RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-01

Multidimensional vulnerability to dengue and diarrhea in the context of the climate crisis

Country: Peru
Principal investigator: Bertha Luz Pineda

The challenge

The climate crisis is intensifying dengue and diarrheal diseases in Amazonian territories with structural deficits in water, sanitation and health services, especially in border contexts.
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The approach

ransdisciplinary and participatory research, based on:
- Knowledge Dialogues with local communities and institutions.
- Integration of health, environmental, and social data.
- Co-creation of decision-making tools.

What was done

Development of a Multidimensional Vulnerability Index (MVI).
Creation of territorial vulnerability maps.
Design of intersectoral action plans.
Community communication strategies with youth participation.

Main findings

- Health vulnerability is multidimensional (social, environmental, and institutional).
- The lack of safe water, sanitation, and waste management is a key factor in transmission.
- Climate change exacerbates existing risks.
- Pregnant women, children, and older adults are the most affected groups.

Impact and application

- Local action plans for dengue and diarrhea are underway.
- Community radio with cross-border reach (Peru–Brazil–Colombia). Youth volunteers leading prevention and education efforts.
- Use of the IVM to guide local and regional policies.

Key lessons

- Health adaptation requires intersectoral and territorial responses.
- Community and youth participation are key to sustainability.
- In border regions, local actions have regional impact.

Publication

Mezza, M., Doig-Alba, L., Ruiz-Ruiz, M. I., & Pineda Restrepo, B. L. (2026). Exploring vulnerabilities: A mixed-method transdisciplinary study of dengue and diarrhea in Peru. *The Journal of Climate Change and Health*. https://www.sciencedirect.com/science/article/pii/S2667278226000246

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-02

Assessment of Public Health Institutional Capacity to Respond to Dengue in the Context of Climate Change

Countries: Guatemala and Argentina
Principal investigator: Gustavo Estrada Galindo

The challenge

Climate change is expanding dengue transmission in Latin America, straining public health systems that face deep territorial inequalities, human resource gaps, and limitations in institutional coordination. The project demonstrates that having isolated technical capacities does not guarantee an effective response to arboviruses in climate-vulnerable contexts.

The approach

The project adopted a transdisciplinary and comparative approach, aligned with frameworks for climate-informed public health and systems-based adaptation, integrating:

- Assessment of systemic institutional capacity (human resources, knowledge, infrastructure, and networks).
- Contextual analysis in territories with varying levels of capacity.
- Engagement of health authorities, health workers, community health promoters, and local stakeholders.

What was done

- Comparative assessment of dengue response capacity in Argentina (Tucumán) and Guatemala (Zacapa and Quiché).
- Conducting surveys and interviews with health personnel and community actors.
- Analysis of information systems, collaboration networks, and care practices.
- Identification of best practices, critical gaps, and policy opportunities differentiated by context.

Main findings

- Capacity paradoxes exist: regions with greater technical training may experience high dengue incidence if the response is fragmented.
- In contexts with lower capacity, the shortage of specialized personnel and limited knowledge about severe dengue increase health risks.
- Standardized information systems are necessary but insufficient without inter-institutional coordination.
- The integration of traditional medicine, community health promoters, and local networks improves the effectiveness of the response.

Impact and application

- Local action plans for dengue and diarrhea are underway.
- Identification of differentiated strategies based on territorial context (limited resources vs. greater technical capacity).
- Concrete recommendations for:
- Staged and context-specific training.
- Use of telemedicine to bridge geographical gaps.
- Strengthening of municipal and community networks.
- Provision of evidence for the design of health adaptation policies in response to climate change in Latin America.

Key lessons

- Health adaptation to climate change requires systemic approaches, not isolated interventions.
- Effective institutional capacity depends on the coordination of technical expertise, networks, and context.
- Policies must be tailored to specific regions, balancing standardization with local adaptation.
- Community participation and the integration of knowledge strengthen the resilience of health systems.

Key message

Strengthening the response to dengue in a changing climate involves investing not only in technical capabilities but also in integrated, collaborative health systems adapted to each region.

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-03

Climate Change and Health Impacts: Using Satellite Data to Assess the Relationship Between Climate Factors, Water Quality, and Infectious Diseases in Chile

Country: Chile
Principal investigator: Rayana Palharini

The challenge

Climate change is altering precipitation, temperature, and drought patterns in Chile, affecting surface water quality and increasing the risk of waterborne infectious diseases, such as salmonellosis. These impacts place pressure on public health systems and reveal gaps in environmental and health surveillance systems, particularly in areas with informal settlements and high socio-environmental vulnerability.

What was done

- Case study in the Maipo and Mapocho river basins (Metropolitan Region).
- Integration of satellite imagery, spectral indices (NDWI, AWEI), climate data, and water samples collected between 2019 and 2023.
- Assessment of the relationship between environmental conditions and the presence of Salmonella in water bodies.
- Analysis of opportunities and limitations for the development of low-cost monitoring and early warning systems.
- Dissemination of results in scientific and public policy forums, strengthening transdisciplinary networks.

Main findings

- Climatic and environmental variables influence water quality and the risk of pathogen presence.
- Spectral indices derived from satellite data show potential for identifying high-risk areas, especially under conditions of high water variability.
- Prolonged droughts and limitations in microbiological data hinder the immediate implementation of operational models.
- Available scientific information does not automatically translate into public policy due to gaps in inter-institutional coordination.

The approach

The project adopted an innovative and interdisciplinary approach, aligned with frameworks for climate-informed public health and evidence-based adaptation, integrating:

- Open-access satellite data (Sentinel-2) and climate observations.
- Water quality sampling in strategic urban watersheds.
- Statistical analysis and modeling to explore relationships between climate, the environment, and health risks.
- Linking science, public health, and environmental management.

Impact and application

- Generating evidence for the future design of integrated, climate-sensitive environmental and health surveillance systems.
- Contributing to the formulation of environmental health and climate change adaptation policies, with an emphasis on water and sanitation.
- Identifying priority areas for preventive action, supporting the strategic allocation of public resources.
- Strengthening national and international research networks and science–policy dialogue.

Key lessons

- Monitoring climate-sensitive diseases requires integrating environmental, climate, and health data.
- Remote sensing technologies offer cost-effective opportunities, but they must be complemented by local data and institutional capacities.
- Coordination across sectors (health, environment, water resources) is key to turning data into action.
- Investing in integrated monitoring systems strengthens public health resilience in the face of climate change.

Key message

Strengthening the response to dengue in a changing climate involves investing not only in technical capabilities but also in integrated, collaborative health systems adapted to each region.

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-04

Public consultation and citizen mapping on green spaces and their role in public health: Extreme heat in Mexico City

Country: Mexico
Principal investigator: Leticia Gómez Mendoza

The challenge

The increase in the frequency and intensity of heat waves associated with climate change poses a growing risk to urban public health. In Mexico City (CDMX), although no deaths from heatstroke are officially reported, there is a high prevalence of symptoms associated with extreme heat, such as dehydration, fatigue, irritability, and dizziness, which are not adequately reflected in health statistics. This underreporting limits the capacity for preventive response and territorial planning, particularly in contexts of socio-spatial inequality and unequal access to green spaces.

What was done

- A climate and health baseline was established for the municipalities of Iztapalapa and Benito Juárez, including the identification of heat waves and cases of morbidity associated with extreme heat.
- Surveys were conducted on social media and in public spaces (n≈640) to document symptoms, preventive behaviors, and the use of green spaces.
- Community workshops on participatory mapping were held at PILARES centers, where citizens identified thermal risk zones, green spaces in use, barriers to access, and areas needing improvement.
- Workshops and dialogue sessions were organized with health, environmental, and risk management officials to compare results and explore opportunities for intersectoral coordination.

Main findings

- Heat waves are concentrated primarily in the eastern part of Mexico City, including Iztapalapa and Benito Juárez, with a sustained increase in the number of days with extreme temperatures in recent years.
- The population reports a high prevalence of symptoms associated with extreme heat, despite the absence of official records of heatstroke-related mortality.
- Green spaces are perceived as key thermal buffering areas, but their use is limited by factors such as insecurity, lack of maintenance, and distance from homes.
- There are marked territorial inequalities in access to green infrastructure: Iztapalapa has a considerably lower index of green spaces per inhabitant than Benito Juárez.
- Coordination between the health and environment sectors is limited and predominantly reactive, with little preventive integration based on territorial evidence.

The approach

The project adopted a transdisciplinary approach integrating climate science, public health, urban planning, and citizen participation. Through participatory mapping and community consultation, the project sought to link social perceptions of extreme heat with climate, epidemiological, and green infrastructure data, generating territorially explicit and socially relevant evidence for decision-making.

Impact and application

The project's results provide concrete inputs for:

- Guiding local policies on adaptation to extreme heat from a public health and climate justice perspective.
- Prioritizing the identification, rehabilitation, and maintenance of green spaces as critical infrastructure for risk reduction.
- Strengthen early warning systems and risk communication at the community level.
- Support decision-making through vulnerability mapping and integrated assessments that can be utilized by city districts, the health sector, and civil protection agencies.

Key lessons

- The population's perceptions and daily experiences are fundamental to identifying risks that are overlooked by traditional information systems.
- Green spaces play a strategic role in adapting to urban heat, but they need to be explicitly integrated into health policies.
- Citizen participation and social mapping strengthen ownership of knowledge and improve the relevance of public interventions.
- Moving toward preventive governance of extreme heat requires sustained intersectoral coordination mechanisms based on local evidence.

Key message

Extreme heat is already affecting the health of the urban population in Mexico City, although its impacts remain underreported. Integrating green spaces as critical infrastructure for health and climate adaptation, alongside citizen-generated information, enables the identification of areas of greatest vulnerability, the prevention of health risks, and the guidance of more equitable and effective intersectoral decisions in the face of increasing heat waves.

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-05

Climate-Sensitive Early Warning System for the Dengue Virus and Its Transmitting Vector, with Community Action

Country: Cuba
Principal investigator: Yazenia Linares

The challenge

Dengue fever remains one of the leading public health threats in the Americas, and its transmission is increasingly influenced by climate variability and change. In Cuba, although well-established surveillance systems exist, they operate primarily in a reactive manner, with limited capacity to anticipate outbreaks at the local level. In response to this, the need arose to integrate climate, entomological, epidemiological, and socio-environmental information to strengthen prevention and decision-making.

What was done

- Time series of climate, entomological, epidemiological, and socio-environmental data were compiled (2019–2025).
- Climate variability indices and risk thresholds were constructed.
- Spatial models were developed to estimate vector density and viral circulation.
- Risk maps and hotspots were generated to target interventions.
- A community forecasting system with a 1- to 3-month horizon was implemented.
- Bulletins, response protocols, and public education activities were designed with community participation.

Main findings

- There is a consistent relationship between climate variability, an increase in the vector population, and the emergence of dengue cases.
- Bioclimatic indices make it possible to predict transmission peaks about one month in advance.
- Spatial analysis identified persistent high-risk clusters.
- Community engagement strengthened the detection of breeding sites and the adoption of preventive measures.

The approach

The SAT-DENCLIM project developed a bioclimatic early warning system that combines climate analysis, spatial modeling, epidemiological surveillance, and community participation. Through a transdisciplinary approach, the system makes it possible to identify high-risk areas and periods, generate tiered alerts, and translate scientific evidence into concrete preventive actions.

Impact and application

The project made it possible to implement an operational and participatory early warning system, improve the targeting of interventions, and optimize resources based on risk levels. In addition, it strengthened communication between authorities and the community and achieved a reduction of up to 60% in infestation rates and dengue cases compared to previous periods.

Key lessons

- Integrating climate, health, and geography is essential for anticipating outbreaks.
- Climate forecasting enhances traditional epidemiological surveillance.
- Community participation is a key component of sustainability.
- The model has the potential to be replicated in other regions and for other arboviral diseases.

Key message

SAT-DENCLIM demonstrates that it is possible to shift from reactive surveillance to proactive dengue management through climate data, spatial analysis, and community action, offering a replicable model for the health sector's adaptation to climate change.

Dissemination

https://www.paho.org/en/stories/early-warning-dengue-cuba-strengthens-prevention-community-level

https://www.paho.org/es/publicaciones/cuba-informe-anual-pais-2025

Sistema de alerta temprana para el control del dengue en la comunidad desde la acción climática, PAHO TV https://www.youtube.com/watch?v=75V11scJEjM

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-06

Ayllu Resilience Mechanism to Address the Effects of Climate Change Through a Dialogue of Knowledge Between Local Wisdom and Innovative Technologies in Micaya, Bolivia

Country: Bolivia
Principal investigator: Noemí Tirado Bustillos

The challenge

In the high-Andean community of Micaya (La Paz, Bolivia), climate change has intensified frosts, droughts, and soil degradation, affecting agricultural production, food security, and the health of the population. These pressures result in poorly diversified diets, severe nutritional deficiencies (particularly of vitamin B12 and folate), the coexistence of overnutrition and undernutrition, and chronic exposure to pesticides, with evidence of genotoxic damage in a significant portion of the population. Vulnerability is exacerbated by structural limitations in access to health services, education, and sustainable livelihood alternatives.

What was done

- Implementation of community greenhouses and agroecological practices to address frost, drought, and soil degradation.
- Application of zeolites and organic fertilizers to improve agricultural productivity and reduce pesticide use.
- Comprehensive assessments of the population's health, nutrition, and genetic status (anthropometry, micronutrients, genotoxic damage).
- Development of cookbooks featuring Andean foods to diversify the local diet.
- Intercultural workshops and forums for knowledge exchange involving women, youth, local authorities, and health personnel.

Main findings

- More than 80% of the population had a vitamin B12 deficiency, and about 40% had a folate deficiency.
- About one-third of the participants showed evidence of genotoxic damage, with a higher prevalence among those exposed to pesticides.
- Local diets that are highly dependent on carbohydrates increase nutritional vulnerability.
- Agroecological practices increased vegetable production by approximately 30%, diversifying the diet.
- The dialogue between ancestral knowledge and science strengthened community acceptance of the interventions.

The approach

The project adopted a transdisciplinary and intercultural approach, based on a dialogue between the ancestral knowledge of the Ayllu and contemporary scientific and technological tools. Agroecological practices, innovative soil management technologies, and biomedical and nutritional assessments were integrated, with strong community participation, to strengthen climate, food, and health resilience at the local level.

Impact and application

- The project demonstrated that integrating science with local knowledge can generate effective and culturally relevant solutions to the impacts of climate change.
- Demonstration of an Ayllu resilience model that can be replicated in other high-Andean communities.
- Evidence for designing intersectoral public policies that integrate health, agriculture, nutrition, and climate adaptation.
- Inputs for government programs aimed at reducing malnutrition and exposure to pesticides.
- Strengthening of community self-management and the participation of women and local authorities in decision-making.

Key lessons

- Climate resilience is most effective when built from the ground up through local engagement and intercultural dialogue.
- Agroecological approaches can simultaneously improve production, nutrition, and health.
- Exposure to pesticides poses an underestimated health risk that requires urgent attention from public health and agricultural policymakers.
- The active participation of women and communities is essential for the sustainability and ownership of solutions.

Key message

Integrar saberes ancestrales y tecnologías agroecológicas en políticas públicas permite fortalecer la resiliencia climática, mejorar la nutrición y reducir riesgos sanitarios en comunidades rurales altoandinas, con soluciones culturalmente pertinentes, costo-efectivas y replicables a escala territorial.

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RESEARCH PROGRAM:
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Policy Brief | Project SG-CEH-07

Transdisciplinary project to design a comprehensive early response to heat waves for older adults in the City of Buenos Aires

Country: Argentina
Principal investigator: Ana Laura Torlaschi

The challenge

Heat waves are one of the extreme weather events with the greatest impact on health in urban areas. In the City of Buenos Aires, older adults are disproportionately vulnerable to extreme heat, due to housing conditions, unequal access to water and energy, health status, support networks, and territorial inequalities. These risks are exacerbated in vulnerable neighborhoods, where power outages and infrastructure limitations reduce coping capacity, while the effects of heat continue to be underreported in health systems.

What was done

- A total of 634 surveys were conducted, along with 4 focus groups (with older adults and caregivers) and questionnaires administered to response stakeholders.
- Heat maps, maps of older adult density, power outages, and vulnerable neighborhoods were created to identify priority areas for intervention.
- Potential weather shelters were identified and geolocated, particularly in vulnerable neighborhoods, with the support of community health workers.
- Existing public policies were analyzed, and an intersectoral working group was formed to co-create response strategies.
- An early response pilot plan was designed, with differentiated measures for the formal city and vulnerable neighborhoods.

Main findings

- There is a gap between knowledge and practice: although most older adults are aware of preventive measures, many do not implement them adequately (for example, insufficient hydration).
- Older adults in vulnerable neighborhoods report greater negative effects of heat and a greater need for assistance in accessing water and food.
- Neighborhood and community networks are emerging as a key asset for coping with extreme heat.
- The impacts of heat and the capacity to respond are not uniform, which requires strategies tailored to specific regions and living conditions.

The approach

The project adopted a transdisciplinary, rights-based approach, integrating research, older adults' knowledge, and local government capabilities. Co-creating solutions with health system stakeholders, the environmental sector, community organizations, and older adults was prioritized, in order to design a comprehensive response to heat waves that is adapted to the diversity of urban environments.

Impact and application

- Concrete inputs for the design and implementation of local public policies, in coordination with the Interministerial Committee on Climate Change and Health of the City of Buenos Aires.
- Strengthening of the Climate Shelter Network, planning of hydration stations, and distribution of safe water.
- Support for the city's integration into the surveillance system for health effects of extreme temperatures, through Sentinel Units.
- A basis for an early response that can be replicated in other Latin American cities with similar urban contexts.

Key lessons

- Heat waves must be addressed as a priority urban public health issue.
- Effective planning requires spatial data, community participation, and cross-sectoral coordination.
- Older adults are key stakeholders in developing adaptation strategies.
- Responses to extreme heat must be tailored, preventive, and sustained over time, integrating health, the environment, housing, and social development.

Key message

Heat waves have a disproportionate impact on the health of older adults in the City of Buenos Aires. Developing early, localized, and cross-sectoral responses—co-created with the community—can reduce risks, save lives, and strengthen urban adaptation to climate change with a focus on equity.

Publication

Torlaschi, A. L., Carneglia, G., & Pereiro, N. (2025). Heatwave resilience in Buenos Aires: Translational research and co-created strategies for public policy benefiting older adults across diverse urban settings. Journal of Climate Change and Health. https://www.sciencedirect.com/science/article/pii/S2667278225000781

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-08

Issues and Strategies related to Climate Change, Health, and Agroecology: Experiences and Contributions of the Women's Group in the Uruguay Agroecology Network

Country: Uruguay
Principal investigator: Soledad Nión Celio

The challenge

Climate change affects rural areas and the health of populations that depend on food production in different ways. In Uruguay, women engaged in agroecological farming face water stress, extreme weather events, production uncertainty, and a care burden, with direct effects on their physical, mental, and emotional health. However, these impacts and the contributions of agroecology and the work of rural women remain insufficiently recognized in public health and climate change policies.

What was done

- Organization of regional participatory workshops (in the central-southern, eastern, western, and northern regions of the country) with women involved in agroecology.
- Collective identification of challenges, as well as adaptation, mitigation, and transformation strategies related to climate change and health.
- Forums for cross-sectoral exchange with stakeholders from academia, the health sector, education, government, and civil society.
- Systematization of experiences and development of guidelines and recommendations for public policy.
- Development of a shared conceptual glossary to facilitate transdisciplinary dialogue.

Main findings

- Climate change affects human and ecosystem health, with a significant impact on the mental and emotional health of rural women.
- Agroecological women play a central role in food production, land stewardship, and the sustainability of life, yet their contributions are largely unrecognized.
- Agroecology provides key strategies for climate adaptation, food sovereignty, and health promotion.
- There are gaps in rural women's participation in decision-making spaces and in their access to health services appropriate to their circumstances.

The approach

The project adopted a transdisciplinary and ecosystem-based approach to health (eco-health), grounded in a dialogue of knowledge among academia, the health sector, public institutions, and the RAU Women's Group. It prioritized gender equity, active participation, and the co-construction of action-oriented knowledge, linking climate change, health, and sustainable agri-food systems.

Impact and application

The project's results provide concrete inputs for:

- Developing inputs to strengthen the National Agroecology Plan and health and climate change policies with a gender and territorial focus.
- Evidence to support educational, communication, and outreach strategies targeting decision-makers and the general public.
- Strengthening the RAU Women's Group as a collective actor with greater advocacy capacity.
- Contributing to the design of intersectoral actions that integrate health, agroecology, the environment, and social equity.

Key lessons

- Addressing climate change and health requires systemic, participatory, and gender-sensitive approaches.
- Knowledge dialogue enhances the relevance, legitimacy, and application of knowledge in public policy.
- Agroecology is a transformative strategy for health, climate adaptation, and sustainability.
- Highlighting and strengthening the role of rural women is key to a just and resilient transition.

Key message

Integrating agroecology and the knowledge of rural women into health and climate change policies strengthens communities' ability to adapt, their food sovereignty, and their well-being, through equitable, locally-based, and sustainable approaches to the climate crisis.

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-09

Building a Resilient Tourism Sector: An Analysis of Socioeconomic Inequality, Sustainability, and Climate Resilience in Jamaica's Airbnb Ecosystem

Country: Jamaica
Principal Investigator: Kalim Shah

The challenge

Tourism is a central pillar of the Jamaican economy, but the rapid expansion of short-term rental platforms such as Airbnb has exacerbated socioeconomic inequalities, put pressure on the local housing market, and exposed communities and visitors to growing climate risks, such as hurricanes, floods, and environmental degradation. The lack of integrated regulation and resilience standards limits the sector's ability to contribute to sustainable development and the protection of community health and well-being.

What was done

- Geospatial analysis of 148 Airbnb properties, assessing their exposure to hurricanes and flooding, as well as their proximity to emergency services.
- Assessment of socioeconomic inequalities, comparing rental prices with local incomes using indicators such as the Gini index.
- Review of climate preparedness and adaptation measures at properties (infrastructure, emergency protocols, safety).
- Identification of environmental risks, including water quality and pressure on coastal ecosystems.
- Development of regulatory proposals and guidelines for more resilient and equitable tourism.

Main findings

- Airbnb properties are concentrated in areas highly vulnerable to climate-related risks, many of which lack adequate access to shelters or emergency services.
- The economic benefits of Airbnb are concentrated in higher-income neighborhoods, reinforcing regional inequalities.
- There is unequal disaster preparedness, with a lack of minimum safety and resilience standards.
- In areas with high tourist density, significant environmental risks have been identified, including water pollution and impacts on fragile ecosystems.

The approach

The project adopted an interdisciplinary and evidence-based approach, integrating geospatial analysis, socioeconomic assessment, and public policy review. It addressed the climate–environment–health–tourism nexus, with an emphasis on climate resilience, territorial equity, and sustainability, to generate policy recommendations aimed at strengthening tourism governance in vulnerable island contexts.

Impact and application

- Proposal for a regulatory framework to integrate Airbnb into tourism governance and risk management in Jamaica.
- Development of a comparative vulnerability index to prioritize public interventions.
- Recommendations for mandatory safety audits, accommodation registration, and alignment with national disaster management plans.
- Contributions to local reinvestment policies, incentivizing sustainable and resilient practices in the tourism sector.

Key lessons

- Resilient tourism requires integrating social equity, environmental sustainability, and climate risk management.
- Regulating digital platforms is key to preventing the widening of inequalities.
- Climate resilience in tourism must be addressed at the community level, not just at the individual property level.
- Geospatial data are strategic tools for informed and proactive tourism planning.

Key message

Regulating and guiding Airbnb's growth based on criteria of climate resilience, social equity, and environmental sustainability helps protect communities and visitors, reduce disaster risks, and ensure that tourism contributes to local well-being and climate change adaptation.

Publication

Shah, K. U. (2025). Embedding resilience into the platform economy: a climate–health–environment assessment of the Jamaican short-term rental sector. *Journal of Policy Research in Tourism, Leisure and Events.* https://www.tandfonline.com/doi/abs/10.1080/19407963.2025.2574252

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-11

Toward the Development of an Integrated Digital FAIR Data Platform on the Climate-Environment-Health Nexus in South America: A Case Study in Argentina

Country: Argentina
Principal investigator: Sonia Muñoz

The challenge

In South America, and particularly in Argentina, data on climate, the environment, and health are fragmented, with limited interoperability and difficulties in accessing and reusing them. This situation hinders the development of integrated indicators, the identification of vulnerable populations, and the ability to make timely, evidence-based decisions in response to the health impacts of climate change.

What was done

- An interdisciplinary and later transdisciplinary team was formed, bringing together institutions from the health, environment, climate, academic, and civil society sectors.
- A systematic mapping of stakeholders was conducted, identifying providers and users of CAS data.
- Transdisciplinary workshops were held to collaboratively select and prioritize climate-sensitive indicators.
- Eighty-four data sources (55 datasets and 29 platforms) were surveyed and characterized according to FAIR criteria.
- The structure of a digital platform and its MVP were collaboratively designed, including indicator modules, a data repository, and communication features.
- A communication strategy and institutional identity for the project were developed.

Main findings

- There is a high availability of CAS data in Argentina, but compliance with FAIR principles is moderate, particularly regarding interoperability, licensing, and reuse.
- An initial list of 173 CAS indicators was co-developed, aligned with the SDGs and international frameworks (PAHO, ECLAC, Lancet Countdown).
- Data fragmentation and the lack of spatial and temporal harmonization constitute the main bottlenecks.
- Transdisciplinary work strengthened the platform's relevance, legitimacy, and potential usability for public policy.

The approach

The project adopted a transdisciplinary approach based on the co-production of knowledge among government, academic, and civil society actors. The FAIR principles (Findable, Accessible, Interoperable, Reusable) were applied to data management, and work was carried out on the collaborative design of a Minimum Viable Product (MVP) for a digital platform integrated into the Climate-Environment-Health (CEH) nexus.

Impact and application

- The PladCAS platform has the potential to improve evidence-based decision-making in the areas of health, the environment, and climate change.
- It helps raise awareness of vulnerable populations and facilitates the design of equity-focused policies.
- It can be integrated into the national statistical system, strengthening monitoring, transparency, and accountability.
- It offers a scalable foundation for implementation at the regional level in South America.

Key lessons

- Building trust and maintaining ongoing communication are essential for transdisciplinary collaboration.
- It is not enough for data to simply exist; improving its harmonization, governance, and reuse is key.
- The FAIR principles must be incorporated into the institutional design of information systems.
- Striking a balance between technical sophistication and ease of use is central to achieving an impact on public policy.

Key message

Investing in integrated FAIR data platforms in the climate-environment-health nexus is key to anticipating risks, protecting the most vulnerable populations, and strengthening public decisions based on evidence, equity, and cross-sectoral cooperation in the face of climate change.

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RESEARCH PROGRAM:
Climate, environment and health (SG-CEH)

Policy Brief | Project SG-CEH-12

Community Engagement Strategy for the Prevention and Management of Risk Factors in Dengue Transmission, with a Focus on Climate, Environment, Society, and Culture

Country: Argentina and Colombia
Principal investigators: Elizabet Estallo and Doriam Camacho

The challenge

Dengue has intensified in Latin America as a result of climate change, rapid urbanization, and deep-seated social inequalities. In cities such as Córdoba, Argentina, and Santa Marta, Colombia, traditional vector control strategies have proven insufficient because they fail to address household practices, structural conditions, and the lack of sustained community participation. This creates a perception of institutional neglect and limits the effectiveness of prevention efforts, especially in warmer and more variable climates.

What was done

- Development of statistical models linking climate variables (temperature, precipitation, urban vegetation) to the risk of dengue.
- Conducting interviews, participatory workshops, and ethnographic studies with affected communities and local authorities.
- Identification of barriers and facilitators to the adoption of preventive practices in households.
- Forums for the co-creation of strategies between citizens and decision-makers.
- Design of community education and communication initiatives, with an emphasis on youth as agents of change.

Main findings

- Climate variables make it possible to predict the risk of dengue several weeks in advance, opening up opportunities for early warnings.
- There is general awareness of preventive measures, but their implementation is limited by socioeconomic conditions, access to water, and fragmented information.
- Young people play a key role as advocates for preventive practices in their homes and neighborhoods.
- Solutions co-designed with the community are more legitimate, appropriate, and sustainable.

The approach

The project adopted a transdisciplinary and co-creation approach, integrating climate science, epidemiology, social sciences, and community knowledge. It focused on the climate–environment–health nexus, prioritizing the active participation of local communities, young people, authorities, and key sectors to design culturally relevant and sustainable strategies.

Impact and application

- Input for the design of early warning systems that combine climate data and community action.
- Input for strengthening local dengue prevention policies through a participatory and intersectoral approach.
- Practical recommendations for communication campaigns tailored to local contexts.
- A foundation for institutionalizing intersectoral working groups on dengue that coordinate health, environment, education, and public services.

Key lessons

- Preventing dengue requires going beyond vector control to address social and cultural determinants.
- Sustained community participation is essential for effective responses to climate change.
- Co-creation strengthens shared responsibility between the government and citizens.
- Integrating climate science with local action improves the foresight and effectiveness of public policies.

Key message

Integrating climate data with active community participation makes it possible to anticipate dengue outbreaks, strengthen social accountability, and design more effective, equitable, and sustainable preventive policies to address climate change in vulnerable urban settings.

Learn more about this research program and access more briefs at: http://bit.ly/4u2qxhY

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