



Policy brief

The Caribbean: a region of excellence for urban climate resilience

Lifelong learning for urban planners

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Key messages

- The Caribbean faces multiple hazards and is on the front line of climate change.
 - Transformational adaptation across the Caribbean, especially in cities, will rely upon innovative solutions, integrated planning and multifunctional responses.
 - The Caribbean will need world-leading skills and education in urban climate resilience to make this happen.
 - To commence this transition, a six-week Tailored Open Online Course for students and planning professionals has been developed and is being piloted in 2022.
 - Creating a regional centre of excellence for climate-resilient cities would establish the Caribbean at the international forefront of teaching and skills development on this critical agenda.
 - A virtual centre is needed to support a decentralised educational model, promote the Caribbean, attract investment and generate demand from students and urban planning professionals for knowledge, skills and lifelong learning in climate resilience.
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Introduction

An estimated 70% of the population and buildings in the Caribbean are located in coastal areas (Mycoo and Barath, 2021). Because of this, the region's urban infrastructure is particularly vulnerable to coastal risks, including coastal erosion and flooding, which are exacerbated by climate change. This infrastructure includes electricity generation and distribution systems, health care facilities, transportation corridors, housing and businesses. According to the latest Intergovernmental Panel on Climate Change (IPCC) report, climate change has already caused widespread, pervasive impacts to ecosystems, people, settlements and infrastructure, resulting from observed increases in the frequency and intensity of climate and weather extremes (IPCC, 2022).

This exposure to risk will only increase over time, with as much as 80% of the Caribbean population projected to live in cities by 2050 (Donovan and Turner-Jones, 2017). The IPCC (2022) report notes that for some small islands and other low-lying areas, sea level rise poses an existential threat. There is therefore a need to look beyond immediate and near-term climate risk reduction, towards more transformational adaptation. This includes integrating climate change into building design and spatial urban planning decisions in ways that produce co-benefits for adaptation and mitigation (IPCC, 2022).

There are an increasing number of adaptation responses available for urban systems, but many conventional responses are likely to be prohibitively costly for the region. Innovation will be needed, including bringing together a combination of ecosystem-based and structural adaptation responses. This is likely to reduce adaptation costs and provide multiple benefits across flood control, sanitation, water resource management, landslide prevention and coastal protection, all of which are critical adaptation options for Caribbean cities.

It is a considerable challenge for urban planning professionals to understand the range of interconnected climate risks in urban areas, identify suitable adaptation options and develop a comprehensive programme of actions (all within existing financial and other resource constraints). The Caribbean could continue to lead the way in generating scientific knowledge about climate change and its impacts, and in developing the methods and technologies to transform urban settlements into healthy, resilient, well-adapted spaces. However, this will entail continuous training and upskilling for Caribbean planning professionals, requiring sustained investment. It will also involve a shift in urban planning curricula and in the educational offer across the region, to deliver learning that is flexible and responsive to the needs of professionals and that offers practical insight into changing urban planning tools and methods. While the focus is currently on traditional knowledge-based education in structured university programmes in urban planning and climate change, the recommendation is that urban planning curricula should be more tailored to the needs of the Caribbean and other Small Island Developing States. There should also be greater flexibility in access to such courses, so they can reach a wider spectrum of individuals.

Urban planning and climate risks in the Caribbean

Caribbean planning practice today is characterised by an integrated and coordinated approach to critical land use, recognising the need to address a range of urban development challenges, such as housing and settlements (including informal settlements), water and sanitation, transportation and environmental protection. Caribbean planners have also been responsive to emerging place-based data and scenario-based decision support tools – notably geomatics, geographic information systems, open data and open source applications.

In 2006, the Vancouver Declaration, authored by the Global Planners Network (2006), recognised that the built environment and socioeconomic realities must be seen through the lens of climate change. Subsequent international agreements and frameworks – including the New Urban Agenda (UN-Habitat, 2017) and the Sendai Framework for Disaster Risk Reduction (UNISDR, 2015) – further supported this idea. This has led to increasing attempts by local policy-makers and planners to mainstream climate change adaptation and disaster risk reduction into policy and practice to achieve more resilient urban settlements.

Box 1 Planning practice in the French West Indies

As constituent territories of the European Union, the French West Indies (notably Guadeloupe and Martinique) must comply with a regulatory framework for territorial and urban planning that is distinct from that used by the English-speaking countries of the Caribbean. In France, the concept of urban planning is driven by the town planning code, which addresses urbanisation, the built environment and the natural environment, at both municipal and regional scale. The approach to urban planning and climate change mitigation and adaptation involves integration of a regional development plan (*schéma d'aménagement régional*), at the intermunicipal level through a territorial coherence plan (*schéma de cohérence territoriale*) and at the local level through a local urbanism plan (*plan local d'urbanisme*). A recent law on climate resilience also establishes new rules for coastal cities (Bouanchand, 2022).

Adaptation of urban areas is not currently well integrated into the regional development plans and local urbanism plans for Guadeloupe and Martinique, which highlights the need to build capacity in addressing the challenge of urbanisation and vulnerability to climate risks.

Knowledge about climate change adaptation among Caribbean planning professionals

A survey conducted in 2021, as part of a project¹ focusing on building climate-resilient cities specifically in the Eastern Caribbean, found that most planning professionals recognise the importance of integrating climate change into planning projects. However, Caribbean planning practitioners face several obstacles that limit the extent to which climate and disaster resilience methods and tools are being integrated into planning practice. These include:

- a lack of knowledge about climate change, or an inability to access information about it
- a lack of political and/or public support
- competing priorities, such as short-term financial pressures, which are difficult to reconcile with consideration of climate impacts
- a lack of budget
- the fact that addressing climate change is not included in employer/client mandates.

A notable finding from the survey was the limited exposure of planning professionals to climate change training. Half the respondents to the English version of the questionnaire indicated no training at all in climate change. Over 60% of French-language respondents indicated no training in this area.

Stakeholders identified a wide number of specific topics relevant to climate change in the Eastern Caribbean, to be incorporated into training programmes. Examples include: the importance of natural habitats such as beaches and mangroves in mitigating climate change impacts; the application of practical tools, methods and technologies such as land use zones, ecosystem-based management and scenario planning; and the use of holistic and equitable frameworks in building the resilience of people and communities.

1 This project, Building Climate-Resilient Cities in the Eastern Caribbean through Enhanced Urban Planning Knowledge, is being financed by the French Development Agency for the Organisation of Eastern Caribbean States Commission, the University of the Antilles and the University of the West Indies.

Embedding climate change into planning courses across the Caribbean

A survey of training provision in urban planning and climate change adaptation at post-secondary institutions across the Caribbean region identified at least 14 programmes, offered at master's or bachelor's levels, with content on these topics. The findings from this survey also indicate a number of gaps and limitations to be addressed.

While there is a good offer of urban planning and climate change degrees in the Caribbean, this is mainly aimed at students, not professionals already involved or leading in the sector. At the same time, and as noted in the previous section, trained planning professionals have received only very limited education or capacity-building in climate change.

Although there are a number of specialised climate change courses in the Caribbean at undergraduate, graduate and further education levels (including a number available online), many of these do not focus on the complexities of urban resilience and urban planning. As a result, these programmes would generally not meet the needs of urban planners for knowledge, skills and applications relating to climate impacts in complex urban settings, vulnerabilities and social dimensions, analytical tools for planning, and territorial approaches to adaptation and resilience planning.

French-speaking universities based in the Caribbean offer more limited educational opportunities in urban planning than their English-language counterparts within the region. However, their links with French universities and Europe, and with other organisations delivering professional training – such as the Agence de l'environnement et de la maîtrise de l'énergie (ADEME) – are a source of significant opportunity: Caribbean-based educational centres can draw on French expertise, and conversely there is a channel for Caribbean educational programmes and content to influence metropolitan France.

Graduate-level educational programmes

At the graduate level, 6 providers offer a total of 11 full-time master's degrees focusing on urban planning, climate change, disaster management, environmental studies or natural resource management: University of the West Indies (UWI) at St. Augustine, Trinidad & Tobago; Centre for Resource Management and Environmental Studies (CERMES), UWI at Cave Hill, Barbados; University of Technology (UTech), Jamaica; University of Guyana; and Martinique and Guadeloupe campuses of the University of the Antilles.

These programmes generally lack strong integration between urban planning and climate change. Only 4 of these 11 degrees address climate change adaptation in the context of urban planning, while only 5 address urban planning in the context of climate change adaptation.

Graduate-level urban planning programmes – the Master of Science (MSc) in Urban and Regional Planning offered by UWI at St. Augustine and by the University of Guyana – are well grounded in planning theory and practice. While climate change adaptation and resilience are addressed within the existing curriculum and through applied research projects, both programmes would benefit from the addition of explicitly defined content on these topics.

The Master in Climate Change and Disaster Risk Management at the University of Guyana and the MSc in Natural Resource and Environmental Management (with a specialisation in climate change) at CERMES place a strong emphasis on climate change adaptation and resilience. Both would benefit from the integration of urban planning theory, methods and tools.

To fill an immediate gap in graduate-level urban planning programmes, a Tailored Open Online Course (TOOC) on resilient cities has been developed (see Box 2).

Box 2 A pilot Tailored Open Online Course on resilient cities

UTech, Jamaica is piloting a TOOC aimed specifically at urban planning professionals working in the Eastern Caribbean (hence a ‘tailored’ and not ‘massive’ course) over five weeks from 26 May to 30 June 2022. Designed by ODI, UTech, Jamaica, Suez Acacia Consulting and EnGen, with the support of Adapt’Action, the course is fully online but not in real time (except for five one-hour live feedback sessions and some guest lecturers), allowing people to self-pace and access material when it suits them.

The aim of the TOOC is to provide training to fill the climate change knowledge gap in the urban planning sector. At the end of the course, participants should be able to articulate gaps in knowledge about climate change and its impact on urban planning, take more effective urban planning decisions to reduce climate change risks and build resilience in Eastern Caribbean cities, and critically assess key factors for consideration in climate change adaptation strategies in urban planning.

Undergraduate educational programmes

Seven post-secondary institutions, located in both English- and French-speaking countries, were identified as offering undergraduate degrees in either urban planning or climate change. These include UTech, Jamaica, UWI Mona campus and the College of Agriculture, Science and Education (CASE) in Jamaica, and the campuses of the University of the Antilles in Guadeloupe and Martinique.

As the sole programme at the undergraduate level specifically developed to train urban planners, the UTech, Jamaica Bachelor of Science in Urban and Regional Planning is strongest in urban planning content. The UWI Mona campus has a general Geography degree, with some planning content but more of a focus on climate change. Both programmes cater to regional students coming out of high schools and sixth form programmes.

Community colleges located throughout the Eastern Caribbean offer individual courses related to various aspects of urban planning and climate change. For example, the St. Vincent and the Grenadines Community College offers Caribbean Examination Council qualifications to enable entry to universities in the region. The strength of the community college systems is their capacity to reach the next generation of practitioners coming out of Eastern Caribbean secondary schools and preparing to progress to higher education.

Professional educational programmes

The survey did not identify many continuing professional development (CPD) courses in urban planning. Online CPD certificates in climate change are available for both English- and French-language professionals through UWI Open Campus, ADEME and the Centre National de la Fonction Publique Territoriale (CNFPT). The latter two can also deliver on-demand in-person training in climate change or urban planning. However, in practice, it appears that there have been very few training sessions or that they have generally lacked a focus on urban planning. For example, climate change courses offered by UWI Open Campus include strong content on tools and integrated solutions for addressing climate risks in the Caribbean, but very little focus on urban issues or urban planning.

Post-secondary and CPD curricula offering an integrated understanding of urban planning and climate change are a priority for professionals across the region. All strategic and territorial planning decisions will have to take into account and reduce climate risks, with a particular focus on the most vulnerable groups. They will also need to seek out and exploit opportunities for adaptation and resilience. As these islands become more urbanised, planning decisions will need to reflect this. All practising planning professionals will need to be literate in urban resilience to ensure a just transition to equitable and climate-resilient urban environments in the Caribbean.

Call for a regional centre of excellence for climate-resilient cities

Given the range of courses at different levels described above, and brilliant scholarship in climate change within the region, the Caribbean is well positioned to establish itself at the international forefront of education and skills for climate-resilient cities. It is an ambitious goal for the region, which will require further consideration and exploration. This will include determining how best to engage the private sector in developing regional expertise and business opportunities in urban resilience.

In the short term, there is a need for a professional training course to fill the gap in knowledge about climate change and understanding of adaptation tools and methodologies. The TOOC being piloted by UTech, Jamaica in 2022 directly responds to the urgent need for a professional training programme on resilient cities in the Eastern Caribbean. The course draws on practical experience and case studies of different techniques and approaches to adaptation and resilience used in urban areas. It is being delivered through videos, guest lectures and practical exercises. Wherever possible, there is bilingual content to encourage interaction and exchange between French- and English-speaking professionals in the region.

A wide range of topics of interest identified by planners across the region have been synthesised into four broad modules, covering the kinds of skills and knowledge needed to address climate change concerns within urban planning:

1. *Concepts and Theories for Building Climate-Resilient Cities*
This includes interrelationships between the concepts of sustainability, natural resource management, climate resilience, disaster risk reduction and land use management and governance.
2. *Equitable Urban Resilience*
Addressing how climate change and hazard risk have unequal and gendered impacts on communities, due to a range of social, economic and cultural factors.
3. *Tools and Strategies for Assessing Climate Risk*
Examining the most appropriate tools for assessing climate risk, including open source geospatial applications.
4. *Integrated Solutions for Urban Climate Resilience*
This includes the national policy process for addressing climate risk and building resilience – from developing National Adaptation Plans to integrating adaptation and resilience into physical development plans and sectoral strategies.

In the medium term, existing urban planning courses will need to be adjusted to put climate change at the heart of these curricula. Content developed for the TOOC could be adapted

and inserted into existing planning courses – for graduates and undergraduates – at UWI, UTech, Jamaica and the University of the Antilles. This could take the form of additional modules or adaptations to what is already being taught.

The long-term educational ambition of the region should be to ensure that climate considerations are mainstreamed across all courses on the built environment, and that these curricula are continually updated and reflect the latest science and knowledge about climate change impacts, risk management, adaptation and gender-responsive approaches.

A central facility will be needed to drive this agenda forward and to support educational institutions across the diverse existing provision, where each has their own courses, interests and strengths. It will also need to encourage partnerships and collaboration, and promote the Caribbean offer on climate-resilient cities, to continue to attract investment and generate demand from students and urban planning professionals for knowledge, skills and lifelong learning.

Future generations of planners in the Caribbean will need a solid grounding in climate change theory and concepts, social vulnerability and participation in climate change decisions. They will also need specific tools to assess climate risks and make decisions on how best to manage risks and opportunities, and a wide understanding of different integrated approaches that can be adopted in urban areas. They will need to be equipped to apply the knowledge, tools and approaches to the contexts in which they are working, finding solutions that address gender and social equity. As sites of teaching and learning, universities in the Caribbean are well placed to apply the knowledge generated by researchers working on climate change and adaptation to their courses, to educate future researchers and professionals. Both academic and professional courses on climate change for planners will need to be informed and updated over time, to reflect advances in academic research, and developments in practice (see McCowan, 2020).

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