occupational safety and hygiene work for production and business establishments	Circular
11	Circular No. 14/2016/TT-BYT: Detailed regulations on the implementation of a number of articles of the Law on Social Insurance in the health sector	Circular
12	Circular No. 24/2016/TT-BYT: Regulations on national technical regulations on noise - permissible noise exposure levels at the workplace	Circular

STT	Documents	Types
13	Decree No. 39/2016/ND-CP: Detailed regulations on the implementation of a number of articles of the Law on labour Safety and Hygiene	Decree
14	Circular No. 04/2015/TT-BLDTBXH: Guidance on the implementation of compensation, allowances and medical expenses of employers for employees suffering from work-related accidents and occupational diseases	Circular
15	Decree 44/2016/ND-CP: Detailing a number of articles of the Law on labour Safety and Hygiene on technical inspection of labour safety, labour safety and hygiene training and labour environment monitoring	Decree
16	Decree No. 88/2020/ND-CP: Detailing and guiding the implementation of a number of articles of the Law on labour Safety and Hygiene on compulsory occupational accident and disease insurance	Decree
17	Decree 06/2022/ND-CP: Regulations on greenhouse gas emission reduction and ozone layer protection	Decree
18	Decree 134/2015/ND-CP: Detailing a number of articles of the Law on Social Insurance on voluntary social insurance	Decree
19	Decision No. 613/QĐ-TTg: On monthly allowances for individuals with 15 to less than 20 years of actual work who have exhausted the period of receiving disability benefits	Decision
20	Circular 06/2020/TT-BLDTBXH promulgating the list of jobs with strict requirements on occupational safety and hygiene	Circular
21	Circular 20/2021/TT-BYT: Regulations on medical waste management within the premises of medical facilities	Circular
22	Circular 32/2023/TT-BYT: Detailing a number of articles of the law on medical examination and treatment	Circular
23	Directive 31-CT/TW on continuing to strengthen the Party's leadership over occupational safety and hygiene in the new situation	Directive
24	Plan 25KH-UBND	Plan
25	Plan 54KH-UBND	Plan
26	Plan 82KH-UBND	Plan

STT	Documents	Types
27	Plan 99KH-UBND	Plan
28	Plan 117KH-UBND	Plan
29	Plan 235KH-UBND	Plan
30	Plan 267KH-UBND	Plan
31	Plan 814KH-UBND	Plan
32	Plan 1567KH-UBND	Plan
33	Plan 1593KH-UBND	Plan
34	Plan 2520KH-UBND	Plan
35	Plan 2723KH-UBND	Plan
36	Plan 5689KH-UBND	Plan
37	Plan 172KH-UBND	Plan
38	Resolution 20-NQ/TW	Resolution
39	Resolution 24-NQ/TW	Resolution
40	Resolution 28-NQ/TW	Resolution
41	Resolution 062021NQ-HDND	Resolution
42	Decision 90QD-LDTBXH	Decision
43	Decision 98QD-LDTBXH	Decision
44	Circular 022017TT	Circular
45	Circular 022017TT-BTC	Circular

## 2. List of reviewed reports

STT	Documents	Types
46	Report on the informal economy in Vietnam - Ministry of labour, Invalids and Social Affairs and International labour Organization (2011)	Report
47	Report on Informal Employment in Vietnam - Economica Viet (2022)	Report
48	Vietnam Fairwork Ranking 2023: labour Standards in the Platform Economy	Report
49	Informal labour Report – General Statistics Office and International labour Organization	Report
50	Report on the National Plan for Climate Change Adaptation for the 2021-2030 period, with a vision to 2050 (Ministry of Natural Resources and Environment)	Report

This report is part of our wider Wellcome-funded research project *"The health impacts of climate change on precarious outdoor workers in urban Vietnam"*, conducted in collaboration between NatCen (UK), the Vietnam Medical Association (VMA), LIGHT, SocialLife, and the University of Bristol (UK).

