

URBANIZATION AND CLIMATE CHANGE IN SMALL ISLAND DEVELOPING STATES



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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
ADP	Ad Hoc Working Group on the Durban Platform for Enhanced Action
AIMS	Atlantic, Indian Ocean, Mediterranean and South China Sea
AOSIS	Alliance of Small Island States
BPOA	Barbados Programme of Action
CCCC	Cities and Climate Change Initiative (of UN-Habitat)
CO ₂	Carbon-Dioxide
COP (18)	Conference of Parties (Number 18)
DS	Displacement Solutions
ESCOAP	Economic and Social Commission for Asia and the Pacific
GDP	Gross Domestic Product
GHG	Greenhouse Gas
Habitat III	United Nations Conference on Housing and Sustainable Urban Development (2016)
HRBA	Human Rights Based Approach
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MGI	McKinsey Global Institute
MSI	Mauritius Strategy for Implementation
NAP	National Adaptation Plan
NDS	National Development Strategy
NGOs	non-governmental organizations
PNG	Papua New Guinea
PSUP	Participatory Slum Upgrading Program
SDGs	Sustainable Development Goals
SIDS	Small Island Developing States
SPREP	Secretariat of the Pacific Regional Environment Programme
UNCED	United Nations Conference on Environment and Development

UNCSD	United Nations Conference on Sustainable Development
UN-DESA	United Nations Department of Economic and Social Affairs
UNDG	United Nations Development Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UN-Habitat	United Nations Human Settlements Programme
UN-OHRLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
USA	United States of America
WB	World Bank



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2014 has been designated by the United Nations as the Year of Small Islands Developing States (SIDS). Additionally, the third international conference on Small Island Developing States took place in September 2014 in Samoa, strongly reaffirming their commitment to sustainable development.

RATIONALE

The purpose of this background paper is to provide a contextual understanding of the challenges and opportunities of climate change in relation to human settlements in Small Island Developing States (SIDS). It is also a modest attempt at collecting initial thoughts in response to the call of Small Island Developing States for “the strengthening of the long-standing cooperation and support provided by the international community” and “enable strong, genuine and durable partnerships at the subnational, national, subregional, regional and international levels” (UNGA 2014).

The draft outcome document of the third SIDS contains various references and aspects linked to urbanization, like land and housing, water and sanitation, energy, and infrastructure. UN-Habitat noted the call upon it and others for “establishing and maintaining, where necessary, the governance and management structures for [...] human settlements that bring together responsibilities and expertise in the areas of tourism, environment, health, disaster risk reduction, culture, land and housing, transportation, security and immigration, planning and development, and enabling a meaningful partnership approach among the public and private sector and local communities” (UNGA 2014).

While challenges of climate change and urbanization are plentiful, this paper attempts to link the climate challenges faced by human settlements with the opportunities for a renewed urban focus. With more than half the SIDS’s populations already living in cities, urban areas are most exposed to the influence of climate change. Urban areas are

also believed to be key for building resilience (Hornweg & Freire 2013). This paper starts by giving an overview of current trends in urbanisation and climate change, and continues by exploring how urban planning and design may be used as tools for action in addressing these critical issues.

With urbanization and climate change continuing to be amongst the defining trends worldwide, including in Small Island States, SIDS require a range of partnerships on urbanization and climate change at the international, national and city level. The IPCC (Mimura et al., 2007) concluded with very high confidence, that “Small Islands, [...], have characteristics which make them especially vulnerable to the effects of climate change, sea level rise and extreme weather events”. Being amongst the localities most exposed to climate change, SIDS historically have had a strong voice and leading role in global efforts in addressing the climate challenge.



Aerial view of urbanized Male Island, the Maldives © Flickr_The Commonwealth

02

INTRODUCTION

“The urgency of the issues facing the most vulnerable countries, and the political will needed to carve new solutions, can no longer hide behind the veil of self-interest and finger-pointing of the major economies. The Marshall Islands – and small island states and least developed countries around the world – firmly refuse to become collateral damage or casual discards because of the absent leadership of the most powerful. We ourselves are leading, not only through our politics, but our own actions. We are taking large strides on local adaptation efforts, but we are still walking when we must run. I challenge the thick web of climate finance actors to work with us in building our own capacity, in learning by doing, to focus on small island states as a unique category, and to recognize that the success or failure of adaptation results is not reflective of our political will, but more so of your delivery’
(*ibid.*)

Small Island Developing States are a distinct and diverse group of 52 countries spread across the Atlantic, Pacific and Indian Oceans, the Caribbean, the Mediterranean and the South China Sea. Of the 52 states, 38 are United Nations (UN) member states, while the remaining 14 are non-UN member states or associate members of regional commissions¹. Despite social, cultural, economic and geographical differences, SIDS identify themselves as a group that shares similar environmental and development issues. This is largely due to intrinsic characteristics of SIDS including small size, remoteness, vulnerability to external shocks, narrow resource bases and exposure to global environmental challenges (particularly in terms of global warming and climate change).

The set of common concerns is also what first set SIDS apart as a “special case” (UN 1993) within the international community when they were formally recognized at the UN Conference on Environment and Development held in Rio de Janeiro in 1992. Thus, over the past several decades, the UN has been working in close cooperation with SIDS and their partner organizations (e.g. Alliance of Small Island States - AOSIS) to assist in promoting various sustainable development efforts. The role of SIDS, especially in the international climate negotiations, cannot be underlined enough as this is perhaps the most vocal, active and innovative group of states advocating for a renewed and concerted effort to fight climate change.

¹ For a more detailed overview please refer to the SIDS urban statistics in Table 1 in the Annex.

Table 01: Common Challenges and Opportunities facing SIDS

Challenges	Opportunities
<ul style="list-style-type: none"> ▪ Narrow resource base limiting the benefits of economies of scale 	<ul style="list-style-type: none"> ▪ Aquaculture and Fisheries
<ul style="list-style-type: none"> ▪ Small domestic markets and heavy dependence on a few external and remote markets 	<ul style="list-style-type: none"> ▪ Maritime “Blue” Economy
<ul style="list-style-type: none"> ▪ High costs for energy, infrastructure, transportation, communication, and servicing 	<ul style="list-style-type: none"> ▪ Tourism
<ul style="list-style-type: none"> ▪ Long distances from export markets and import resources 	<ul style="list-style-type: none"> ▪ Renewable Energies, (esp. wind & solar)
<ul style="list-style-type: none"> ▪ Low and irregular international traffic volumes 	<ul style="list-style-type: none"> ▪ Biodiversity
<ul style="list-style-type: none"> ▪ Little resilience and high exposure to natural disasters 	<ul style="list-style-type: none"> ▪ Ecosystem-based adaptation
<ul style="list-style-type: none"> ▪ Rapidly growing populations 	
<ul style="list-style-type: none"> ▪ High volatility of economic growth 	
<ul style="list-style-type: none"> ▪ Limited opportunities for private sector and a proportionately large reliance on public sector 	

Source: UN-OHRLS 2011

SIDS have a tradition of commitment to sustainable development. Immediately following the 1992 Rio Conference, SIDS reaffirmed the principles and commitments to sustainable development embodied in the Rio Declaration, developing a landmark action programme adapted to the specific context at the Global Conference on the Sustainable Development of Small Island Developing States in Barbados 1994. The Barbados Programme of Action (BPOA) guides efforts towards sustainable development, having been further enhanced and updated through the Mauritius Strategy for the further Implementation (MSI) in 2005 and the just released Small Island Developing States Accelerated Modalities of Action (Samoa Pathwa2014).

SIDS have not only reaffirmed their commitments to sustainable development but have also identified specific priority areas and actions necessary for SIDS to achieve internationally agreed targets and goals, among these the Millennium Development Goals (MDGs). SIDS have made substantial progress towards achieving the MDGs and sustainable development has been widely recognized within the international community. Nevertheless, the States remain highly susceptible to natural, economic and social crises (UN 2010) meaning that climate-related vulnerabilities could jeopardize the developmental progress achieved thus far. In some cases, improved economic and governance capacity in SIDS has already been offset by external climate shocks.

Many SIDS face declining levels of development cooperation, gaps in technical expertise, financial and institutional obstacles and challenges related to monitoring and evaluation (UN-OHRLLS 2011). Today, as exemplified by Minister de Brum from the Marshall Islands at the 18th Conference of Parties (COP) to the UN Framework Convention on Climate Change, SIDS more than ever require innovative and improved tools, policies, and action plans in order to address the challenges of both urbanization and climate change.

While steps such as city and town level climate change vulnerability assessments have been taken, much greater action on a much larger scope is required to support building resilience to both hydro-meteorological hazards and the long term effects of climate change.



Secretary-General Ban Ki-moon plants mangrove shoots on Tarawa, the main atoll in the Pacific island nation of Kiribati. Mangroves help to protect against the rising sea levels caused by climate change.

© UN Photo/Eskinder Debebe

*Use of renewable energy
(esp. wind & solar)
helps to mitigate climate change*



Wind turbines in Bonaire, the Caribbean © Donal Boyle/creative commons

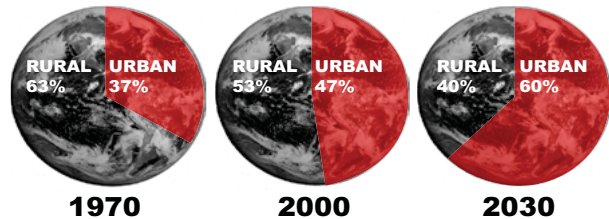
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URBANIZATION
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'UN-Habitat's vision of urbanization encompasses all levels of human settlements, including small rural communities, villages, market towns, intermediate cities and large cities and metropolises, i.e. wherever a stable community is continuously located and there are housing units together with permanent social and economic activities, common public space, urban basic services, and a local governance structure.'

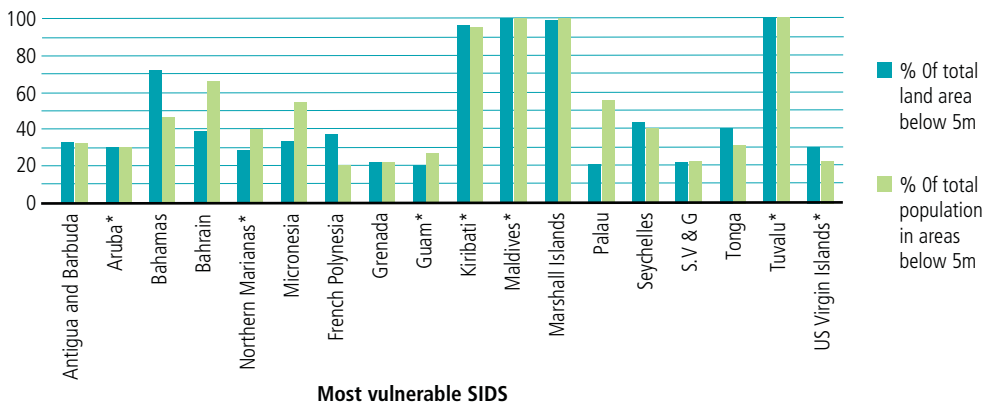
Dr. Joan Clos, Executive Director of UN-Habitat

Over the last decades the wave of urbanization has been phenomenal and one of the defining features of our time as suggested by Figure 2 (page 9). Urban population has increased nearly fivefold between 1950 and 2011, and since 2008, more than half the global population has been living in cities. Current estimates predict that by 2030 the urban population will rise to more than 60% of the global population (UN-Habitat, 2006).



The term 'urban' in the SIDS context can refer to a relatively small town connected by villages stretching along a coastal perimeter, a small town connected by villages on a single island, or series of islets (ADB 2012). With this SIDS specific definition of the term "urban" in mind, it has to be noted that the global trend towards urbanization is also clearly visible in SIDS. **Of the 65 million people living in SIDS today, 38 million (59%) already live in urban settlements.** Singapore and Nauru are among the most urbanized SIDS (100%), while Trinidad and Tobago (13%) and Papua New Guinea (12%) are among the least urbanised. The urban growth rate amongst SIDS in the

FIGURE 1: Percentage of land area below 5 meters and percentage of population inhabiting areas below 5 meters



Source: See Table 1

immediate future (2010-2015) is expected to be 1.4%, just slightly below the global average of 1.7%, but with striking regional and national difference. In the fastest urbanizing Pacific Region for example, urban growth rates are currently calculated at 4.3%, and up to 16% in peri-urban areas. Rapid urban growth can also be observed in other regions, for example in Haiti (3.9%), Trinidad and Tobago (2.2%) or Cape Verde (2.1%) (UN-OHILLS, 2012).

It is also important to note that due to the limited land resources, several SIDS concentrate a considerable amount of their populations in the largest urban agglomeration of a State, often the capital (Table 2 *in Annex*). This “primacy of capitals” (Connell & Lea 2002) is a distinct feature in some SIDS, offering several challenges and multiple opportunities. However, in-line with global trends, in most SIDS secondary settlements are also growing rapidly. This is of particular concern as these growing secondary agglomerations tend to be located in the most vulnerable areas: coastal zones, steep slopes and land below or at sea level; locations especially susceptible to the threats of climate change. Conservative estimations, based on the statistics in the Annex, suggest that at least 11% of people in SIDS live (with striking variations from one location to another) and considerable amounts of critical social and economic infrastructure are situated in these zones.

“Our towns and cities are growing because of a natural increase in urban population, rural to urban migration and incorporation of formerly rural areas to urban areas.

Sarah Mecartney, UN-Habitat Pacific Programme Manager

As urbanisation is forecasted to progress almost everywhere in SIDS, specific urban challenges will be further amplified by changing climate patterns. Small size and limited resources coupled with urbanisation place a unique stress on service delivery and ecosystem services. For SIDS, the ocean and coastal environment is of strategic importance and constitutes an incredibly valuable development resource. Most SIDS cities and towns in the tropics are also now experiencing the more immediate impacts of climate change: increasing frequency and magnitude of cyclones, storms and hurricanes resulting in losses of life, houses, crucial urban infrastructure and natural resources. These present effects, forecasted to amplify in the future, are causing major set-backs to socio-economic development in SIDS.

Global urbanisation trends are commonly coupled with an increase in gross domestic products (GDP), especially in the urban areas with expanding service and industrial sectors. However, in the case of Pacific SIDS, urbanization has not always brought the expected formal increase in GDP as these economies remain driven by the informal sector, agriculture and tourism. For example in Cook Islands, Samoa and Vanuatu the urban informal sector is an important contributor to GDP (ADB, 2012) with strong urban-rural linkages - a sector relevant to many SIDS. Because small island development options are limited, there are special challenges to planning and implementing sustainable development.

Well planned and executed urbanization processes can combine forces that integrate the three pillars of sustainable development – economic, environmental and social – creating opportunities to harness the growth of cities for positive socio-economic development. Compact island settlements, with well-designed services and infrastructure, reduce the transaction costs of production, mobility and services. This creates the benefits of “economies of agglomeration”, countering the geographic challenges in this regard of many SIDS as housing, transport, infrastructures and service provision are more affordable in compact settlements. Simultaneously, the negative impact on the environment in terms of energy use, land consumption and greenhouse gas emissions per capita is reduced. Similarly, a smart, efficient settlement is more likely to attract private

investment, skilled labour and tourism. In general, smart urbanization has the potential to counter several of the challenges in SIDS and turn them into opportunities. Cities present unique opportunities for poverty eradication and achievement of the MDG's if planned appropriately. Cities generate more than 80 per cent of the global GDP (MGI 2011), offering employment and most services. No country has achieved high standards of living without urbanisation. Several advanced middle- and high-income SIDS are a testament to this fact.



A woman carries supplies through a flooded street in Cap-Haïtien. After days of continuous rains, parts of Haiti's north, including Cap-Haïtien, suffered serious flooding, leaving more than a dozen dead and thousands homeless, November 2014. © UN Photo/Logan Abassi

04

CLIMATE CHANGE
AND SMALL ISLAND
DEVELOPING STATES

“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased”
IPCC 2013

Another defining trend of our time is climate change. Few nations are as significantly affected by the consequences of climate change as Small Island Developing States.

For the first time in May 2013, scientists in Mauna Loa Observatory in Hawaii (USA) observed particle concentrations reach a historic threshold of 400 particles per million of CO₂, the highest concentration ever recorded. The fifth report by the Intergovernmental Panel on Climate Change (IPCC 2013) also has clear messages with little room for interpretations.

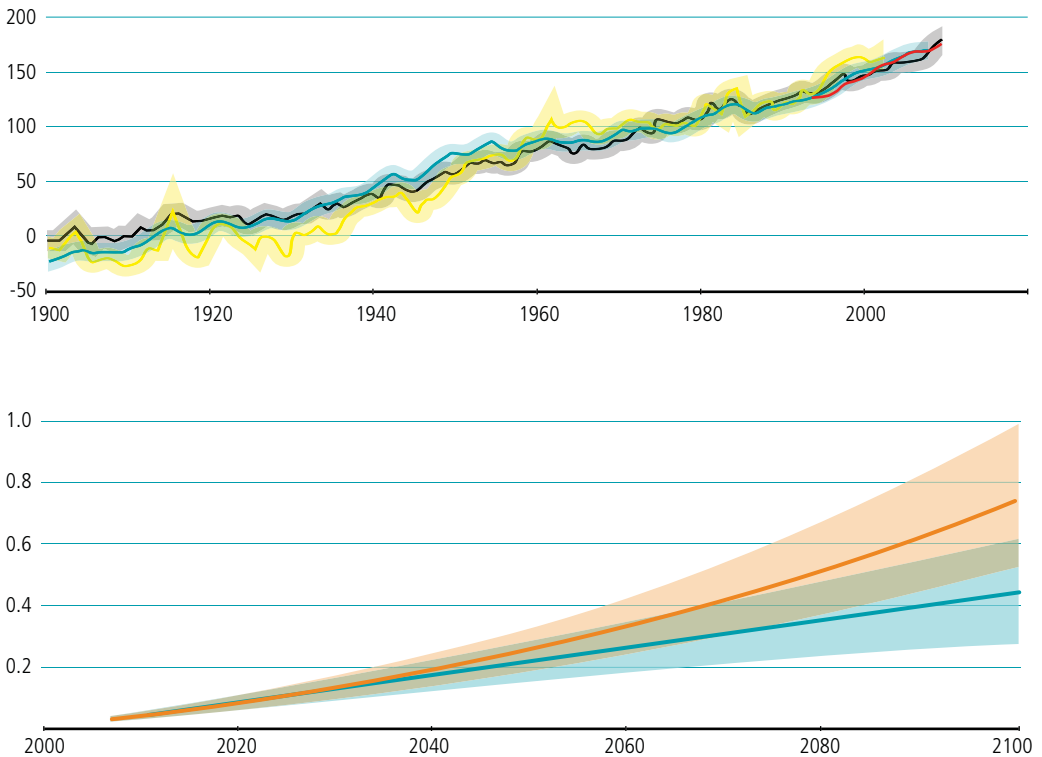
The climate is changing, and this is being seen ‘as a real and present threat to socio-ecological sustainability on the planet and a potent, if not dominant, force of urban change’ (While & Whitehead, 2013). Although SIDS themselves account for less than 1 per cent of global greenhouse gas (GHG) emissions, their size, geography and relatively isolated location make them vulnerable to the effects of climate change more and worse than other countries (UN-OHRLLS 2012).

Understanding the current trends and projections along with their potential impacts is important. Analysing local data helps to respond to climate change through better-coordinated and integrated policies and knowledge-based action plans. The average rate of sea-level rise around the Pacific region is 0.77 millimetres per year (mm/yr) and 1 mm/yr in the Caribbean. In the Indian Ocean, estimated sea-level rise is around 1.5 mm/yr. In the Maldives, the trends indicate a rise of about 4 mm/yr (UN-OHRLLS,

“Climate Change is not about tomorrow. It is lapping at our feet –quite literally in Kiribati and elsewhere [...] I have watched the high tide impacting those villages. The high tide shows it is high time to act”.

UN secretary General Ban Ki-Moon in his 2011 visit to Kiribati

Illustration 02: Global average sea level change, experienced (top, in mm) and projected (bottom, in m)



Source: IPCC 2013

2008). Sea level rise threatens the very existence and sovereignty of some SIDS and could potentially lead to a substantial loss of territory.

Not only does the gradual loss of land pose a risk, a much bigger coastal zone is at danger even if located at elevations not susceptible to permanent loss. The threat and impact of extreme sea level events due to storms and other phenomena will likely increase in the future, and together with the loss of protective coral or floral ecosystems significantly increase the damage to coastal zones. It was estimated that between US\$ 820–1 000 000 per km of coastline was lost due to decreased coastal protection in Indonesia, as a consequence of coral destruction



Maldives underwater Cabinet Meeting © Flickr_Presidency Maldives

(Cesar 1996 in Moberg and Folke, 1999). The IPCC (2013) explains that, “*In the future it is very likely that there will be a significant increase in the occurrence of sea level extremes and similarly to past observations, this increase will primarily be the result of an increase in mean sea level*”.

SIDS have recognized this, and in an attempt to create the broadest possible awareness have used the imagery of the drowning homeland to emphasize the impacts of climate change. Perhaps the most striking example of this was an underwater Cabinet meeting held by the government of the Maldives in 2009 to highlight its concerns about rising sea levels. Pacific SIDS have sponsored a UN General Assembly resolution (UNGA 63/281 2009) on Climate Change and its Possible Security Implications’, in reference to the unprecedented ‘real possibility of the disappearance of whole nations’.

In 2009, a delegate from Nauru reminded the international community and the Security Council that: *‘never before has a United Nations Member State disappeared. Now we are faced with the threat of losing many owing to the adverse effects of climate change’*.

Additionally, global climate change is increasing the likelihood of rising temperatures and intensity as well as frequency of extreme weather events, including cyclones and hurricanes. Data already indicates that sea surface temperatures have been increasing by 0.1°C per decade in the oceans surrounding most SIDS. An increase in the annual number of hot days and warm nights in

Every decade, sea surface temperatures in the oceans surrounding most SIDS have been increasing by

0.1°C

the South Pacific and Caribbean regions has also been reported (UN-OHRLLS 2008). These changes will continue to create challenges such as heat stress, changing ecosystem conditions, agricultural shifts, and reduced availability of freshwater due to increased runoff and evaporation.

Climate change threatens the achievement of the sustainable development goals and will continue to influence and jeopardize any future development efforts for SIDS. Some governments and citizens in some highly vulnerable SIDS are especially pessimistic and already *“coming to terms that they one day need to leave their cherished island homes (DS 2012)”*. Governments are already looking for alternatives for vulnerable island communities and are discussing land acquisitions and migration options within their regions. This poses a challenge due to the scarcity of land on the small islands and very complex ownership regulations. Individuals alike are seeking refuge via internal and international migration. Climate migration is becoming a real concern in the region. A prominent example is a recently settled case in New Zealand. The court has rejected a man’s bid for climate refugee status; a petition based on the arguments that humans cause large carbon emissions, which cause high sea rising levels and changes of weather patterns, endangering his and his family’s life on the island. Meanwhile, Kiribati has recently expanded its territory buying land in Vanua Levu for a prospected relocation, as the island is highly vulnerable to sea-level rise and submersion of coral reefs (Pala 2014).



The urban dimension of Climate Change. Male' City, Maldives © Flickr_Nattu



Skyline of Havana during a hurricane with big waves crashing against the seaside wall © Shutterstock

There is a distinct urban dimension of climate change in SIDS. The concentration of large settlements along with economic and social activities at or near the coast is a well-documented feature of small islands (MIMURA 2007). For example, in the Caribbean more than half the population lives within 1.5 km of the sea, mostly on low-lying land (ibid.). Like settlements and populations, the infrastructure base that supports vital socio-economic sectors of island economies tends to occupy coastal locations. High concentrations of infrastructure development, including important seaports and airports, public service facilities and attractive tourism infrastructure are located at low elevation along the coast. In a landmark study, Hay and others (2003) identified several challenges that will confront the transportation sector in Pacific island countries as a result of climate variability and change. These include closure of roads, airports, harbours, infrastructure systems and bridges due to flooding, physical damage and landslides. The uniqueness of these infrastructures in small islands will have adverse effects for the whole economy, especially in times of disasters when these infrastructures are vital for relief, supply and other essential functions.

Vulnerability to Climate Change is not confined to coastal cities. The IPCC's 5th Assessment Report (2013) further predicts inland settlements and rural communities likely to be secondarily adversely affected by negative impacts on

agriculture (due to groundwater salination), rising temperatures, changing rain patterns and storms. The very existence of some settlements could be in jeopardy due to the loss of the agricultural economic base, as decline in agricultural production will lead to food security issues, rising food prices and nutritional issues. Rapid and unplanned movements of rural and outer-island residents to the major centres is occurring throughout small islands, resulting in deteriorating urban conditions, with pressure on access to urban services required to meet basic needs.

For example, in the Solomon Islands this trend is already visible; many communities are vulnerable to climate challenges such as extreme high tides, continuous intense rainfall and storm surges, coastal erosion, flooding, tropical cyclones, saline intrusion and landslides. Urban centres share vulnerability to those hazards, and they need to be involved both in mainstreaming and in taking part in climate action. The urban environment of the island has been rapidly transformed through rapid growth of urban population and expansion on the urban fabric. New urban areas have been informally developed on steep slopes and river banks, while the local authorities lack environmental risk reduction strategies and climate change consideration in urban planning (UN-Habitat 2012b).

Global Climate Change impacts are locally amplified by altering of micro-climates and ecosystems. Population growth and inner migration led to rapidly sprawling settlements on risk areas. The pressure of unplanned urban sprawl on the already limited and vulnerable land resources is enormous. Among others, immediate negative effects are the loss of agricultural land and biodiversity, surface sealing and soil degradation, the altering of micro-climates and reduced rainwater infiltration and groundwater regeneration. The dual stress on fresh water reservoirs associated with urbanization cannot be overemphasized. As the water level shrinks, insufficient fresh water has been cited as the most probable trigger for rendering some low lying small island countries uninhabitable long before they are physically submerged (McADAM 2010).

Another consideration is the built environment itself. Traditional building styles, techniques and materials were resistant to damage and/or could be repaired quickly. Moves away from traditional buildings have increased vulnerability to thermal stress, slowed housing reconstruction after storms and flooding, and, in most countries, increased the use of air-conditioning and energy use (MIMURA 2003).

Climate Vulnerability Model

Researchers at the Pacific Northwest National Laboratory have developed a vulnerability model that integrates economic and social indicators as well as environmental research to help project the ways people may be affected by climate changes and their ability to adapt.

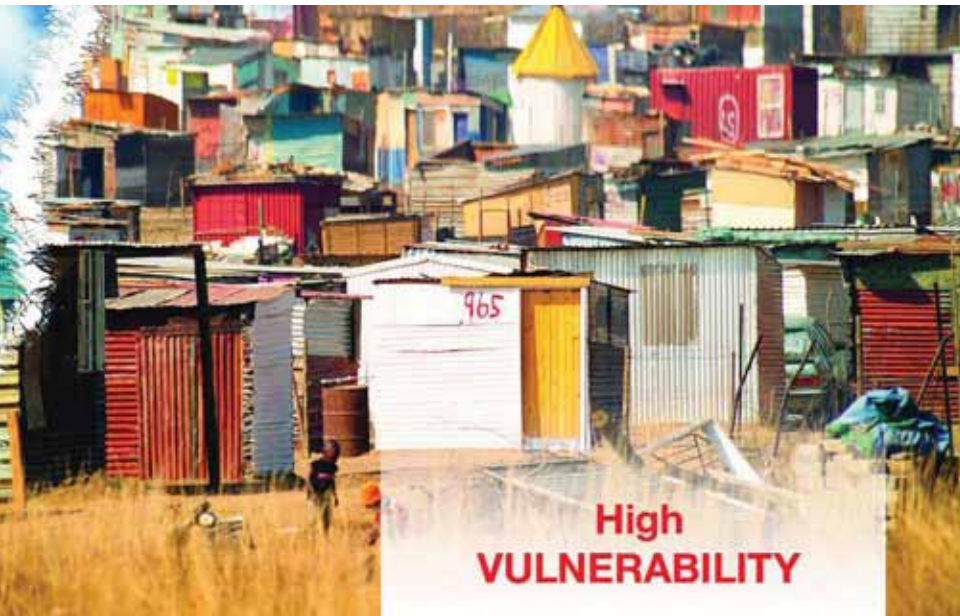
© Pacific Northwest National Laboratory



Urban Climate Action

In urban areas, poor housing, environmental degradation, flooding, landslide and solid waste require immediate actions such as building codes and regulations, management of open spaces, environmental awareness, law enforcement and community participation. In the case of Port of Spain, the priorities include vulnerability assessment, relocation of settlements from risk-prone areas, increasing climate awareness by education and flood defence solutions. Equally important is improving coordination on environmental matters among corporations, government agencies and the private sector. Another example is the “Honiara City Climate Change Vulnerability and Adaptation Assessment” finalized in 2013. Although this was only an initial assessment, it provided already valuable input into the elaboration of the Honiara City Disaster Response Plan finalized at the end of 2013 and took effect in April 2014 during the Flash Flood the city was experiencing. This, for the first time, gave Honiara City Council the opportunity to be a stakeholder in organising the emergency response and take up the lead in some of the activities. Drawing parts of the data directly from the community and involving them the identification of adaptation measure has certain advantages. This underscores the comprehensive approach suggested to tackle climate change at the local level (UN-Habitat, 2012a).

- SIDS understandably focus a considerable part of their climate efforts on adaptation. Most - if not all - of the people and socio-economic assets in SIDS are presently vulnerable to climate change. At micro-level, additional risk-reducing measures and infrastructure is required to reduce immediate as well as future vulnerabilities and risks to acceptable levels. Advocating for such measures and investments at all levels remains an important task for SIDS and partners. Otherwise, given competing priorities, such investments



in resilience run the risk of being deferred and never constructed – sometimes with tragic consequences. Looking beyond the micro-level, reactive concept of risk-reduction policies and plans should call for building resilience of systems that provide basic urban services. This could begin by identifying what existing and planned facilities and processes should be considered critical; that is, essential for continuity of basic services in light of climate change effects, including during natural disasters.

Urban climate change interventions are increasingly a cost-effective way to tackle climate change. Several “low-hanging fruit” type interventions whether in infrastructure, housing, ecosystems and energy are possible in urban areas and also reach large populations. For example, the cost-effectiveness of urban-centred adaptation measures is reinforced by a country risk assessment carried out by the World Bank in the Republic of Vanuatu (2010). Three of the four most cost-effective risk reduction measures directly and indirectly target interventions in settlements. These are: (i) risk mapping to support town planning and village development, (ii) Support National Adaptation Plan (NAP) implementation to integrate urban climate change adaptation, and (iii) support Ministry of Lands and national resources in reforming the settlement land-use policy and regulations (WB 2011).

In relation to the continued climate change mitigation efforts by SIDS, it has been argued by several (Roper 2005) that small island states could continue to set an example on green energy production and use. Investments in alternative energy and energy efficiency would help reduce greenhouse gas emissions (GHG), concurrently yielding additional co-benefits. Benefits could include reducing the dependence on fossil fuel, itself a major source of economic vulnerability (UNGA 2014) public and private savings and increased sustainable mobility.



05

CONCLUSION

There are many challenges and opportunities for Small Island Developing States associated with urbanization and climate change. For continued economic and social development, one important factor will be how SIDS manage their urbanization processes, which vary significantly between states. Continued success by SIDS will also depend on if it will be possible to enrich national development processes towards more resilient and sustainable settlements. The various obstacles should be recognized and international and regional cooperation measures should be implemented to enable and support the sustainable urban development efforts. Care should also be taken to ensure that the resilience and sustainable urbanization concepts are carefully adapted to the SIDS context. These must be well understood to address the negative effects of climate change, but to also include the social, equity and development dimensions. SIDS have a strong position in the global climate efforts and a remarkable attitude towards committing to become sustainable and resilient.



Big waves crushing on the shore of a tropical island with palm trees during a storm.
Praia Piscina, São Tomé and Príncipe. © Shutterstock

06

The effects of unplanned urbanization, and the associated issue of depopulation of outer islands, are growing. In half of the Pacific countries the majority of people live in urban areas. [...] If the need for better urban planning is not addressed now, there will be serious challenges due to increasing populations; including rise in urban poverty and associated overcrowding, ill-health, declining educational participation, growing unemployment, feelings of discouragement among youth populations, and even social conflict.

*Synthesis Report of the Pacific Regional Preparatory Meeting
10-12 July 2013, Nadi, Fiji*

RECOMMENDATIONS

It is important to address climate change in urban areas. Settlements emit a high proportion of the world's greenhouse gases, while many of the people who are vulnerable to the effects of global warming are concentrated in urban areas. Not only the people, but also most of the real estate and critical infrastructure is located in urban settlements – particularly so in Small Island Developing States. Following the global trend, even the smallest of islands is becoming increasingly urbanized and human settlements are evolving as the prime economic, social and political centres. UN-Habitat advocates that the process of urbanisation should be recognized and managed as a national priority. As a first step towards more inclusive and sustainable settlements, new approaches are required that look positively at the opportunities and benefits of the agglomeration process. Without proper planning, policies and local capacities, local and national governments are simply not adequately prepared to cope with the challenges and to realize the opportunities that urbanizations presents.

i. **Develop a unique Urban Agenda for Small Island Developing States**

A possible process towards addressing the need for better and sustainable urbanization in SIDS could be the **development of a unique Small Island Developing States urban agenda**, carefully reflecting the social, economic, environmental, cultural and geographic characteristics of SIDS. UN-Habitat's paradigms for sustainable urban planning could provide a framework for developing the settlement planning agenda for SIDS. Regional initiatives, such as the Pacific Urban Forum, can contribute valuable inputs to the discussion on the way forward on urban development in SIDS. It recognises the need for adoption

of measures to combat climate and specifies this under the Urban Development issues with “10. Manage the urban environment to deliver quality of life outcomes through climate resilient communities” (UNESCAP 2011). Addressing urban issues of climate change in SIDS requires a coherent and broad effort, evaluating strengths and opportunities, addressing knowledge and awareness gaps about climate change by capacity building. Also necessary is more inclusive and transparent policy dialogue that leads to improved policies and strategies. Efforts are underway in several SIDS and these efforts will culminate in a new UN human settlements agenda for the 21st century to be drafted and adopted at the Habitat III Conference in 2016.

Enabling frameworks are needed. If we accept that the first response to climate change often involve urban areas, we should also recognize that those urban areas have to be empowered as key actors in emission-reducing and resilience building efforts. Climate Change and Urbanization should be treated as a national priority, for example through the inclusion of urban issues in national climate change policies². This recommendation follows the notion that sound high-level policies will be embodied in laws, regulations, guidelines and programmes, leading to action and positive results on the ground. The recommendations are backed by encouraging examples of UN-Habitat’s Cities and Climate Change Initiative (CCCI). Several SIDS settlements are active members of CCCI and are among the champions in this field: Apia (Samoa), Lami (Fiji), Port Moresby (Papua New Guinea), Port Vila (Vanuatu) and Honiara (Solomon Islands). SIDS once more set the positive example for innovative climate change policies and action in this area of growing importance.

ii. Centrality of Urban Planning and Design

Promote the development of a network of cohesive mixed-use settlements that offer a range of housing options that respond to different income levels and living preferences while providing ready access to local commerce, public services, and facilities.

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One recommendation would be to evaluate and embrace policies that promote compact urban form and connected settlements, reducing stress to limited land resources and greenhouse gas emission by promoting alternative, healthy and low-emission modes of transport. Compact settlements also yield other environmental benefits, as surface sealing and degradation is minimized, which

² For more information, please see UN-Habitat CCCI Policy Note III - UN-Habitat 2013a.

fragments ecosystems, alters micro-climates and reduces rainwater infiltration and groundwater regenerative capacity. Integrated and inclusive settlements could be promoted, further yielding social and economic benefits, supporting sustainable development. It can help reduce low-density development and sprawl in peri-urban informal settlements, thus enhancing livelihoods for the poor and segregated populations through better access to economic opportunities and services within the core settlements. Secondly, a compact development pattern may lower degrees of social segregation through closer proximity of different housing options to places of work and access to marine resources, on which many SIDS rely. Ensuring the broadest possible reach of basic services and infrastructure, especially mobility, further helps to ensure no one is marginalised. At a larger scale, a commitment to compact settlements could help stop and even reverse the trend of sprawl-related land degradation, maintaining valuable agricultural and other economic activities in the peri-urban and still rural areas. Compact settlements yield benefits in terms of economies of scale; broaden the market base and specialization, lower costs for energy, infrastructure, transport communication and services. Finally, they offer new opportunities for private investments, especially in conjunction with a wider national strategy to bolster the green and “blue” economy and tourism.

iii. Working with Ecosystems

The cities and towns of Small Islands Developing States should consider their natural resources and give attention to their protection or careful occupation in the urban expansion process. The natural ecosystems can be successful tools in climate change adaptation. Coastal ecosystems can help reduce risks and minimize the vulnerable zone to natural disasters and support urban resilience of the inland settlement. National and local climate action can enable planners and managers to protect existing ecosystems and renovate lost areas, incorporating such systems into strategies for adapting to climate change.

Ecosystem-based adaptation is emerging as a viable option for local and national governments to increase resilience to climate change impacts. A study by SPREP, UNEP and UN-Habitat in Lami Town (Fiji) showed that ecosystems based adaptation options were found to be low cost measures for tackling climate change. For example, building a sea wall would yield \$8 benefit for every \$1 spent, if 25% of the total cost of damage from storm surges and coastal inundation were avoided, compared to \$38 for every \$1 spent for mangrove plantation and restoration. The assessment has attracted attention, in that it

offered a head-to-head comparison of both traditional engineering approaches with ecosystem-based approaches to adaptation, as well as mixes of the two approaches. As cities have begun to devise ways to adapt to climate change in recent years, interest in ecosystem-based adaptation has grown. Ecosystem-based adaptation ensures ecosystems remain healthy, allowing local populations to benefit from the provided environmental services such as provision of clean water or protection from extreme weather events. The study also found that, regardless of the scenario, any adaptation action taken would outweigh the cost of taking no action.

iv. Choosing an inclusive human rights-based approach

As part of the UN family, UN-Habitat is committed to respect, promote, and protect human rights in its activities. All of UN-Habitat's interventions are underpinned by universal values that promote the adoption and implementation of a strong human rights based approach to development. Following this approach in addressing the urban climate challenge has proven promising results. Promoting and mainstreaming human rights enhances the focus of urban development on the meaningful contributions and participation of all communities living in SIDS. Due to the persistence of various forms of inequality and discrimination in many urban environments, some groups benefit less from urbanization, services and the urban space than others. The groups in question are mostly excluded, stigmatized or in some way marginalized communities. Despite challenges, urbanization also represents opportunities for increased equity empowerment of marginalized groups. The main changes mainstreaming human rights seek to address the identified problem in a three-fold manner: a) to proactively empower claim-holders to assert their rights; b) to enable duty-bearers to meet their obligations with regard to the rights of claim holders; c) to hold duty-bearers to account in fulfilling their obligations. These considerations will be systematically incorporated into the design of all UN-Habitat projects. Urban interventions need to be carefully adapted to local circumstances, capacity and access to resources, while being targeted to have positive social and economic benefits for all urban dwellers. The UN-Habitat approach for climate change mainstreaming in all levels of government and local communities could enhance the collaboration between all actors for a joint effort in developing the city based around a common interest.

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SIDS AROUND THE WORLD





SIDS URBAN STATISTICS

Table 2 – SIDS Urban Statistics

Small Island Developing States (SIDS)	Urban Population (thousands)	Total Population (thousands)	Percentage Urban	Average Annual Rate of Change of the Urban Population 2010-2015 (in %)	Population In the Largest City (% of Urban Population) ²	Largest City – (by Inhabitants)	Land area where elevation is below 5m (% of total land area)	Population living in areas where elevation is below 5m (% of total population), 2000
American Samoa**	65	70	93.2	1.87	100.0	<i>Tafuna</i>	17.9	9.9
Anguilla**	16	16	100.0	1.56	-	<i>North Side</i>	-	-
Antigua and Barbuda	27	90	29.8	0.96	100.0	<i>St. John's</i>	32.4	32.3
Aruba**	51	108	46.8	0.54	69.9	<i>Oranjestad</i>	29.6	29.6
Bahamas	293	347	84.3	1.37	83.3	<i>Nassau</i>	72.0	46.5
Bahrain	1,174	1,324	88.7	2.21	15.5	<i>Manama</i>	39.0	66.6
Barbados	122	274	44.4	1.35	92.7	<i>Bridgetown</i>	15.7	15.7
Belize	142	318	44.7	1.54	-	<i>Belize City</i>	9.5	15.8
British Virgin Islands**	10	23	40.6	1.48	-	<i>Road Town</i>	-	-
Cape Verde *	314	501	62.6	2.12	42.2	<i>Praia</i>	14.5	13.8
Commonwealth of Northern Marianas**	56	61	91.5	1.87	100.0	<i>San Antonio</i>	28.1	39.3
Comoros *	211	754	28.0	2.84	26.1	<i>Moroni</i>	13.5	14.0
Cook Islands**	15	20	73.5	0.88	-	<i>Avarua</i>	-	-
Cuba	8,459	11,254	75.2	-0.08	25.2	<i>Havana</i>	12.7	10.0
Dominica	45	68	67.1	0.18	30.0	<i>Roseau</i>	9.4	10.4
Dominican Republic	7,007	10,056	69.7	2.03	31.6	<i>Santo Domingo</i>	4.1	3.0
Federated States of Micronesia	25	112	22.6	0.98	29.7	<i>Pohnpei</i>	33.4	54.9
Fiji	454	868	52.2	1.55	39.7	<i>Nasinu</i>	11.4	11.0
French Polynesia**	141	274	51.4	1.07	97.3	<i>Papeete</i>	37.6	19.8
Grenada	41	105	39.1	1.24	100.0	<i>St. George's</i>	21.7	21.7
Guam**	170	182	93.2	1.23	100.0	<i>Tamuning</i>	20.4	26.6
Guinea-Bissau *	680	1,547	43.9	3.59	45.8	<i>Bissau</i>	9.5	18.8
Guyana	214	756	28.4	0.53	59.5	<i>Georgetown</i>	2.7	31.3
Haiti *	5,409	10,124	53.4	3.68	53.7	<i>Port-au-Prince</i>	3.9	5.4
Jamaica	1,432	2,751	52.0	0.51	41.4	<i>Kingston</i>	7.1	5.8
Kiribati *	44	101	43.9	1.83	101.9	<i>Bairiki</i>	96.7	95.2

Small Island Developing States (SIDS)	Urban Population (thousands)	Total Population (thousands)	Percentage Urban	Average Annual Rate of Change of the Urban Population 2010-2015 (in %)	Population In the Largest City (% of Urban Population) ²	Largest City – (by Inhabitants)	Land area where elevation is below 5m (% of total land area)	Population living in areas where elevation is below 5m (% of total population), 2000
Maldives *	132	320	41.2	3.91	97.1	<i>Malé</i>	100.0	100.0
Marshall Islands	39	55	71.8	2.03	79.4	<i>Majuro</i>	99.0	99.4
Mauritius	546	1,307	41.8	0.57	28.0	<i>Port Louis</i>	7.1	5.6
Montserrat**	1	6	14.2	1.89	-	<i>Brades</i>	-	-
Nauru	10	10	100.0	0.59	-	<i>Yaren</i>	-	-
Netherlands Antilles**	189	203	93.4	0.91	-	<i>Willemstad</i>	-	-
New Caledonia**	157	255	61.7	1.24	94.1	<i>Nouméa</i>	8.0	34.2
Niue**	1	1	37.9	-1.63	-	<i>Alofi</i>	-	-
Palau	17	21	84.2	1.67	74.4	<i>Koror</i>	21.4	55.6
Papua New Guinea	874	7,014	12.5	2.73	37.5	<i>Port Moresby</i>	1.8	2.0
Puerto Rico**	3,704	3,746	98.9	0.06	74.1	<i>San Juan</i>	7.7	11.3
Samoa *	37	184	19.9	1.44	97.1	<i>Apia</i>	7.3	15.6
São Tomé & Príncipe *	106	169	62.7	-3.13	56.5	<i>São Tomé</i>	14.7	11.1
Seychelles	47	87	53.6	0.78	56.3	<i>Victoria</i>	43.9	41.3
Singapore	5,188	5,188	100.0	-0.50	95.0	<i>Singapore</i>	8.1	12.1
Solomon Islands *	113	552	20.5	3.01	71.4	<i>Honiara</i>	11.5	13.4
St. Kitts and Nevis	17	53	32.0	1.05	77.7	<i>Basseterre</i>	19.0	22.1
St. Lucia	31	176	17.5	1.10	45.6	<i>Castries</i>	8.0	8.0
St. Vincent & the Grenadines	54	109	49.3	4.65	53.2	<i>Kingstown</i>	22.0	22.0
Suriname	369	529	69.7	1.44	72.4	<i>Paramaribo</i>	3.4	68.2
Timor-Leste *	327	1,154	28.3	4.25	54.4	<i>Dili</i>	2.9	4.4
Tonga	25	105	23.4	0.84	100	<i>Nuku'alofa</i>	40.5	31.3
Trinidad and Tobago	185	1,346	13.7	2.21	32.9	<i>Chaguanas</i>	8.0	7.5
Tuvalu *	5	10	50.6	1.04	100	<i>Funafuti</i>	100.0	100.0
U.S. Virgin Islands**	104	109	95.5	-0.10	52.8	<i>Charlotte Amalie</i>	31.0	22.0
Vanuatu *	61	246	24.9	3.64	77.8	<i>Port Vila</i>	11.7	10.8

Sources: 1 UN DESA (2012)5
2 World Bank (2013)10

Italics - Capital cities

* - Least Developed Countries (LDCs)

** - Non-UN member states/associate members of regional commission

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