

POLICY RECOMMENDATIONS

STRENGTHENING HEALTH PROTECTION FOR INFORMAL OUTDOOR WORKERS IN THE CONTEXT OF CLIMATE CHANGE IN DA NANG

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1. BACKGROUND

Climate change is becoming one of Vietnam's major development challenges. International assessments consistently identify Vietnam as one of the countries heavily affected by extreme weather events, including prolonged heat, severe storms, heavy rainfall, flooding and sea-level rise. These impacts extend beyond environment and infrastructure, directly affecting people's health, livelihoods and quality of life.

As a major socio-economic centre of Central Vietnam, Da Nang has considerable development opportunities, but is also regularly affected by the extreme weather typical of the central coastal region, including typhoons, tropical depressions, heavy rainfall, urban flooding and prolonged periods of heat.

Ho Chi Minh City and Can Tho are particularly affected by urban heat and flooding. Da Nang, by contrast, is exposed both to extreme heat and to hazards common in Central Vietnam, including typhoons, tropical depressions and heavy rainfall. Outdoor workers therefore face several different types of climate risk.

In recent years, Da Nang has continued to take a leading role in climate action and sustainable development. The city has implemented programmes on environmental protection, green urban development, greenhouse-gas emission reduction, strengthening its capacity to prepare for and respond to disasters, and green growth. These provide an important foundation for Da Nang's ambition to become a modern, liveable and environmentally sustainable city.

However, the research points to one vulnerable group that has not yet received sufficient attention in current policies: informal outdoor workers. Informal outdoor workers include a wide range of occupations, such as:

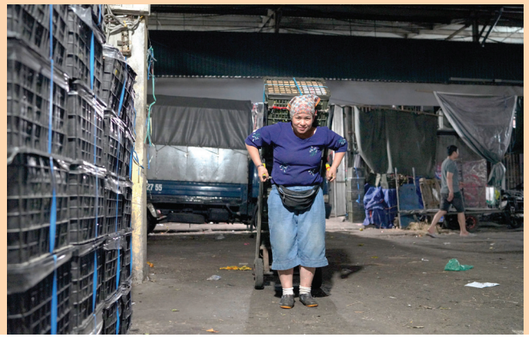
- Street vendors;
- Traditional motorcycle taxi drivers and app-based ride-hailing drivers;











- Construction workers;
- Porters and transport workers;
- Waste and recyclable collectors;
- Workers in local markets, floating/fish markets and other outdoor settings.

These workers are vital to the running and provision of services in Da Nang, and they are amongst those most exposed to extreme weather and climate-related health risks.

2. SUMMARY OF THE RESEARCH AND POLICY REVIEW

These policy recommendations draw on two complementary sources of evidence conducted by the Vietnam Medical Association (VMA) and the Institute for Development and Community Health (LIGHT): field research in four major cities and a review of relevant legal and policy documents. Both were undertaken as part of the Wellcome-funded research project, The Health Impacts of Climate Change on Precarious Outdoor Workers in Vietnam's major cities. The research programme is led by the National Centre for Social Research (NatCen), United Kingdom, in collaboration with VMA, LIGHT, the SocialLife Research Institute and the University of Bristol. The Medical Associations of Ho Chi Minh City, Da Nang and Can Tho contributed to the implementation of the research in the study cities.

SOURCE 1: FIELD RESEARCH IN FOUR MAJOR CITIES - HANOI, DA NANG, HO CHI MINH CITY AND CAN THO (MAY–DECEMBER 2025)

- A quantitative survey of **1,208** informal outdoor workers in four occupational groups (street vendors/lottery-ticket sellers, traditional/app-based motorcycle taxi drivers, porters/transport workers, and construction workers), including **201** participants in Da Nang.
- The qualitative research comprised 76 in-depth interviews and eight focus-group discussions involving 48 participants.

SOURCE 2: REVIEW OF 45 POLICY DOCUMENTS (2024)

- A systematic review of legal and policy documents relating to climate change, labour, health and social protection at both central and local levels.



The research was funded by the Wellcome Trust, and conducted by the Vietnam Medical Association (VMA), the LIGHT Institute for Community Health Development and the Ho Chi Minh City Medical Association, with technical and financial support from the National Centre for Social Research (NatCen), United Kingdom.

The research found that:

- Outdoor workers experience very high levels of climate and environmental exposure;
- Effects on physical health, mental health and livelihoods are already evident;
- Access to social protection and health-care services remains limited;
- A policy gap remains: there is currently no policy that brings together health protection, climate change response and social protection for informal outdoor workers.

Taken together, the field research and policy review suggest that **protecting the health of informal outdoor workers should be considered a priority in climate adaptation and sustainable urban development in Da Nang.**

3. KEY RESEARCH FINDINGS

3.1. Da Nang: the highest reported impacts on physical health, mental health and livelihoods among the four cities

The research found that informal outdoor workers in Da Nang reported the highest levels of climate-related impacts among the four study sites.

Table 1. Reported effects of climate change on the health and work of informal outdoor workers in the four study cities

Area affected	Da Nang	Hanoi	Ho Chi Minh City	Can Tho
Physical health	87.6%	69.8%	62.6%	48.8%
Mental health	50.7%	38.5%	22.7%	41.3%
Work and livelihoods	55.2%	37.0%	10.1%	32.8%
Property	18.9%	17.5%	8.6%	10.0%



Notably, 87.6% of workers in Da Nang said climate change had affected their physical health, the highest proportion among the four study sites. The reported effects on mental health (50.7%) and livelihoods (55.2%) were also the highest. These figures point to the combined pressure that outdoor workers in Da Nang face from extreme weather and livelihood insecurity.

3.2. Awareness of climate change is relatively good, but adaptive capacity remains limited

About 49.7% of workers in Da Nang were able to identify signs of climate change, and 42.8% could identify extreme weather events.

These proportions were higher than in Ho Chi Minh City and Hanoi, which may partly reflect local community communication and disaster-preparedness efforts.

However, although awareness among workers in Da Nang was the highest, reported health impacts were also the highest of the four cities. This contrast shows that awareness alone is not enough to protect workers. Alongside better knowledge, more systematic forms of support are needed, such as rest stations, weather warnings and income protection when dangerous weather makes it necessary to stop work.

Workers still rely mainly on individual coping measures, such as changing working hours or finding temporary shelter from heat or rain. More systematic support from health services, social protection systems and local authorities remains limited.

3.3. Clear effects on physical health



The research found that 87.6% of outdoor workers in Da Nang reported health effects associated with climate change. Common problems linked to working conditions and extreme weather included:

- Fatigue and exhaustion during periods of hot weather;
- Headaches;
- Dehydration;
- Musculoskeletal pain;
- Reduced work productivity;
- A higher risk of accidents during storms, heavy rain and other adverse weather.

This shows that the health effects of climate change are no longer only a future risk; they are already being experienced.

3.4. Mental health is an important concern

Alongside physical health effects, mental health emerged as an important concern.

As many as 50.7% of outdoor workers in Da Nang said their mental health had been affected by extreme weather events - the highest proportion among the four study sites.

Table 2. Stress levels among informal outdoor workers in the four study cities (n; %)

Socio-demographic characteristics	Mean ± SD	Median. Min–Max	0–14: Normal	15–18: Mild	19–25: Moderate	26–33: Severe	≥34: Extremely severe
General Stress Score (N=1,188)	9.6 ± 6.7	8 0 - 42	975 (82.1)	117 (9.8)	65 (5.4)	24 (2.0)	7 (0.6)
Da Nang	11.0 ± 6.5	10 0 - 34	157 (78.5)	25 (12.5)	13 (6.5)	3 (1.5)	2 (1.0)
Hanoi	9.9 ± 6.4	10 0 - 42	326 (84.0)	34 (8.8)	20 (5.2)	7 (1.8)	1 (0.3)
Ho Chi Minh City	9.5 ± 6.9	8 0 - 34	324 (80.4)	43 (10.7)	25 (6.2)	8 (2.0)	3 (0.7)
Can Tho	8.1 ± 7.0	6 0 - 38	168 (85.3)	15 (7.6)	7 (3.6)	6 (3.0)	1 (0.5)

Table 3. Anxiety levels among informal outdoor workers in the four study cities (n; %)

Socio-demographic characteristics	Mean ± SD	Median (Min–Max)	0–7: Normal	8–9: Mild	10–14: Moderate	15–19: Severe	≥20: Extremely severe
General Anxiety Score (N=1,191)	5.6 ± 5.5	4 0 - 42	800 (67.2)	127 (10.7)	195 (16.4)	39 (3.3)	30 (2.5)
Da Nang	5.7 ± 5.7	4 0 - 32	133 (66.8)	20 (10.1)	34 (17.1)	6 (3.0)	6 (3.0)
Hanoi	6.7 ± 5.3	6 0 - 42	219 (55.9)	47 (12.0)	106 (27.0)	13 (3.3)	7 (1.8)
Ho Chi Minh City	4.5 ± 5.5	4 0 - 32	309 (76.7)	39 (9.7)	30 (7.4)	15 (3.7)	10 (2.5)
Can Tho	5.3 ± 5.6	4 0 – 30	139 (70.6)	21 (10.7)	25 (12.7)	5 (2.5)	7 (3.6)

In-depth interviews found that workers were frequently concerned about:

- The risk of losing income during prolonged storms and heavy rain;
- Health-care costs;
- Their ability to maintain employment;
- Family care responsibilities during periods of natural disaster.

Using a different measure, the DASS-21, a standardised instrument used to screen for symptoms of depression, anxiety and stress, found that 33.2% of workers in Da Nang with a valid anxiety score (n=199) had symptoms ranging from mild to extremely severe (10.1% mild, 17.1% moderate, 3.0% severe and 3.0% extremely severe). The stress analysis used 200 valid responses. This brief presents the anxiety and stress components of the assessment. The 50.7% figure reported in Table 1 refers to workers' self-reported assessment that their mental health had been affected by weather events; it is not a DASS-21 measure.

This indicates that climate change is not only an environmental issue, but also a public health concern, particularly in relation to mental health.

3.5. Socio-economic conditions increase vulnerability among outdoor workers in Da Nang

The research suggests that outdoor workers in Da Nang not only face particularly high climate risks, but also have fewer resources with which to cope with those risks.

- Informal outdoor workers in Da Nang had the highest average age (43.6 years), compared with Ho Chi Minh City (41.5), Hanoi (41.1) and Can Tho (38.7).
- Ethnic minority workers accounted for 11.9% of the informal outdoor worker sample in Da Nang, the second-highest proportion among the four cities.
- Da Nang had the highest proportion of informal workers with disabilities (11.4%), followed by Can Tho (6.5%), Ho Chi Minh City (5.2%) and Hanoi (3.0%).

- Da Nang also had the highest proportion of informal workers in the low-income group (below VND 3.3 million per person per month), at 18.4%, compared with 3.4% in Ho Chi Minh City, 3.5% in Hanoi and 12.4% in Can Tho.

An older average age may mean lower physical tolerance and fewer opportunities to change occupation. The higher proportion of workers with disabilities also raises specific issues around access to services and support. Lower incomes and poorer living conditions mean that when weather forces people to stop working, their financial capacity to absorb the loss is very limited.

In other words, these workers face major climate risks while having limited resources to cope with them. Periods of extreme heat and storms can affect both their health and their income, with few financial buffers available when work is disrupted.

3.6. The need for policy support is clear

Another notable finding is that workers in Da Nang expressed particularly high demand for information, knowledge and practical support to protect their health from climate-related risks.

- The proportion wanting support with the cost of care at primary health-care facilities was highest in Da Nang (90.5%), followed by Hanoi (80.0%), Can Tho (75.1%) and Ho Chi Minh City (65.8%) ($p<0.001$).
- *87.1% of informal outdoor workers in Da Nang wanted public rest stations, compared with 77.8% in Hanoi, 71.6% in Can Tho and 51.6% in Ho Chi Minh City ($p<0.001$).*
- 86.6% of informal outdoor workers in Da Nang wanted support with health insurance and 79.1% with social insurance. The corresponding figures were 85.2% and 59.5% in Hanoi, 81.1% and 68.7% in Can Tho, and 65.0% and 54.4% in Ho Chi Minh City ($p<0.001$).
- The wish for opportunities to move into work less affected by climate change was also highest in Da Nang (63.7%), followed by Hanoi (54.5%), Can Tho (48.8%) and Ho Chi Minh City (36.5%) ($p<0.001$).

These findings suggest that workers recognise the risks they face and want support that is concrete, practical and easy to access.



4. POLICY RECOMMENDATIONS

RECOMMENDATION 1. INTEGRATE HEALTH PROTECTION FOR INFORMAL OUTDOOR WORKERS INTO THE CITY'S ENVIRONMENTAL AND CLIMATE ADAPTATION PROGRAMMES

The City People's Committee, Department of Agriculture and Environment and Department of Health should consider recognising informal outdoor workers as a priority group in climate response, disaster risk reduction and sustainable urban development programmes.

RECOMMENDATION 2. DEVELOP AN EARLY-WARNING SYSTEM LINKED TO HEALTH ADVICE FOR OUTDOOR WORKERS

The Department of Agriculture and Environment, working with the health sector and weather forecasting authorities, should develop early warnings for heat, heavy rain, storms and other extreme weather events, accompanied by simple and practical health advice for workers.

RECOMMENDATION 3. PILOT A MODEL OF "CLIMATE-RESILIENT AND INFORMAL OUTDOOR WORKER-FRIENDLY HEALTH STATIONS"

The Da Nang Department of Health and Da Nang Centre for Disease Control (CDC) could consider piloting this model in areas with large numbers of informal workers.

The model could include:

- Health information and communication for extreme weather conditions;
- Screening for heat-related health problems;
- Mental health counselling;
- Advice on health insurance and social insurance;
- Mobile health checks for outdoor workers.

RECOMMENDATION 4. IMPROVE ACCESS TO HEALTH INSURANCE AND SOCIAL INSURANCE FOR INFORMAL WORKERS

The city Social Security agency, Department of Home Affairs and local authorities should consider suitable forms of communication, counselling and support to help informal workers gain better access to health insurance and voluntary social insurance.

RECOMMENDATION 5. DEVELOP WORKER-SUPPORT POINTS IN PUBLIC SPACES AND TOURIST AREAS

The Department of Tourism, Department of Construction and local authorities could consider establishing worker-support points in places with large numbers of outdoor workers, such as markets, bus stations, tourist areas, parks and coastal areas.

These points could provide:

- Drinking water;
- A place to rest and shelter from heat;
- Weather-warning information;
- Basic first-aid support.

RECOMMENDATION 6. STRENGTHEN RESEARCH AND MONITORING OF CLIMATE-RELATED HEALTH IMPACTS

Establish a coordination mechanism involving the health, environment and labour sectors and research institutions to monitor climate-related health impacts on a regular basis, with particular attention to informal outdoor workers.









5. CONCLUSION

The research shows that a high proportion of outdoor workers in Da Nang reported being affected by climate change. The proportions reporting effects on physical health (87.6%), mental health (50.7%) and livelihoods (55.2%) were the highest among the four study cities.

These effects have implications not only for individual workers, but also for public health, labour productivity, the city's capacity to respond to climate-related shocks and its sustainable development goals.

Da Nang has strong foundations on which to become a leading city in integrating climate, health and social protection policies for outdoor workers. Investing in their health today can help reduce the immediate effects of climate change while contributing to a greener, safer, fairer and more resilient city in the future.

Among the four cities studied, informal outdoor workers in Da Nang reported the highest levels of climate-related impacts on physical health, mental health and livelihoods. Safeguarding the health of outdoor workers today is a vital investment in the city's sustainable future.

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