



**Comoros Urbanization Review**  
**Reimagining**  
**Urbanization in Comoros**  
*Bundo la miji leo ndo maesha bora meso*



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REIMAGINING

URBANIZATION IN COMOROS

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## Acronyms and abbreviations

AAL	Annual Average Loss
AEPA	Drinking Water Supply and Sanitation Strategy (Stratégie d’Alimentation en Eau Potable et d’Assainissement)
AFD	French Development Agency (Agence française de développement)
ANMC	Comorian Mayors’ Association (Association Nationale des Maires des Comores)
ANRTIC	National ICT Regulatory Authority (Autorité Nationale de Régulation des Technologies de l’Information et de la Communication)
BCSF	French Seismological Office (Bureau Central Sismologique Français)
CASM	Centre d’Animation Socioculturelle de Moroni Mtsangani
CDR	Call Detail Records
CERF	United Nations Central Emergency Response Fund
CHR	Resilient Housing Committees (Comités d’Habitat Résilient)
CNITD	Comité National chargé de l’identification des Terrains Domaniaux
COSEP	Centre for Rescue Operations and Civil Protection (Centre des Opérations de Secours et de Protection Civile)
CSO	Civil society organizations
DATUH	Directorate of Land Use Planning, Urban Development and Housing (Direction de l’Aménagement du Territoire, de l’Urbanisme et de l’Habitat)
DGEME	National Directorate of Energy and Water Resources (Direction Générale de l’Energie, des Mines et de l’Eau)
DGSC	General Directorate for Civil Security (Direction Générale de la Sécurité Civile)
DRM	Disaster risk management
EP&R	Emergency preparedness and response
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
GDP	Gross domestic product

<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery
<b>ICT</b>	Information and Communication Technologies
<b>IFCR</b>	International Federation of Red Cross and Red Crescent Societies
<b>IMF</b>	International Monetary Fund
<b>INSEED</b>	National Institute of Statistics, and of Economic and Demographic Studies (Institut Nationale de la Statistique et des Etudes Economiques et Démographiques)
<b>IOC</b>	Indian Ocean Commission
<b>JICA</b>	Japan International Cooperation Agency
<b>KMF</b>	Comorian franc
<b>MDLD</b>	Decentralization bureau (Maison de la décentralisation)
<b>NGO</b>	Non-governmental organization
<b>OCHA</b>	United Nations Office for the Coordination of Humanitarian Affairs
<b>PCD</b>	Decentralized Cooperation Program (Programme de Coopération Décentralisée)
<b>PCE</b>	Comoros Emerging Plan (Plan Comores Emergent)
<b>PDC</b>	Communal Development Plan (Plan de développement communal)
<b>PDU</b>	Urban Development Plan (Plan de développement urbain)
<b>PNEPBNB</b>	National Program for Registration of Built and Non-built property
<b>PPE</b>	Personal protective equipment
<b>PPP</b>	Public-private Partnership
<b>PRCIII</b>	Institutional Capacity Building Project (PRCI) – Phase II
<b>RSMC</b>	Regional Specialized Meteorological Center
<b>SAWS</b>	South Africa Weather Service
<b>SCA2D</b>	National Accelerated Growth and Sustainable Development Strategy (Stratégie de croissance accélérée et de développement durable)
<b>SDI</b>	Spatial Data Infrastructure
<b>SIDS</b>	Small Island Developing States
<b>SWFP</b>	Severe Weather Forecasting Program
<b>UCC</b>	Unit Construction Cost
<b>UNDP</b>	United Nations Development Programme
<b>UNDRR</b>	United Nations Office for Disaster Risk Reduction
<b>UNEP</b>	United Nations Environment Programme
<b>UN-Habitat</b>	United Nations Human Settlements Programme
<b>UNICEF</b>	United Nations Children’s Fund
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization

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# Overview

## Building communities today, transforming lives tomorrow

Through the development of informed policies and targeted investments, the objective of this Comoros Urbanization Review is to provide analytical support to improve the living conditions of Comoros' urban population, especially the poor living in informal settlements and hazard prone areas. The Review further buttresses the implementation of the National Development Strategy SCA2D 2018-2021 and Comoros Emerging Plan 2030. In its essence, it focuses on a set of foundations and variables considered necessary for Comoros to raise the standard and quality of urban life and its environment, as well as strengthen models of local governance while advancing an agenda of urban resilience.

The Union of Comoros has much to offer. The volcanic archipelago is located in the Mozambique Channel between the Swahili coast of East Africa and Madagascar. Its islands offer a unique and diverse cultural, natural, and biological landscape. Also, home to an important historical and archaeological heritage, it has the potential to rate among the most sought-

after tourist destinations in the world. In addition to the leisure industry, the country seeks to promote its maritime riches through a blue economy strategy.<sup>1</sup>

As outlined in the Emergence Plan 2030, cities have a large role to play in the emergence of Comoros: it is to « offer healthy and clean-living

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1. Union des Comores (2019a).

conditions that promote the development of all residents » and « be drivers of economic growth without compromising natural resources and the environment »<sup>2</sup> and, as such, to « be resilient to shocks and protected from all damage, in all dimensions of sustainable development taking into account natural disasters. »<sup>3</sup> In fact, incomes tend to rise as the proportion of a population living in urban areas increases. Cities around the world are recognized as one of the main drivers of economic development, generating more than 80 percent of GDP. Typically, greater urban density provides for improved accessibility to public services, lower economic delivery costs, and easier transportation, which benefit private companies and citizens alike.

But Comoros' small size makes it unlike most countries. As the country benefits less from economies of scale, the cost of service infrastructure, such as piped water and electricity, is higher than elsewhere. This, in turn, adds to more expensive international shipping and import fees of materials, which are then delivered throughout the islands. Still, people cluster around areas of opportunity and concentration of services. If not accompanied by capital investment (in infrastructure, housing, services), density can turn into problematic

crowding, which brings congestion, pollution, and health hazards, which can rapidly outweigh the benefits of proximity.<sup>4</sup> Shortcomings in spatial planning and prevailing inadequacies in construction standards for the built environment increase the country's vulnerability to natural disasters, especially for the poor urban dwellers.

*Cities have a large role to play in the emergence of Comoros*

Comoros is faced with a mounting cycle of interconnected difficulties. Disagreements over land rights, particularly in urban areas, further constrain municipalities' ability to identify public land and regulate its use, unleashing a cascade of complications for effective investment planning and the provision of basic services. The Comoros' water supply suffers from excessive fragmentation, which then leads to further loss of economies of scale. Poor land use management and a lack of safe waste disposal or recycling solutions neither at the local level nor at a wider regional level complicate waste management that negatively affects Comoros' environment and landscape, further exposing its inhabitants.

Adding to the cycle are Comoros' geophysical or hydrometeorological attributes, which add serious financial strain and social implications, particularly for poor and vulnerable communities. Over time, multiple adverse

2. Union des Comores (2019b).

3. Union des Comores (2019b).

4. Glaeser, E., & Sims, H. (2015).



natural events, both rapid and slow onset, have heavily affected Comoros: the country experienced 18 disaster events in the past 40 years which affected half a million people, damaged houses, public infrastructure and agricultural fields. More recently, on 24 April 2019, the Comoros were hit by one of the most devastating tropical cyclones in the country's history, Cyclone Kenneth, which affected over 345,000 people and caused damages of approximately 14 percent of GDP.<sup>5</sup>

Climate change further drives Comoros' already high risk. The country is threatened by sea level rise and coastal erosion aggravated by unregulated urban expansion and rapid environmental degradation.<sup>6</sup> The Comorian coastline, where 88 percent of the population lives (Figure O.1), is expected to experience a 20 cm rise in sea level by 2050. A rise of this magnitude in regional sea levels could lead to the displacement of a minimum 10 percent of the population.<sup>7</sup>

Complex institutional arrangements are an additional obstacle to Comoros' sustainable development. The long sought-after decentralization process has come to a virtual

standstill and it remains unclear how budgetary transfers and their amounts to municipalities are being calculated and monitored, and how much municipalities receive and perform. This incomplete decentralization process and an opaque legislative basis contribute to the emergence of municipal governance that lacks clarity on roles and responsibilities vis-à-vis other levels of government (islands, prefectures, and villages). While laws exist, the supporting implementation arrangements are yet to be established, leaving municipalities and villages to organize themselves to provide most services.

Donors and development partners finance over 90 percent of public investment and development aid currently equals that of the state budget.<sup>8</sup> Development partners, NGOs and remittances from a strong diaspora are essential sources for local investments. With them, village associations and volunteers are trying to fill the void.<sup>9</sup> However, the overall coordination and quality of investments and initiatives is a challenge and remains weak.

*Shortcomings in spatial planning and prevailing inadequacies in construction standards for the built environment increase the country's vulnerability to natural disasters, especially for the poor urban dwellers.*

5. Union des Comores (2019c).

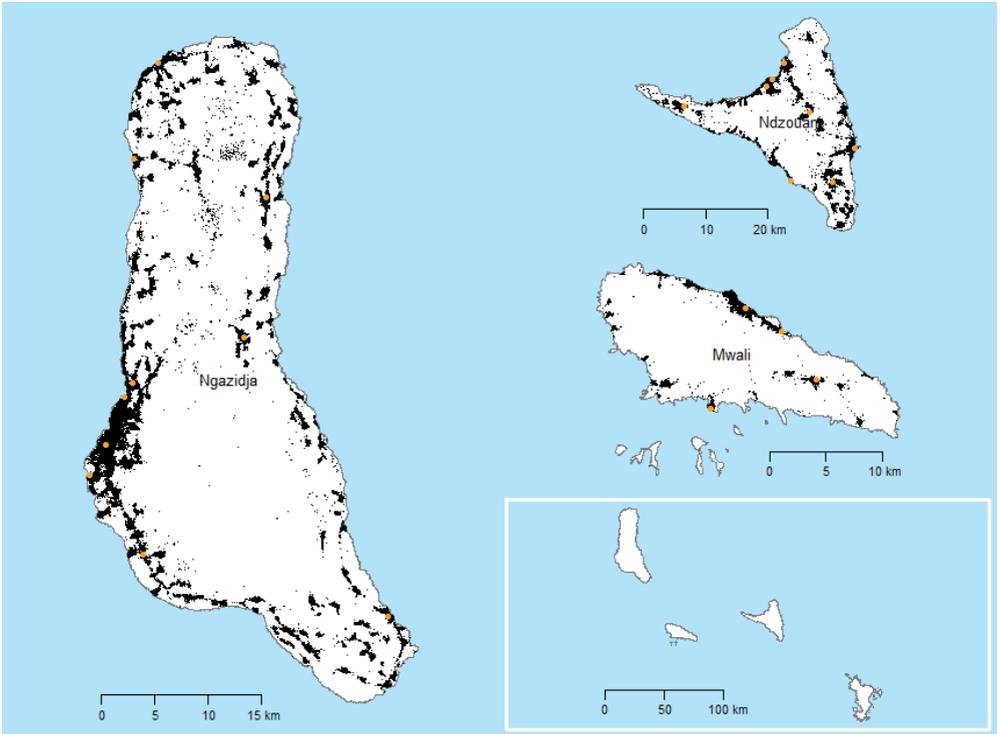
6. Walker, I. (2019).

7. Ministry of Rural Development, Fisheries, Handicraft and Environment (2006).

8. World Bank (2018b).

9. Walker, I. (2019).

Figure O.1 Comoros' population lives mainly along the coastline



Source: Building Footprints (2019). Orange dots are urban localities. In black are all buildings.

### Building communities today, Transforming lives for tomorrow

The challenges outlined in this report require immediate action to transform lives and secure a better future for the Comoros. The success of recommendations, outlined below, will rely on the extent to which these build on communities to conceptualize solutions, anchor the role of community-based organizations and involve municipalities (Figure O.2).

Improving transparency and fostering dialogue with elected officials, village authorities, and citizens' groups are seen as a first step towards enhancing accountability and empowering Comorian municipalities. By passing pending laws, the existing legislative framework for municipalities will be completed to accelerate the decentralization agenda. This would clarify key aspects of municipal management as they relate to taxation, physical delineations, transfers, and monitoring and supervision systems,

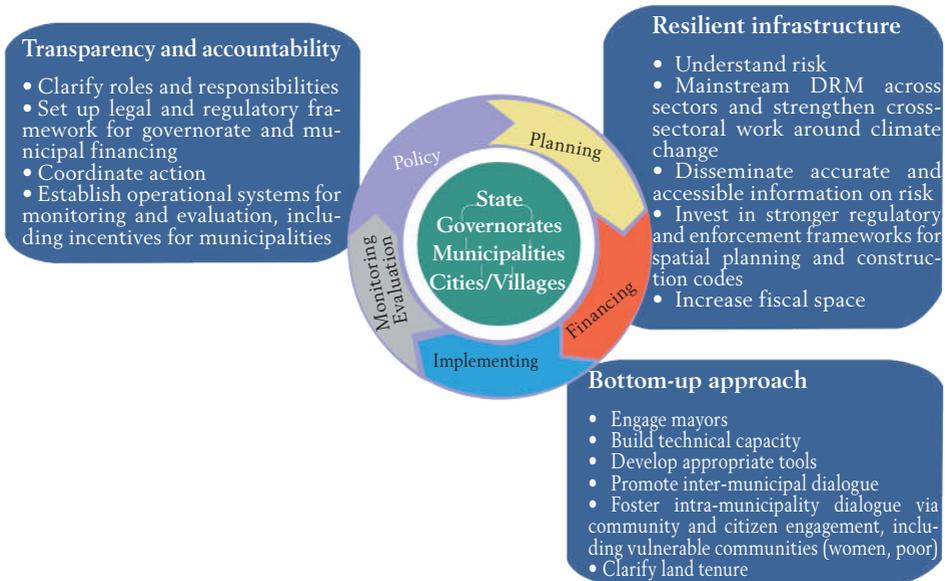
among others. Moreover, **empowering municipalities inevitably entails using a participatory approach for enhancing the planning, budgeting, fundraising, and service delivery capacities** of newly elected mayors. Here, hands-on trainings could be provided in tandem with small-scale local investments in the context of local economic development programs. This two-pronged approach would expand the capacity of elected officials and strengthen the social contract with citizens.

Disasters provide governments and society an opportunity to make durable changes. For Comoros, that moment came with Cyclone Kenneth, which

exposed the potential for improvement across sectors. To address these issues and reduce the effects of seismic and climate-related shocks, it is fundamental to **better understand risk factors and develop policies and regulations based on this improved knowledge.** This knowledge can build on and also contribute to regional knowledge and initiatives (in the Indian ocean) to better understanding risk, as Comoros cannot be seen as single territory when it comes to climate and seismic risks and would benefit from a regional and systemic approach.

At the country level, Cyclone Kenneth demonstrated that disaster

**Figure O.2. Conceptual outline of necessary building blocks for more effective policy in Comoros**



### *Highlights from around the world* Community-based solutions in Indonesia

Similar to Comoros, Indonesia's village leaders have a central role in local governance. In the 1960s, the government introduced a decentralized governance approach to decision-making at the village level, where locally chosen village heads became accountable to a village council. But as the newly created administrative structure failed to account for existing organizations, specific functions, and traditional leadership, the program failed to bear fruit. Building on that experience, the government rolled out and successfully scaled up a new development program providing block grants to eligible subdistricts - an administrative unit that includes roughly 10 to 20 villages. Each subdistrict used the funds to finance community proposals from the villages for small-scale public goods (roads, wells, bridges) or economic activities. The program's success is attributed to a set of core principles: simplicity (releasing funds directly to communities); participation (submitting proposals by and disseminating information to village residents); self-reliance (allowing villages to source technical expertise); trust (simplifying disbursement procedures while maintaining oversight); and transparency (publishing project information in simple formats). Additional benefit from the program resulted from ensuring that the most vulnerable benefit from such community-based development programs. Additionally, handing over decisions and implementation to local communities does not replace the use of technical expertise, which remains essential to programs in sectors such as infrastructure or health. Finally, decentralizing and devolving powers can spark tensions between different layers of local government. The success of the community programs ultimately hinges upon transparency in decision-making, open debate, and accountability.

Source: World Bank (2004).

risk management is the responsibility of all sectors and that it was critical to **mainstream disaster risk management**, promote and strengthen cross-sectoral work (such as environmental issues, construction standards for roads and buildings, social protection, urban planning, agriculture) and disseminate the information and best practices at large and through all layers of stakeholders within the public and private sectors, from the policy-makers to the local authorities, the communities, the construction commu-

nity of practice (including builders, bricklayers, carpenters engineers, architects, regulators, social engineers, etc.), the service providers, amongst others. Reconstruction efforts need to consider resilient construction practices, building code adoption and enforcement issues, materials, designs and engineering technologies that **promote more resilient infrastructure**. Additionally, all resources, including the limited but critical resources from diaspora remittances must be more efficiently applied toward a 'built-

### *Highlights from around the world* Municipal Civil Protection Committees in Haiti

Municipal Civil Protection Committees (CCPCs) have a crucial role in Haiti's National Risk and Disaster Management System, as they are a "people-centered" approach. They are a trusted body of volunteers that go door to door to explain early warning systems, communicate alerts and risks, and organize their community for evacuation. Through the Department of Civil Protection, these committees help citizens to prepare, respond, and recover. They receive a set of standardized trainings on how to perform their duties once a year, including internal management; emergency and response planning, including early warning, evacuation and protection of people; emergency communication; shelter management; and risk mapping. Beyond annual trainings, CCPCs are active in their municipality all year long, as they organize simulation exercises, conduct information campaigns for the community on preparedness-related aspects, such as public awareness on safe construction practices and rehabilitation approaches, and prepare and update the municipal contingency plans in support of the municipality. Since CCPCs are dependent on volunteers, their ability to operate is vulnerable to high volunteer turnover. CCPCs volunteers are not entitled to benefits, insurance, or reimbursement for expenses.

The Government of Haiti is committed to continue its efforts in further strengthening and maintaining the CCPCs through (i) developing tools for sustainable management of the Committees, including planning and strategic tools for the provisions of dedicated budgets for CCPC training over the long term, (ii) supporting municipalities in assigning human resources and funding to DRM functions, and (iii) officially recognizing CCPCs role in municipalities organization. A law regulating the disaster risk management system, including a decree recognizing their role, was approved in June 2020.

Source : World Bank (2019a) and Llopis et al. (2020).

ding back better' model, which in the long run saves money on future maintenance and reconstruction. It is of particular importance to **ensure that municipalities are better equipped with the appropriate training, tools and instruments** to address basic housing regulations and enforce updated building codes. Given Comoros multi-hazard profile, especially the threat from climate and seismic risks including volcanic activity, strengthening Disaster Risk Management and reducing vulnerability through better

spatial planning taking into account that multi-hazard profile and through the development and dissemination of resilient construction standards are a priority.

The report recommends an opportunistic posture in working towards **clarifying property rights based on common principles** to set the stage for a more ambitious land reform. A gradual improvement of the operational land administration and land tenure system would considerably



improve the ability of municipalities to manage their urban development. The creation of an instrument that registers the value and boundaries of real estate properties, or cadaster, through the integration of the different land regimes may take time but could prevent conflicts and improve long-term urban planning.

*It is of particular importance to ensure that municipalities are better equipped with the appropriate training, tools and instruments to address basic housing regulations and enforce updated building codes.*

along with improving compliance for regularization of informal settlements in risk areas. **Municipalities can become effective planning institutions** by better managing their urban growth through strategic infrastructure decisions. It will be key that these structuring investments are well planned, strategically and temporally, and designed to last, i.e. outside of high-risk or eroded areas, or factoring

These arrangements

should go

high-risk or

eroded areas, or factoring

in the level of risk, and with adequate standards and due consideration of future operation and maintenance costs. They can be supported in their access to new technologies such as telecom data to analyze mobility for disaster response and identifying key mobility bottlenecks, as well as the use of simplified ICT tools or high-resolution satellite imagery for property registration. Long-term planning including

enforcement of laws and strong leadership and efforts to implement effective solutions are required to meet the urgent needs for sustainable waste and water management at the local level. Here, private sector engagement and participation by the citizenry can be mobilized to promote service uptake and environmental conservation.



# Introduction

## Building communities today, transforming lives tomorrow

**The Union of Comoros is unlike any other country in East Africa.** When they first arrived on its shores, Arab sailors marveled not only at the archipelago's geography, but were equally enchanted by reflections of the moon. It is from these first encounters where Comoros derives its name: in Arabic, the islands of the moon. Nestled in the northern quadrant of Mozambique Channel between the Swahili coast of East Africa and Madagascar, the volcanic archipelago is home to a rich historical and archaeological heritage, a wide and bountiful maritime area, and diverse fauna and flora. For these reasons, Comoros has the potential to rate among the most sought-after tourist destinations in the world. In addition to the leisure industry, the country seeks to promote its maritime treasures through a blue economy strategy. To achieve structural transformation and accelerate economic growth, Comoros is looking to its financial services, agricultural capacity, and industrial sector for further diversification.<sup>1</sup>

**The Comoros islands offer a unique and diverse cultural, natural and biological landscape. The largest of the islands, Ngazidja, is renowned for the Karthala, a majestic and active volcano that is surrounded by the fragrance of vanilla trees, while the neighboring island of Ndzuwani hosts one of the oldest mosques in the country, as the perfumes of Ylang-Ylang waft across the island. The smallest of the constituent islands, Mwali, hosts exceptional marine reserves giving natural refuge to many endangered species, such as the green and hawksbill turtles and the dugong. To the southwest, Maore exhibits an unprecedented geological phenomenon of being the oldest island of the archipelago while renewed volcanic activity is currently forming a new volcano off its coast. As a further testament to**

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1. Union des Comores (2019a).



the islands' unique biodiversity, the Comoros is home to a rare fish species, the coelacanth, considered a living fossil.

**The Comoros Islands' size and demography are uniquely heterogeneous.** The two most populated islands, Ngazidja (382,000 inhabitants, 50 percent) and Ndzuwani (328,000 inhabitants, 43 percent) are similarly urbanized at 34 percent with 10 cities and 29 percent with 8 cities respecti-

vely. Mwali, the least populated island has 51,000 inhabitants with 7 percent living in urban spaces; Four cities represent 53 percent of Comoros' urban population (Table 1).<sup>2</sup>

**Comoros is among the most densely populated countries in the world.** With roughly 760,000 residents in 2017, the islands follow the African trend of rapid population growth, but, unlike the rest of the continent, it has limited land for

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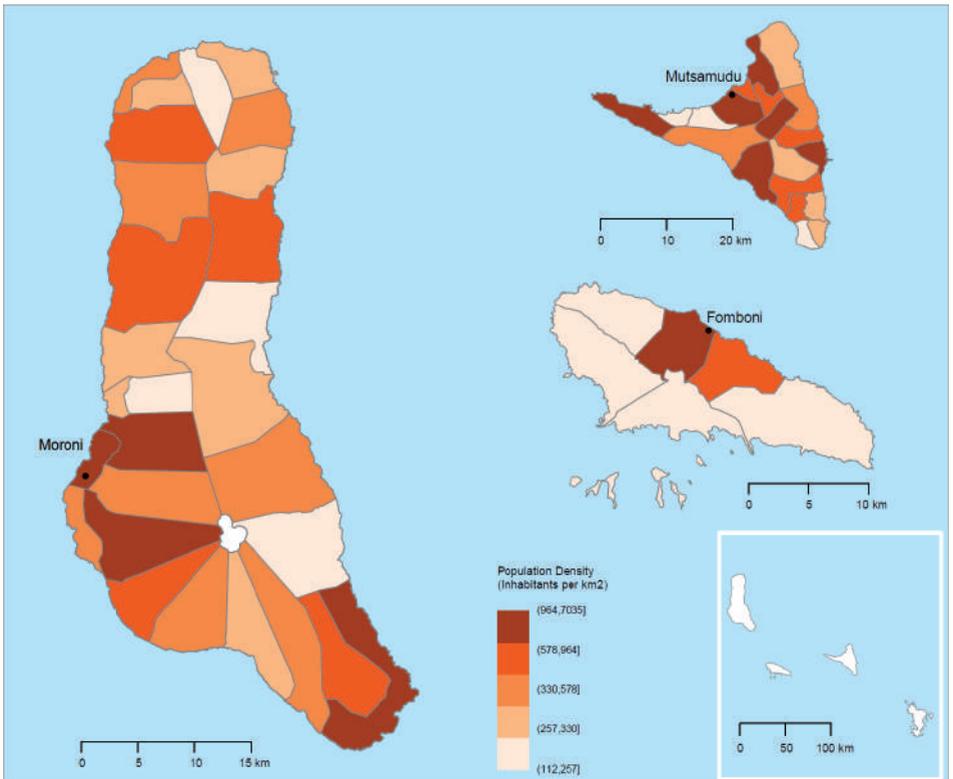
2. INSEED (2017). Union des Comores. Recensement Général de la Population et de l'Habitat (RGPH). The national urban definition relies on municipalities having at least the five following urban infrastructures: hospital, post office, electricity, phone network and piped water or at least three of the former, and at least 40 percent of the population working outside of agriculture.

Table 1. The islands have different profiles

	Urban population	Share of urban population	Number of cities	Population density	Population	Area (km <sup>2</sup> )
<b>Ngazidja</b>	116 285 (73 868 in Moroni)	34%	10	376	381 859	1 015
<b>Mwali</b>	26 195 (15 895 in Fomboni)	53%	4	247	51 222	207
<b>Ndzuwani</b>	95 296 (26 781 in Mutsamudu)	29%	8	769	327 711	426

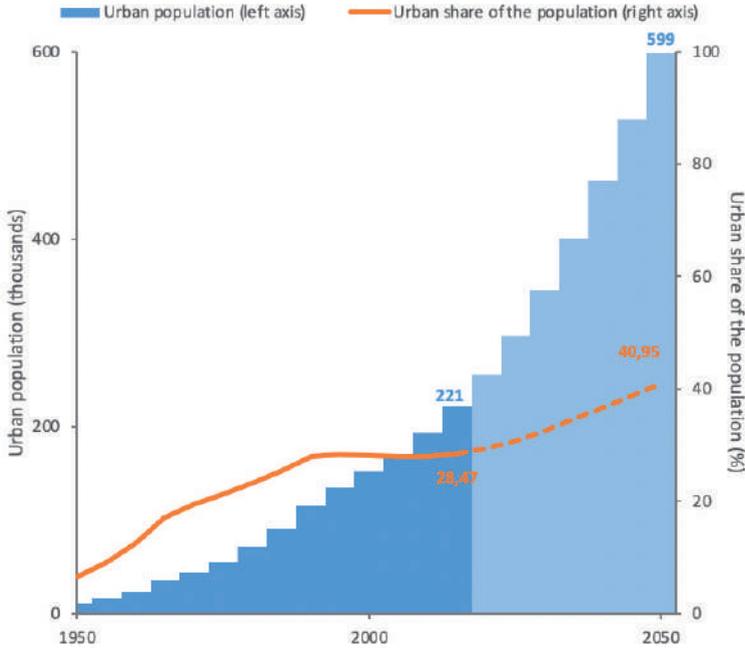
Source: World Bank staff calculations based on INSEED (2017) and Geoboundaries.

Figure 1. Population density



Source: World Bank staff calculation based on INSEED (2017).

Figure 2. Urban Population and Urbanization Rate Comoros over time



Source: UN-DESA (2018).

expansion.<sup>3</sup> Its islands spatially comprise only 1,860 km<sup>2</sup>, making Comoros the 26th most densely populated country in the world<sup>4</sup> with 437 inhabitants per km<sup>2</sup> in 2018 (i.e., twice that of the Seychelles’ density; see Figure 1).<sup>5</sup>

**While Comoros’ urban population has grown steadily, the urban share of the population has remained constant since the 1990s.** Urban population growth was near three percent

in 2018, comparatively close to the highest-ranking islands. This figure doubled from approximately 115,000 in 1990 to 235,762 in 2016 (Moroni’s population increased from 40,050 to 74,092 between 2003 and 2017).<sup>6</sup> The country, however, is still in the early stages of urbanization with an urban share of the population approaching 31 percent. The urban distribution per capita increased steadily under from 1950 to the 1990s, then stalled from

3. INSEED (2017) ; Gerland, P. et al. (2014).

4. World Population Review (2020). Countries by Density. <https://worldpopulationreview.com/countries/countries-by-density/>

5. INSEED (2017).

6. Union des Comores. Recensement Général de la Population et de l’Habitat (RGPH) 2003 and 2017.



1990 to 2012 during which time rural and urban populations grew at similar rates. It is only in 2007 that urban population growth again surpassed rural population growth (Figure 2).<sup>7</sup> This trend is projected to accelerate in the near future and expose an increasing number of people living along the coast.

**Cities are critical to Comoros' further advancement.** Incomes tend to rise as the proportion of a population living in urban areas increases. On average, for every one percent increase in urbanization, GDP per capita grows by four percent. As a result, cities are recognized as one of the main drivers of economic development, generating

more than 80 percent of GDP worldwide. Beyond the economic benefits, greater urban density provides for improved accessibility to public services, lower economic delivery costs, and easier transportation, which benefit private companies and citizens alike. Due to the small size of Comorian cities, the costs of service infrastructure, such as piped water and electricity, are higher than elsewhere in East Africa. This, in turn, adds to more expensive international shipping and import fees of materials, which are then dispatched throughout the islands. The Comorian share of international transport costs per import values is double the world's average.<sup>8</sup>

7. UN-DESA (2018).

8. Limi, A. (2019).

**Comoros' small size makes it unlike most countries in sub-Saharan Africa.** Its capital, Moroni, is 38 times smaller than the average capital city in the region. The country's total population could qualify as that of a medium-sized city.<sup>9</sup> Its land area fits 16 times into Belgium, but is 10 times the size of Washington, DC. Still, people cluster around areas of opportunity and where services are concentrated. When not accompanied by investment in economic and social infrastructure, this density can turn into crowding, intensifying the negative impacts, emblematic of other countries (congestion, pollution and health hazards), which have started to outweigh the benefits of proximity.<sup>10</sup>

**The country's location and topography constitute challenges for its development.** Like other small island developing states (SIDS), Comoros suffers from diseconomies of scale, highly concentrated markets, a lack of competition, and high costs of living.<sup>11</sup> Agriculture is the most developed economic sector representing approximately 40 percent of GDP. It combines traditional food farming and cash crops such as vanilla, ylang-ylang (a perfumed flowers typically processed for

oils), and cloves, designated for export and controlled by local communities.<sup>12</sup> Thus, the population is predominantly rural (roughly 70 percent), but is largely concentrated along the coast.<sup>13</sup>

*Comoros' geophysical or hydrometeorological attributes continue to have serious financial and social implications, particularly for poor and vulnerable communities.*

**Comoros' geophysical or hydrometeorological attributes continue to have serious financial and social implications, particularly for poor and vulnerable communities.** Historically, multiple adverse natural events, both rapid and slow onset, have heavily impacted Comoros, including tropical cyclones, torrential rains and flash floods, erosion, sea level rise, tidal waves, tsunamis, volcanic eruptions, earthquakes, and droughts. In the past 40 years, the archipelago has experienced 18 different disaster events, which affected half a million people. The 2012 floods affected the lives of 64,987 people and displaced 4,000, leaving damage to houses, water pumps, and public infrastructure, such as schools, hospitals, and agricultural fields in its wake. In terms of food security, the floods were also responsible for an 80 percent loss of crops. In an average annual cycle, flooding alone generates some US\$ 2 million in losses (or 1 percent of GDP). On 24 April 2019, the Comoros felt the impacts of one of the most devastating

9. As defined by the Cities Alliance. <https://citiesalliance.org/how-we-work/our-themes/secondary-cities>.

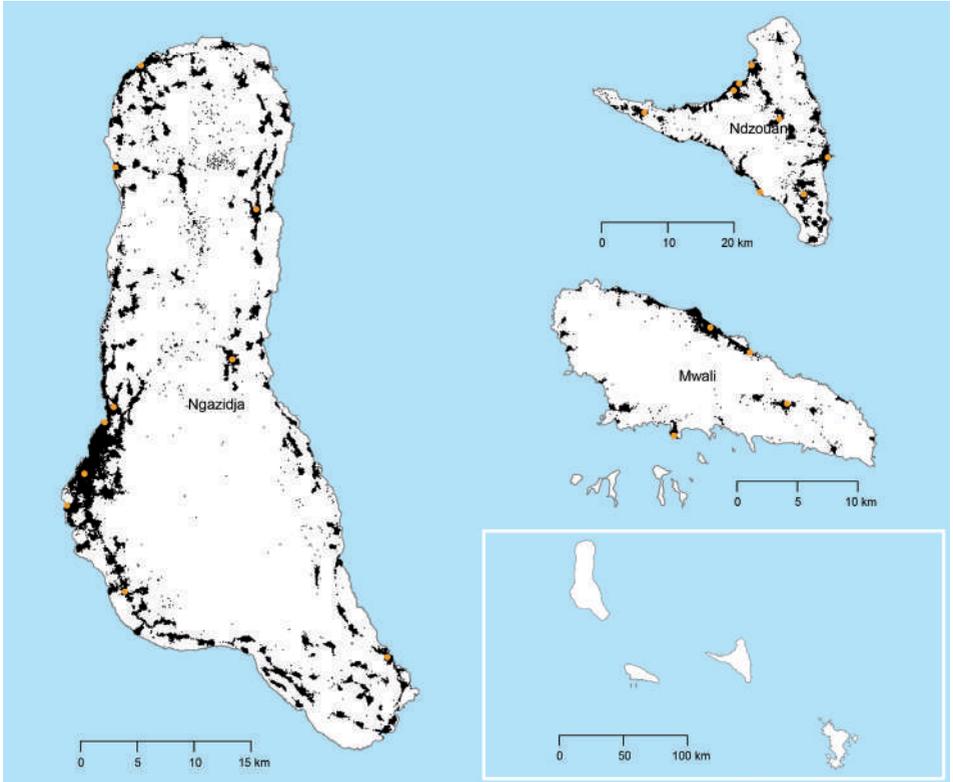
10. Glaeser, E., & Sims, H. (2015).

11. World Bank (2019b).

12. World Bank (2018a).

13. Bahers J.-B., Perez, J. & Durand, M. (2019).

Figure 3. Comoros' population lives mainly along the coastline



Source: Building Footprints (2019). Orange dots are urban localities. In black are all buildings.

tropical cyclones in recent memory. While it never made landfall, Cyclone Kenneth affected over 345,000 people and caused damages amounting to 14 percent of GDP.<sup>14</sup> When residents returned to their homes, the poor bore a disproportionately high burden of economic and social costs, as they not only lost housing, but also had their livelihoods, family, and social networks disrupted.

The 2005 eruption of Karthala on Ngazidja registered the second most intensive eruption after a similar volcanic event in 1977 that destroyed the entire village of Singani. This volcanic episode affected 245,000 people and had profound socio-economic impacts<sup>15</sup> throughout the country. In 2018, an unusual sequence of earthquakes was recorded off the eastern coast of the island of Maore. Seismic activity began

14. Union des Comores (2019c).

15. Morin, J. & Lavigne, F. (2009).

with a series of thousands of ‘seemingly tectonic’ earthquakes, culminating in a magnitude 5.9 quake in May 2018. This spike in activity is attributed to an underwater volcano just off the coast of the Comoros.<sup>16</sup> More submarine seismicity has been registered since then with a recent, powerful tremor registered on all islands in March 2020 with an epicenter between Ndzuwani and Maore. All of these events point to a high risk of a serious earthquake occurring, which emphasizes the necessity to enforce building codes to ensure safer, more seismically resilient construction, and most notably, public buildings and critical infrastructure, like schools.

**Comoros at the forefront of risk due to climate change.** The country is threatened by sea level rise and coastal erosion aggravated by unregulated urban expansion and rapid environmental degradation.<sup>17</sup> The Comorian coastline, where 88 percent of the population lives (Figure 3), is expected to experience a 20 cm rise in sea level by 2050. Such a rise in regional sea levels could lead to the displacement of a minimum of 10 percent of the population.<sup>18</sup>

**Complex institutional arrangements are an additional obstacle to Comoros’ sustainable development.**

Successive and often abrupt changes in the country’s leadership have translated into sclerotic constitutional orders and administrative arrangements, resulting in weak governance. Since gaining independence on 6 July 1975, Comoros has seen a number of power grabs, many coups d’état and attempted overthrows, along with threats of armed secession which ushered the adoption of five different constitutions in 1977, 1978, 1992, 1996 and 2001 with the government undertaking a series of amendments in 2009, 2013 and 2018. The autonomy of the islands and role of governorates were strengthened and later reversed multiple times. The 2001 constitution and its subsequent reforms aimed at empowering islands and their governments and devolving certain responsibilities. It introduced a rotational executive system whereby the federal presidency would rotate between each of the islands while also extending mandates of autonomous islands and of municipalities.<sup>19</sup> Another constitutional reform in 2009 recentralized power back to the political center.<sup>20</sup> Resulting from the July 2018 referendum, yet another round of constitutional reforms introduced significant changes to the rotating presidency, term limits, and a reorganization of the country’s political and institutional arrangements from a federal system with devolved powers to

16. Cesca et al. (2020).

17. Walker, I. (2019).

18. Union des Comores (2006).

19. For a complete assessment of the complexity of the constitution see: Mohamed, R. (2016).

20. Rose, J., & Gowthaman, B. (2015).



a more centralized and unitary system especially in financial decisions.<sup>21</sup>

**Communities tend to work independently from the federal state.** The decentralization process has come to a standstill and it is unclear how budgetary transfers and their amounts to municipalities are calculated and how much municipalities ultimately receive. There is neither a record nor registry, nor an effective monitoring system. Adding to the opacity, bookkeeping and documentation at the municipal level demonstrate that very few transfers have been effectuated since municipalities were established in 2015. In light of these gaps in service delivery and public finance, village associations and volunteers are filling the void.<sup>22</sup> While the laws exist, the supporting implementation provisions and arrangements have to be established, leaving municipalities and villages to organize themselves to provide most services.

**Donors and development partners finance over 90 percent of public investment with development aid representing more than half of domestic revenues.**<sup>23</sup> The principal development partners include the European Union, the World Bank Group, the African Development Bank, the United Nations, and the Islamic Development Bank, while bilateral partners include France, China, Saudi Arabia,

the United Arab Emirates, and Japan. At the village and municipal level, NGOs and remittances from a strong diaspora provide essential sources for local investments. However, the overall coordination of investments and initiatives is a challenge and remains weak, as remittances are largely channeled according to village allegiances rather than a concerted prioritization of investment needs at the territorial level, which should be encouraged. Government and donors are trying to establish more rigorous financial instruments to better and more equitably disperse international aid towards development purposes.

**The Comoros Urbanization Review attempts to provide analytical support for the development of policies and investments to improve the living conditions of the urban population, especially of the poor in informal settlements and hazard prone areas.** The objective is to support and accelerate the successful implementation of the current National Development Strategy SCA2D 2018-2021 and Comoros Emerging Plan 2030. With these motives in mind, this Urbanization Review largely focuses on the foundations needed for Comoros to improve the urban living environment and strengthen local governance, while advancing the urban resilience agenda forward.

- The SCA2D 2018-2021 is or-

21. Union des Comores. Union des Comores. Projet de révision de la constitution du 23 décembre 2001, révisée en 2009 et en 2013.

22. Walker, I. (2019).

23. IMF's Government Finance Statistics database.

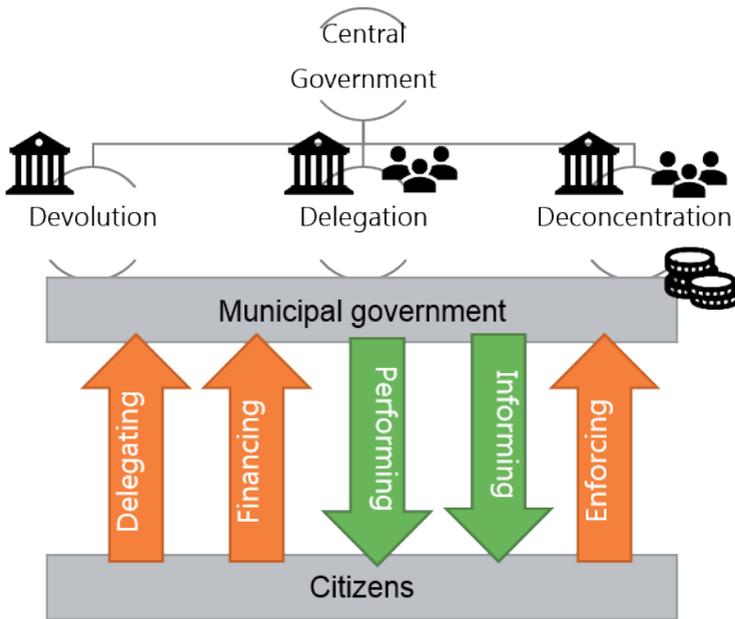
ganized along three axes:

- i. the acceleration of economic and structural transformation and sustainable management of the environment;
- ii. the acceleration of the human capital development and promoting social welfare; and,
- iii. the consolidation of governance and promotion of rule of law.

- The Comoros Emerging Plan

advancement of Comoros: (1) Tourism, the « blue economy », financial services, agriculture and industry to drive a more profound and accelerated economic transformation; (2) Infrastructure, digital, human capital, governance, and natural resources to catalyze structural reform.<sup>24</sup> The country conveyed this to its development partners in a conference held in Paris in December 2019 to address the financing of the PCE Vision 2030.

Figure 4. Conceptual Framework



Source: Adapted from World Bank (2004).

(PCE) Vision 2030 is built around two essential building blocks for the

To meet its goals, the country should consider improving govern-

24. See <https://www.cpadcomores2019.com/en/the-conference/presentation-of-the-conference>

**mental coordination at all levels to maximize the impact of investments across complementary sectors.** As identified in the Emergence Plan, improved coordination will be crucial for more efficient investments and for more durable impacts. The vision brings to the fore the establishment of a high-level political and institutional coordination framework. It especially calls for a new, more socially rooted governance framework where decentralization improves cooperation and communication with citizens.<sup>25</sup>

**The Emergence Plan outlines a role for cities.** Specifically, it refers to « healthy and clean-living conditions that promote the development of all residents » and « economic growth without compromising natural resources and the environment. »<sup>26</sup> As such, the Plan outlines a Comorian society that is « resilient to shocks and protected from all damage, in all dimensions of sustainable development, taking into account natural disasters.»<sup>27</sup> The report at hand focuses on how Comoros can « reimagine urbanization »<sup>28</sup> by articulating opportunities and challenges faced by municipal administrations in delivering services through the World Development Report 2004 « Making Services Work for the Poor »<sup>29</sup> conceptual framework (Figure 4), which sets out the fundamental principles of accountability

between the state, citizens and service providers:

- **Delegating.** Explicit or implicit understanding that a service (or goods embodying the service) will be supplied. Citizens delegate service provision to providers (e.g. central, governorate or municipal government)
- **Financing.** Allocate the necessary resources to enable the service to be provided. Citizens pay service fees to the provider.
- **Performing.** Central, governorate or municipal government to supply the service (or contract a provider).
- **Informing.** Citizen can obtain relevant information from central, governorate or municipal government so that they can evaluate performance against expectations.
- **Enforcing.** Citizens are given the means (by vote or by a judiciary) to be able to impose sanctions for inappropriate performance or provide rewards when performance is appropriate. Central, governorate or municipal have the right to enforce these regulations.

**Decentralization allows municipal authorities to be more effective providers and regulators of public ser-**

25. Union des Comores (2019a).

26. Union des Comores (2019b).

27. Union des Comores (2019a).

28. Union des Comores (2019b).

29. World Bank (2004).

vices by benefitting from institutional incentives and clearly delineated roles and responsibilities for financial and human resources. To reach the classroom or local water utility in ways that create opportunities for strengthening accountability and improving services, devolved authorities require fiscal incentives and clear administrative responsibilities. In particular, the intergovernmental fiscal system should be arranged in a transparent fashion with formula-based transfers from the center that are disbursed at regular intervals over the course of several years. Explicit staffing strategies should be laid out to avoid the duplication or absence of essential functions, which then help build the technical capacity. If responsibilities are aligned across different tiers of the civil service, it aligns incentives, strengthens accountability, and makes conflicts of interest less likely.<sup>30</sup>

**Decentralization can take on a myriad of forms.** Depending on the degree of deconcentration, delegation and devolution, and its implementation, the effect on the accountability chain will be different. Deconcentration transfers both administrative and financial resources, making municipal administrations fully accountable to citizens; delegation involves transferring responsibility for decision-making and administration; and devolu-

tion only delineates responsibility to sub-national governments.<sup>31</sup>

**While reforms and investments can strengthen the above chain of accountability, their sustainability depends on existing institutional arrangements.** A complex institutional framework, a changing political environment, unclear and overlapping mandates, or a lack of enforceability will weaken the effects of assistance and therefore reduce the capacity of municipalities to deliver services in an accountable way.<sup>32</sup>

*Reimagining Urbanization in Comoros* is organized as follows. Firstly, it reviews current institutional arrangements of municipal governance and service performance, explaining their socio-economic and cultural foundations. Secondly, it reviews how cities have been affected by natural adverse events, looks at differential impacts and their drivers. Finally, the report identifies the unique set of challenges and barriers that Comoros will have to overcome to satisfy the objectives of its Emergence Plan.

30. World Bank (2004).

31. Ibid.

32. Ibid.



# Chapter 1.

## Clarifying institutional arrangements for municipal governance and urban service delivery

### Key messages

Unclear fiscal arrangements and unpredictable transfers from the central government constrain Comoros' development, especially investments destined for improved municipal services. Its incomplete decentralization process and an opaque legislative basis contribute to the emergence of municipal governance that lacks clarity on roles and responsibilities vis-à-vis other levels of government (islands, prefectures and villages). Using customary practices and remittances to bridge this gap, the diaspora, local private sector, and community-based organizations are raising revenues at the village level with the support of NGOs, international associations and development partners. However, these efforts perpetuate municipal underperformance in providing essential public services, such as waste management and sanitation.

Improving transparency and fostering dialogue with elected officials, village authorities, and citizens' groups are seen as a first step towards enhancing accountability and empowering Comorian municipalities.

### A nascent and complex process of decentralization

The first attempts to decentralize institutions date back to the post-independence years through the *Mudiriya*<sup>1</sup> from 1975 to 1978. Formalized in 2001, the Fomboni Agreement ended

the Ndzuwani and Mwali secessionist movements. Beyond establishing a peace process, the Fomboni Agreement afforded each of the islands their own institutions. This process was then followed by the experience of the pilot municipalities, such as that of the city of Mbéni<sup>2</sup> in Ngazidja. In 2009,

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1. *Mudiriya* refers to an administrative subdivision in Arabic.

2. Mbaé, A. (2017).

the country adopted a national legislation for territorial governance comprised of three laws that dealt with the following issues: (i) Decentralization; (ii) Territorial Organization; and, (iii) Municipal ballot, establishing the basis of the Decentralization and Deconcentration in the Union of the Comoros.

Despite the adoption of three decentralization laws in 2011, the country has witnessed slow and unequal roll out of the decentralization process. Ndzuwani has been more proactive on several fronts. It successfully administered two municipal elections, carried out physical demarcation of the municipalities, established a municipal administration, transferred civil registration services and created a municipalities support agency. In contrast, Ngazidja and Mwali experienced slower progress toward decentralization with a delayed transfer of civil registration and difficulties in physically demarcating municipal border, which often resulted in conflict. It was not until 2015 that the Union of the Comoros organized the first national municipal elections in its post-independence history.

**Anchored in a complex organizational structure where informal and formal layers of governance coexist, municipal governance in Comoros**

3. INSEED (2017).

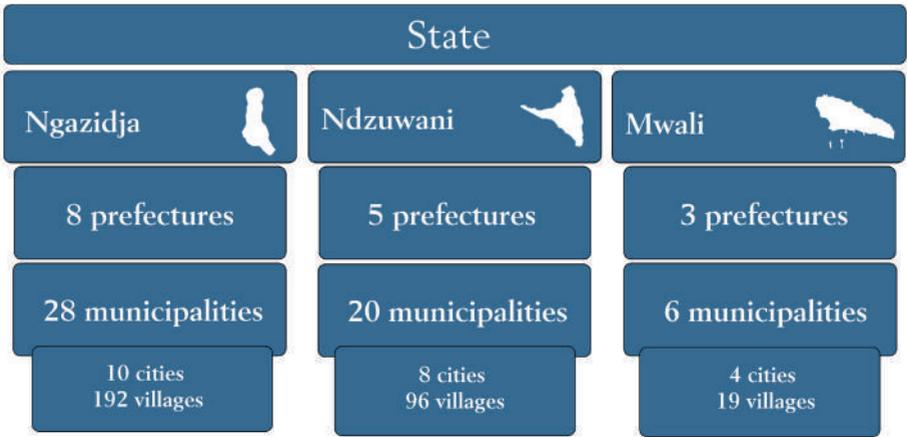
4. There are 10 cities in Ngazidja (Moroni, Iconi, Mitsoudje, Foubouni, Koimbani, Mbéni, Mitsamihouli, Tsauouéni, Ntsoudjini and Itsandra), 8 in Ndzuwani (Mutsamudu, Mirontsy, Ouani, Tsembehou, Domoni, Mremani, Moya and Sima) and 4 in Mwali (Fomboni, Djoïèzi, Wanani and Nioumachoua).

is **emerging**. Religion, nationality, monetary affairs, foreign relations, and national defense all fall under the purview of the Union Government, while island governments enjoy jurisdiction in all other matters. The national government shares constitutional powers (legislation, jurisdiction and administration) with its subnational units (governorates of the autonomous islands and municipalities, see

Figure 5). Constitutional changes in 2018 signaled a transition from a federal to a unitary state with diminished competences for the islands. To date it is still not clear how this has translated in practice.

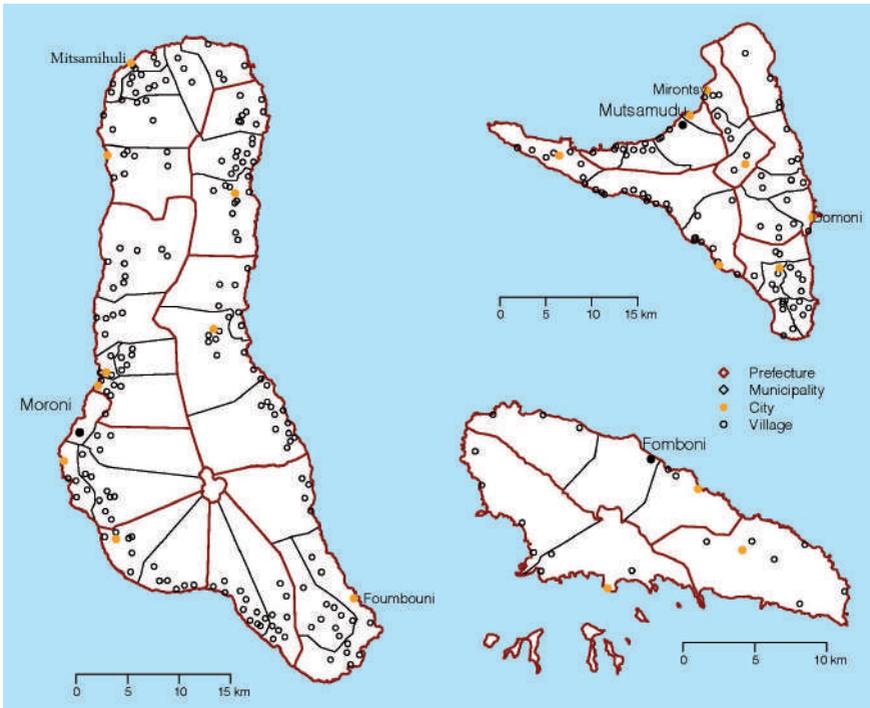
**Most cities are not independent entities; rather, they are part of a municipality (Mkowa).** The national definition of urban relies on villages (midji) comprising at least five of the following infrastructural characteristics: hospital, post office, electricity, phone network, and piped water or at least three of the former, and at least 40 percent of the population working outside of the agriculture sector.<sup>3</sup> A total of 22 villages meet these criteria,<sup>4</sup> but in practice, citizens recognize cities mostly in Moroni, Mutsamudu and Fomboni (the islands' capitals), and perceive Mitsamihuli and Fomboni (in Ngazidja), Mirontsy

Figure 5. A complex administrative structure where a traditional system coexists with central bureaucracy



Source: Decree No.11-148/PR (2011).

Figure 6. Cities and villages constitute municipalities, which depend on prefectures and governorates



Source: World Bank staff based on INSEED (2017).

and Domoni (in Ndzuwani) as secondary urban centers. Only three cities, Moroni, Mirontsy and Fomboni are singular urban entities, while other municipalities host between 3 and 14 villages (Figure 6).

**Each island constitutes a governorate and has autonomous status.** They enjoy an independent administration and management autonomy<sup>5</sup>. On the financial side, they are largely dependent on the Union. The islands' financial resources are composed of the allocation paid by the State and of revenue from local duties, taxes and charges, the amounts and taxation of which are set in the finance law. Additionally, an island's budget must be approved by the State.<sup>6</sup> The 2018 constitution grants islands exclusive competences as well as powers which must be agreed upon with the Union.

The following competences fall within the islands' mandates:

- the economic and social development plan of the island;
- land use planning on the island;
- procurement of goods to meet the needs of the island;
- promotion of tourism, environment and historical heritage of the island;

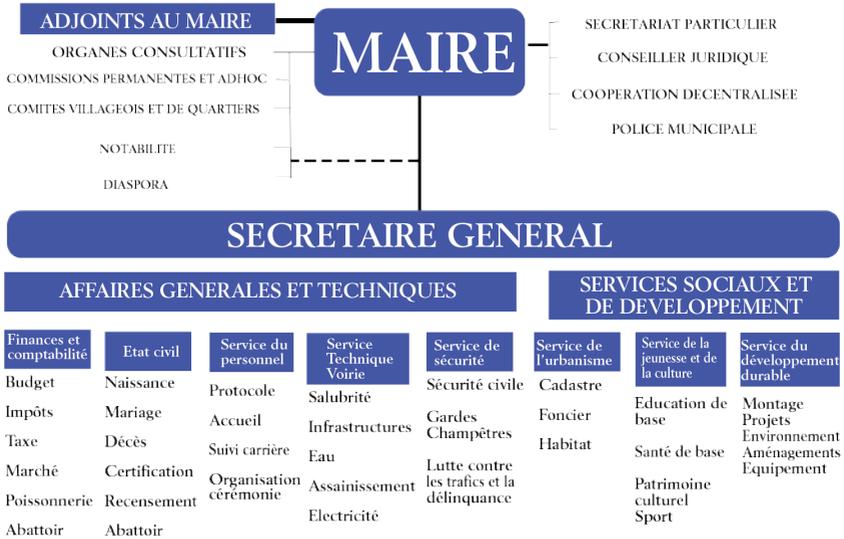
- artisanal fishing;
- agriculture and stockbreeding, excluding strategies and research;
- roadworks;
- fairs and markets.
- In consultation with the Union, the islands engage in the following:
  - the administration of municipal governments;
  - management of pre-schools, primary and secondary schools;
  - local basic vocational training
  - grants and scholarships;
  - construction, supply and maintenance as well as management of basic health facilities, including staffing.

**The 2001 Constitutional agreement, finally enacted in 2011, initiated the decentralization process with the establishment of municipalities as the basic unit of local governance, followed in 2015 by the first ever round of municipal elections.** The 2011 enactment of the decentralization decree No. 11-147/PR articulated wide-ranging responsibilities of municipalities. According to Article 75, core competencies transferred to

5. Union des Comores (2018). *Projet de révision de la constitution du 23 décembre 2001, révisée en 2009 et en 2013*. Article 99.

6. See articles 105 and 106 of the *Projet de révision de la constitution du 23 décembre 2001, révisée en 2009 et en 2013*.

Figure 7. The organigram of the municipality of Domoni specifies decentralized services



Source: Domoni Municipality, March 2020.

municipalities include: (i) civil registration (ii) administrative and judicial police (iii) publication of laws; (iv) deliberations and regulations. Other transferred competences include (i) social action; (ii) urban regulatory framework; (iii) cadaster; (iv) housing; (v) environment and sanitation ; (vi) village water supply; (vii) municipal equipment; (viii) roads in the context of the national road and network inventory; (ix) youth; and (x) sports.

**Municipal services are limited to administrative duties.** These responsibilities include public registry and,

in some cases, waste collection and public lighting.<sup>7</sup> Education, while not formally a competency transferred to the municipalities, is informally identified by the communities as a sector where mayors have a role to play, either through the rehabilitation of school buildings, or through their regulatory role between parents, teachers and central administration (see Figure 7 for an organigram).<sup>8</sup>

**Municipalities are organized around a deliberative body and a formal executive body, such as a municipal council and mayor's office. Ac-**

7. Interviews with stakeholders, March 2020.

8. Evaluation du programme de Coopération Décentralisée aux Comores (PCD) Union Européenne (2013).

Figure 8. Information channels

Domoni City Hall Information board



Facebook page – Moroni City Hall



According to Decree No. 11-147/PR the executive body is required to periodically report on the general situation of the municipality and progress made towards the implementation of key programs. As per this law, deliberative sessions are provided for on matters relating to the annual budget (and any additional funding), the municipal development plan, and the annual activity report.

**The regularity of municipal council meetings depends on the municipality, but have seldom taken place.** Those municipal council sessions that did take place are open to the public. When councils do meet, the town hall tries to communicate its actions and budget through a public poster (information board) or on social networks (Figure 8). However, mayors rely much more on councilors and heads of neighborhoods/villages for dissemination of discussions and decisions of municipal councils. Citizens neither feel involved in the budgeting process, nor a part of the implementation of their municipality's budget (partly because it is mostly non-existent).

**The National Association of Comorian Mayors was created in 2015 to convene all mayors.** This body brings together mayors to discuss pressing issues of municipal management, such as the decentralization agenda. The Association promotes the exchange of lessons learned and agrees on a common vision guiding their local development objectives. It can organize training actions for mayors and elected municipi-

pal officials. Before issuing an opinion, the federal government consults the Association on any draft law or decree concerning the administration of municipalities or decentralization.

### **Laws exist but responsibilities and fiscal arrangements remain unclear**

**The decentralization process remains incomplete.** While a decentralization framework is in place, several obstacles still impede the effective devolution of competencies and the implementation of public services under a decentralized model. Devolution in some cases is not complete or the related financing for a specific function has not been transferred to the municipal governments. For instance, some duties assigned to the islands, like the civil registry and primary education, have been transferred to the municipalities along with some civil servants but not with matching financial resources.

**The islands are assigned large institutional responsibilities,** including primary and secondary health and education services with the fiscal autonomy to allocate discretionary resources. However, a review of their budget indicates that islands prioritize staffing and recruitment, although service delivery staffing ratios are high, with no targeted allocations to priority expenditure areas. The essentials for service delivery such as teaching and medical material, sanitation or infrastructural improvements, remain underfunded. Consequently, many public services

**BOX 1. The Peculiarities of Moroni**

« Moroni est la Capitale de l'Union des Comores ; une loi détermine son statut. »<sup>1</sup>

Moroni has the status of the capital of the Comoros but the legal text that determines its specific competencies has not yet been promulgated. Article 2 of the Union of Comoros' constitution and Article 76 of decree 11-147/PR stipulate that Moroni is the capital and should have a special status set out in the law. However, legal provisions to this effect have not yet come into force<sup>2</sup>. A draft decree on the special status of the capital was produced in 2012 and approved twice by the Councils of Ministers but was not adopted by the Union's assembly. The draft decree is meant to tackle the question of the geographic demarcation of the municipality, set the number of the "arrondissements" to six, and delineate the administrative responsibilities as outlined in the preliminary planning strategy for the region of "Grand Moroni" developed jointly with UN-Habitat.

1. Union des Comores. Projet de révision de la constitution du 23 décembre 2001, révisée en 2009 et en 2013.

2. Mohamed (2016), p. 25.

including schools and health centers rely on fees, transferring the cost burden to communities and municipalities.<sup>9</sup>

**The central government provides ad hoc support to municipalities.** The government addresses aspects of public works for local redevelopment, albeit without a clear vision, and mainly addressing issues related to public hygiene. For example, it initiated a drainage project in the neighborhood of Kourani Zawiani in Moroni. It facilitated and negotiated the arrangement between Hahaya and the airport administration. Most interventions are ad hoc sanitation services and solid waste management when the needs become critically urgent with conditions creating a public health issue or a danger, in particular, in and around

Moroni, for which specific competencies are yet to be determined (Box 1).

**As a consequence of urbanization, municipal authorities in Comoros face constraints in addressing increased demands for service delivery.** Opaque or poorly defined transfers of power and responsibilities have hamstrung municipalities' ability to provide public services. Urban service provision has suffered from a lack of human and financial resources, insufficient training of civil servants and mayors, a mismatch between jobs and required skill sets, deficiencies in the assistance and incentives to perform, coupled with the unclear division of responsibilities between different levels of government.

9. World Bank (2015a).

*Overlapping mandates of administrative layers of formal and informal authorities*

The Decentralization Law<sup>10</sup> neglected to define the responsibilities of prefects. The prefect plays a decisive role in the decentralization process as a representative of the state in the regions where there is the territorial division of the prefecture. Each prefecture consists of several municipalities. State supervision is exercised over municipal authorities: on the islands through the Union's governorates, over the municipalities through the prefects.

Like many other countries that have inherited a francophone institutional framework, Comoros municipalities are subject to ex-ante and ex-post supervision by the state. State supervision (or tutelle) in Comoros includes support and advice, along with ensuring that municipal decisions are consistent with legal provisions in the administrative, financial and technical domains. According to the law, prefectures and deconcentrated services have the obligation to provide assistance to the municipalities with the objective to develop their capacities.<sup>11</sup> This assistance is supposedly provided through activities as part of the yearly plan put together by the prefect or solicited by the municipalities depending on their needs. However, in practice this assistance was not found to happen

as seamlessly or frequently as initially expected. The absence of a monitoring and evaluation system prevents municipalities to define objectives based on updated needs assessments, associated with the budget needed to perform and mechanisms allowing monitoring by citizens and higher levels of government.

**De facto, the municipalities manage civil registration.**<sup>12</sup> In practice, municipalities deliver the majority of civil status certificates such as birth, residence or death certificates. In some municipalities, civil servants are still assigned by the prefecture, to whom they answer. Planning (including building permits) was also partially transferred as regional offices of the National Ministry have to check the permits before they are issued and without the assignment of competent agents in the matter or assistance from the prefecture (as in the case of the Civil Registry). The decree of 2011 provides for the decentralization of other competences to the level of the municipalities, including the police, urban planning (cadaster, building permits, etc.). Still, the application texts did not follow. The decree vaguely defines the field of competence of the municipalities and gives the responsibilities of the mayor and the municipal administration. But nowhere is there any clear mention of an effective transfer of competences normally devolved to the state or from

10. No. 11-005 / AU.

11. Guide pratique de la Décentralisation (2012).

12. This has been the case since the 2015 municipal elections by virtue of the Civil Status Act No. 84-10 of 15 May 1984.

another institutional level to the municipalities. For instance, mayors have the prerogatives to issue planning authorizations, including building permits. According to the decree related to the issuance of building permits,<sup>13</sup> «taxes related to the issuance of building permits will be fully recovered by the Mayor who can then allocate them in accordance with article 3 of this decree». Although the transfer decree is available, this competence is mostly exercised by the Prefectures, with few municipalities having benefited from these revenues.

**The decentralization process did not sufficiently account for the village spheres of influence when municipalities were created.** Efforts have been undertaken to better align the two levels of government, and each village chief, designated in conformity with village traditions, is a full member of the municipal council of the municipality within which the village jurisdiction falls.<sup>14</sup> Social dynamics are very strong at the village level and help fill the gap left by the state. Village associations channel local investments organized as « local pro-

jects » (road rehabilitation, schools, or mosques) funded by the diaspora, and through community rituals such as village fairs, funerals or Grand Mariage (Ndola Nku, see Box 2). In this capacity, the diaspora is a key development actor, and a factor of social change at the village level.

**Although not formally considered as local government entities, villages remain the traditional source of Comorians' sense of belonging and identity along with family and clan, as individuals have a strong sense of belonging to their particular village.** This aspect is underscored by a weak sense of nationhood to the point that Comoros is sometimes defined as a « confederation of villages. »<sup>15</sup> Village authorities are rooted in traditional local power structures and benefit from greater credibility and legitimacy among the population, which applies to issues like land tenure and the resolution of conflicts.<sup>16</sup> Social institutions, such as the Grand Mariage, are at the heart of the community cohesion and regulate every social dimension in the Comoros.

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13. No. 13 007 / VP MATTUH / CAB.

14. World Bank (2018b)

15. World Bank (2019b).

16. Mbaé, A. (2017).

*Theoretical financial allocations versus practical solutions for municipal services*

The 2011 decentralization decree No. 11-147/PR provides for the transfer of two grants to municipal governments to finance their functional responsibilities: (i) an operating grant; and (ii) an unconditional investment grant. However, while all transfers between the federal government and the governorates are based on an objective formula set out in the law, transfers to municipal governments are not yet enshrined in legislation.<sup>17</sup> The 2018 Constitution offers little guidance about fiscal transfers to municipalities and only makes scarce mention about resource allocations to the islands. According to Article 105, the resources afforded to the islands include « the endowment paid by the state and the proceeds of duties, taxes, local taxes, the amounts of which are fixed by the finance law. » However, the constitution neglects to specify whether this includes the resources for the municipalities and stipulates with regard to the latter, that « they benefit from the resources which they may freely dispose of under the conditions laid down by law » (Article 110).

### Transfers from the central govern-

ment are unpredictable and often negotiated on an ad hoc basis. Decentralized administrations receive information on state allocations only at the time of the budget conferences and these are not reliable. The amounts finally decided at the time of the budget law voting may be significantly different, as well as the amounts effectively transferred.<sup>18</sup>

*... transfers to municipal governments are not yet enshrined in legislation.*

In addition, municipalities do not levy property taxes, as law does not yet define the municipal domain. No additional taxes are allocated to municipalities on built and rented properties, with the exception of Moroni, for which a database exists. Unlike other municipalities of the Union of the Comoros, the capital benefits from certain tax advantages, such as additional penny levied on business taxes and subsidies that are destined for garbage collection.

**The mechanisms behind intergovernmental fiscal transfers to municipalities are unclear.** The municipal elections of 2015 granted an exceptional subsidy of 295 million Comorian francs to the municipalities,<sup>19</sup> which served to upgrade or equip the municipal premises. In 2016, municipalities received a subsidy of 5 million Comorian francs each. It is only in 2017 that a budget line entered in the Union budget as a subsidy to the mu-

17. World Bank (2016a) confirmed by interviews with stakeholders, March 2020.

18. World Bank (2016a).

19. Mikowani 2030, cabinet du Ministère de l'intérieur, de l'information, de la décentralisation, chargé des relations avec les institutions.

municipalities.<sup>20</sup> The budget line for municipalities exists at the national level (19 billion KMF allocated in 2017<sup>21</sup> and 9.7 billion KMF in 2018<sup>22</sup>). In the absence of an implementing decree, this line has yet to be transferred to the municipalities. However, municipalities do receive an annual transfer of one million francs as compensation from the State. Following the revision of the constitution, there were no dedicated budget lines in 2019 and 2020. In 2020, the law mentions that supplementary legislation will be promulgated on a budget allocation intended to fund the governorates operating costs. Although not formally explicit, this illustrates a general trend towards changing the degree of centralization of revenues making financial resources specifically dedicated to municipalities more difficult to trace and reclaim. As the formula for sharing state revenues with the governorates is often not applied<sup>23</sup> and, given that municipalities have scarce alternate financial resources, this situation has proven to be a major constraint to their development and to the improvement of municipal services.

**All revenue mobilized by municipal administrations must be transferred to the treasury's single account hosted at the Central Bank.** Accord-

ding to treasury officers, the budget classification and chart of account need to be improved to accommodate responsibilities in municipal governance structures. The overall framework and tools for appropriate financial management at the municipal level requires further clarification. The modalities for collecting taxes can significantly differ from one municipality to another, and, given the low amount considered, the resources transferred to the municipalities have never been monitored. Hence, how transfers are ultimately implemented at the municipal level has never been subject to any evaluation or audit *ex post facto*. In the absence of a formalized and thereby more effective public accounting procedures in the municipalities, audit missions are not perceived as relevant as each municipality is organized according to its means and executes its budget with the means at hand. In theory, potential financial resources to which the municipalities can have access to, apart from the yet to materialize allocation from the central government, are those listed in the country's budgetary nomenclature and include (i) direct taxes, (ii) non-fiscal revenue, (iii) land-related products, (iv) property income, and (v) portfolio revenues.<sup>24</sup> The law accounts for an additional penny, set at 10 percent of

20. Mikowani 2030, cabinet du Ministère de l'intérieur, de l'information, de la décentralisation chargé des relations avec les institutions.

21. Décret 16-275 PR portant sur la Loi des finances de l'exercice 2017.

22. Décret 17-128 PR portant sur la Loi des finances de l'exercice 2018.

23. World Bank (2018b).

24. As described in the draft legislation provided by the DG of Decentralization and Deconcentration (Textes de la décentralisation).

business taxes, which is supposed to be transferred back from the Chamber of Commerce to municipalities.<sup>25</sup> Since this source of funding has not reached municipalities, some citizens and the private sector believe that the commune appropriates these cash inflows, which has contributed to deterioration in their confidence.<sup>26</sup>

**Most revenue is raised within cities and villages and few municipalities manage to levy a share of these proceeds.** As indicated above, each municipality includes several cities or villages. This delineation has often failed to match the traditional boundaries of villages and has reinforced an urban/rural divide and thereby exacerbated historical rivalries. Some municipal projects were never properly exposed to the public because of disagreements, while they had secured funding from donors. The best functioning municipalities are those managing to get a share of these revenues, mostly collected at the village level:

- Civil registration fees collected at the municipality level are generally the most reliable source of income for the municipalities. Benefits from a direct fee-for-service payment allows for the service to be rendered

and break even.<sup>27</sup>

- Revenues from management of the local market are perceived at the village level. It is often the most important source of revenue.<sup>28</sup> In Moroni, approximately 50 percent of income is derived from market management.<sup>29</sup>

- Resources generated by the Grand Mariage, collected at the village level, also constitute a large share of own source revenue. These are supported by the diaspora, in particular in Ngazidja.

- Fees on activities led by local associations (rallies, festivities, celebrations, popular festivals) often organized to fund a particular project in the village.

The weakness of the financial resources of the municipalities becomes more evident with the revenues of Moroni, Cembenoi Sada Djoulamlima, and Mitsamihuli, which are up to 105 million, 26 million, and 10 million KMF, respectively, which translates to a yearly per capita average of US\$ 4. This comparatively small amount stands in contrast to other African states: by any standard. In Kenya, the budget spends per ca-

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25. Décret N° 11 - 151 /PR portant promulgation de la loi N° 11-007bis/AU du 03 mai 2011, portant Code Général des Impôts.

26. Interviews with stakeholders, March 2020.

27. Mirontsy budget.

28. Sometimes perceived by the governorate.

29. Moroni budget in 2019.

pita for counties from its budget at approximately US\$80.<sup>30</sup> Similarly, in 2016, Bamako, Mali allocated US\$32 per person, while Niamey, Niger received over US\$16 from its national budget. In 2016, the municipality of Cembenoi planned a budget of KMF 62 million but was only able to mobilize KMF 26 million (US\$ 4 per capita). They had to spend KMF 34 million to carry out these missions resulting in significant budgetary shortfall. The budget allocation is mainly for salaries and equipment, leaving no budgetary room for investments.<sup>31</sup>

**Social dynamics are very strong at the village level and help fill the gap left by the state but also create inequalities.** Villages associations channel local investments organized as « local projects » (road rehabilitation, schools, or mosques) funded by the diaspora, and through community rituals such as the village fair, Grand Mariage or funerals. The diaspora plays a key role as a quasi-development actor and a factor of social change at the village level, perpetuating disparities originating from the historical hierarchy of villages as

well as the highly localized nature of remittances from the diaspora (mostly benefiting Ngazidja residents).<sup>32</sup> More successful municipalities have managed to either receive a share of the revenue raised by villages or play a coordinating role, with a right of oversight over the projects undertaken in the villages and their financing.<sup>33</sup> Municipalities could be the source of increasing investment efficiency and redistribution but, absent the means to deliver, they lose credibility with the villages that constitute them.<sup>34</sup>

*A large share of financing gap is filled by remittances from foreign diaspora*

**The steady flow of Comorian emigration is evidence of the development challenges faced by the country.** Demographic pressure and difficult standards of living are key drivers of emigration from Comoros.<sup>35</sup> In 2017, the total stock of emigration represented approximately 15 percent of the population (188,000), with 32 percent of the diaspora residing in France.<sup>36</sup> While able to support their families through remittances, Comorian emigrants tend to be less educated and to

30. Fiscal Devolution background paper (2019) for Kenya: Making Devolution Work for Service Delivery”, World Bank (2020) unpublished.

31. Only a few municipalities were able to share their budgets.

32. World Bank (2018b).

33. Interviews with stakeholders, March 2020.

34. In his experience as Mayor of the Pilot commune of Mbeni, Mbaé (2017: pp. 96-101) estimated in 2014 a gain of about EUR 42 000 in a period of 10 wedding days that could directly benefit the municipalities.

35. Trenchard (2020a) and Walker (2019).

36. World Bank/KNOMAD (2019a).



find low-skilled employment in destination countries, especially France.<sup>37</sup>

**France and neighboring islands remain the main destination for the Comorian diaspora.** An estimated 32 percent of the diaspora resides in France and 10 percent in Madagascar.<sup>38</sup> In 2017, 12.6 percent of households had a family member who emigrated during the previous year, most of whom (68 percent) were immediate family.<sup>39</sup> Approximately 23 percent of individuals who left Comoros over the previous year immigrated to France

and 6 percent to Madagascar. The proportion of households with emigrant family members is significantly higher in Ngazidja (17 percent of households), where nearly 65 percent of emigrants were living. The majority of emigrants originated from rural areas in Ngazidja and Ndzuwani (50 and 24 percent, respectively).

**The diaspora is an essential asset for the country.** Many decide to emigrate in search of better employment opportunities and higher incomes for themselves and their families. Families

37. Abdillahi (2012). La diaspora de la Ngazidja à Marseille et son apport sur le développement de l'île. Doctoral thesis. Université de La Réunion.

38. World Bank/KNOMAD (2019a).

39. INSEED (2017).

## BOX 2. The « Grand Mariage » : how a traditional ceremony affects livelihoods and public policy

The Grand Mariage (“Great Marriage”) ceremony is at the heart of Comorian culture. There are two types of legal unions in the Comoros - the regular marriage (petit mariage) and the much larger Grand Mariage. In the Comorian tradition, the ritual of the Grand Mariage is the keystone of a coherent customary system, with an original system of social advancement, and is part of a life cycle called Anda. To become an «accomplished man», the young Comorian must satisfy a certain number of ritual obligations allowing him to pass successively through the social hierarchy.

Celebrations may differ across towns, municipalities or islands. Despite differences in celebrations, the ceremony usually consists of feasts to which neighborhoods or villages – and sometimes even beyond – are invited and exchanges of expensive gifts between the couple’s families. Holding such a ceremony gives access to higher social status and marks the beginning of a new phase in life for the wedded couple. The Grand Mariage, which may cost over 20 times the country’s average per capita yearly income, also compels men to emigrate in order to secure the required amount of money as quickly as possible. It is therefore a central component in the economic vulnerability analysis of Comoros.

Celebrating a Grand Mariage increases a family’s prestige and social position. A family’s social standing depends on how many family members have celebrated their Grand Mariage and how much money was spent on the celebrations. As such, each family feels obliged and has the incentive to spend more than other families to gain prestige.<sup>1</sup>

Men who have had their Grand Mariage enjoy a higher social standing in their community.<sup>2</sup> They are invited to public events and have a say in community decisions and are recognized as important members of the community. Men who have not celebrated their Grand Mariage are not allowed to speak in public unless granted permission by someone who has had his ceremony. On the island of Ngazidja for example, a man who has not celebrated a Grand Mariage will face a more difficult political career. Those who cannot afford to have a Grand Mariage are not permitted to sit in the front row at the mosque or wear certain items of clothing that identify that higher social status. They are excluded from local decision-making and are not considered to be a fully adult in the same way as those who have had a Grand Mariage.<sup>3</sup> Moreover, because of Comoros’ matrilineal social norms – where the man moves into his wife’s home and gains access to her assets – the Grand Mariage is seen as a form of social protection mechanism as well as means for men to acquire land rights or increase financial security.

Although costs may vary greatly, a Grand Mariage can indebt families for many years. Total costs can exceed KMF 60 million (EUR 120,000) including the expenses

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1. Katibou (2015).

2. Katibou (2015).

3. Trenchard (2020b).

on the groom's side, entertainments and other components of the celebrations (reports of celebrations costing over US\$ 20,000 are not uncommon<sup>4</sup>). Other references mention that on the groom's side of the family, expenses can range between EUR 10,000 to 100,000<sup>5</sup>. On the bride's side, the family generally commits to buying or building a house for the newlywed couple, given the country's matrilineal system.

In light of the costs of a Grand Mariage, many decide to emigrate in search of better employment opportunities and higher incomes. At the turn of the century, a Grand Mariage valued at around KMF 17 million (approximately US\$ 37,500) was considered to be close to the upper bound, typical of wealthier families in urban settings<sup>6</sup>. Today, these figures have become more common, as families invite acquaintances from neighboring villages or other regions of the islands in order to display their popularity and financial means. Traditionally, the celebrations were much more limited in scope. In the early 20th Century, while still expensive, the Grand Mariage was a prerogative – a requirement that excluded a large proportion of the population.<sup>7</sup> In 1974, costs for the celebrations had already reached approximately KMF 5 million, while for members of the Comorian diaspora in Kenya, the amount spent on the celebrations was the equivalent of at least five to six times their annual earned income.<sup>8</sup>

The Grand Mariage also creates division, between those who believe it leads to a waste of resources and those who see its benefits accrue to the broader local community. Critics argue that it puts a brake on the Comorian economy by prioritizing consumption over investments in public services (e.g. water tank covers, infrastructure improvement, access to alternative energy sources) or to improve living conditions for vulnerable households.<sup>9</sup> Households and the diaspora find themselves spending large sums of money on a social event with limited positive spillovers to the real economy. Others consider the Grand Mariage to be an incentive for increasing consumption within the domestic market. A key argument in defense of this traditional celebration is that it is rooted in social values that transcend and supersede the economic component of the debate.<sup>10</sup>

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4. See for example Trenchard (2020b), Al Jazeera (2016) and Abdillahi (2012).

5. Younoussa, I. (2011).

6. Walker (2002).

7. Walker (2002) provides anecdotal evidence of a Grand Mariage costing the equivalent of 2000 kg of rice in 1914 and of celebration costs being reported in terms of cattle or assets other than currency.

8. Shepherd (1977).

9. Morin and Lavigne (2009)

10. Abdillahi (2012).

**BOX 3. Choice, participation and transparency – effective community-based solutions in Indonesian villages**

Introducing bottom-up decision-making from the top down has not worked in Indonesia. During the implementation of broad development programs between the late 1960s and 1990s, the Indonesian government introduced a decentralized and bottom-up governance approach to decision-making at the village level, where locally chosen village heads became accountable to a village council. The budget planning process incorporated village-level meetings to incentivize citizen inputs into budget priorities. But the reality of village leadership was different. The newly created administrative structure was at odds with existing social structures, ignoring organizations with specific functions and traditional leadership. Failing to account for local realities, such bottom-up planning did not bear fruit. A review of 770 village proposals found that only 3 percent of these were included in district budgets.

When implemented correctly, greater community engagement can have real payoffs. Successive projects designed to incorporate participation had much lower failure rates than conventional projects and resulted in cost savings of 30 to 50 percent compared to government construction projects. In the wake of the 1997 crisis, the government rolled out and successfully scaled up a new development program (Kecamatan Development Program), providing block grants to eligible subdistricts—or kecamatan, an administrative unit that includes roughly 10 to 20 villages. Each subdistrict uses the funds to finance community proposals from the villages for small-scale public goods (roads, wells, bridges) or economic activities. The reason behind the success was the program's set of core principles: simplicity (releasing funds directly to communities); participation (submitting proposals by and disseminating information to village residents); self-reliance (allowing villages to source technical expertise); trust (simplifying disbursement procedures while maintaining oversight); and transparency (publishing project information in simple formats).

Implementing community-based solutions needs to build on the local context. In applying this model, governments will need to carefully balance a set of issues related to local development challenges. The successful reproduction of the KDP model in Afghanistan and Philippines suggests the soundness of the five principles listed above. It is imperative to ensure that the most vulnerable benefit from such community-based development programs and are not left behind. Additionally, handing over decisions and implementation to local communities does not replace the use of technical expertise, which remains essential to projects in sectors such as infrastructure or health. Finally, decentralizing and devolving powers can spark tensions between different layers of local government. The success of the community projects ultimately depends on transparency in decision-making, open debate, and accountability.

Source: World Bank (2004).

often finance an emigrants' journey expecting to receive remittances to support their consumption and community expenses (e.g. Grand Mariage, contributions to village socio-economic development projects).<sup>40</sup> In Ngazidja, emigrants earn higher salaries and are able to contribute to their family's income through remittances and save enough for a ceremony that will earn them a good social standing once they return to Comoros (see Box 2). Emigrants often become indebted as a means to meet the needs of the family and the demands and pressures of society in general.

Remittances in Comoros are a significant factor in reducing poverty but also contribute to inequalities in service delivery. Private net remittances averaged 13 percent of GDP over the last decade.<sup>41</sup> This places Comoros among the top in Sub-Saharan (where the average is around 2.5 percent of GDP).<sup>42</sup> Close to 40 percent of households in Comoros receive remittances, which makes those households on average 11 percent less likely to be poor. While remittances led to poverty reduction in a nation

with a stagnant economy, they do not necessarily benefit the islands equally as some 84 percent goes to Ngazidja. They contribute to increasing disparities and disincentivize the central government to transfer funding to the local level, as remittances are often invested towards building social infrastructure such as mosques, community centers, clinics or schools, bypassing government structures.<sup>43</sup> A lot of these investments are not coordinated with the central government and therefore lack the proper staff or operating budget.

Remittances play a vital role in household budgets for recurrent consumption as well as the consolidation of savings for major expenses such as the Grand Mariage. Customary practices are estimated to absorb between 50 and 70 percent of amounts transferred to the country,<sup>44</sup> limiting the productivity gains of urbanization.<sup>45</sup> In a 2019 interview, the Minister of Finance declared « the diaspora plays a key role, with an economic weight double that of the Government's budget, but are unfortunately still destined for consumption, in parti-

40. Katibou, A. (2015).

41. World Development Indicators.

42. Bahar, D. (2020).

43. World Bank (2018b).

44. Katibou (2015).

45. The additional income coming from the diaspora causes a disproportionate rise in the demand for urban goods and services, met through import or nontradable services, produced locally. In such case, urbanization in Comoros may not generate the same productivity effects as it has in other regions, in part because it increases employment in the nontradable sector. Nontradable goods and services have a much smaller consumer base, and do not benefit as much from economies of scale than manufacturing or tradable services. Urbanization is driven by consumption instead of not production, creating « consumption cities » (Gollin, Jedwab, and Vollrath, 2016).

cular for the Grand Mariage. »<sup>46</sup>

Some municipalities have attempted to change the tradition and regulate the expenses linked to the ceremonies. Despite these efforts, the cost of a Grand Mariage has spiraled.<sup>47</sup> The competition to outperform previous celebrations has led to public sector corruption and the misappropriation of funds to channel money to Grand Mariage budgets.<sup>48</sup>

**A Grand Mariage can support municipal government finances.** Some municipalities have tried capitalizing on them, albeit unsuccessfully, to allocate resources to key sectors for local development, such as urban planning, construction of schools, or water supply systems.<sup>49</sup> This contribution accounts for a significant share of Mitsamihuli's revenue mobilization, taking into account that the total budget in 2014 amounted to just over KMF 17 million and transfers from the central government only reached KMF 150,000.<sup>50</sup> In 2014, Nyuma Komo received a similar amount from the central government

making up less than one percent of the Municipality's budget, whereas revenues from Grand Mariage ceremonies (KMF 11.2 million) made up over 57 percent of the budget.<sup>51</sup> Many villages, cities or municipalities demand a traditional contribution to the local budget for every Grand Mariage that is organized. For example, in the case of Mitsamihuli, each of these ceremonies (up to 50 per year) can add up to KMF 1.2 million to the town's budget.<sup>52</sup> In Cembenoi Sada Djoulamlima, these ceremonies make up almost 30 percent (KMF 5.5 million out of KMF 17.6 million) of the municipality budget. If formalized, these contributions could become a more predictable, transparent and manageable revenue source for municipal governments.<sup>53</sup>

**Since municipalities have limited technical capacities and resources, private community-based organizations have stepped in.** Where the state has left a breach in service delivery, local private sector, and community-based organizations have stepped in. Local businesses can sponsor public invest-

46. Forson, V. (2019). Comores : les grands projets du président Azali Assoumani. 9 December. Paris: Le Point.

47. In Ngazidja, municipalities have set a statute outlining the amounts to be spent on the celebrations. The family of the groom can be required to spend almost US\$ 90,000 whilst the family of the bride around US\$ 45,000 (Papamwegne, 2016).

48. Abdillahi (2012).

49. Abdillahi (2012).

50. Commune de Mitsamihuli (2015). Plan de Développement Municipal de la Commune de Mitsamihuli 2014-2019.

51. Commune de Mitsamihuli (2015). Plan de Développement Municipal de la Commune de Mitsamihuli 2014-2019.

52. La Gazette des Comores (2020). Al Qibla : les ménages, bailleurs du développement local. 24 February.

53. <http://ceec-comores.over-blog.com/2016/12/pour-une-transparence-dans-le-financement-des-municipalities-et-regions.html>.

ments by providing material and equipment, as in the case of Mirontsy, where a convenience store has contributed to equip street lighting.<sup>54</sup> Additionally, municipalities have relied on volunteers to provide services such as waste collection, security and other social services. Households rely on informal means to obtain some public goods and services. Water can be sourced from public fountains, wells or streams, while the provision of sanitation infrastructure and solid waste management services continue to underperform in most municipalities.

**Without solid institutional foundations, the probability of policies improving accountability will be limited.** A first step towards empowering municipalities would be to improve transparency and the diffusion of information through open debates between municipal authorities and citizens (Box 3).

The following chapter is structured along the objectives of the PCE – Vision 2030, which outlines the following set of actions: protecting residents from natural adverse events; promoting the development of all residents; and offering healthy and clean-living conditions. The latter discusses public services and is structured around the principles of accountability for those services that have been decentralized.

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54. Annual Budget 2017, Mirontsy.





## Chapter 2. Transforming cities

### Key messages

From hydrometeorological and seismic risks to coastal erosion and drought, Comoros' risk profile spans a complex, intertwined and especially variegated web of multiple hazards. Cyclone Kenneth in 2019 exposed Comoros response system and showed the need for a well-coordinated emergency preparedness. Shortcomings in spatial planning and prevailing inadequacies in construction standards for the built environment further drive the country's vulnerability to natural and manmade disasters, especially for the urban poor.

Currently, three different legal frameworks govern land administration, but competition between them often results in conflicts over land. This, in turn, constrains municipalities' ability to define and access land, unleashing a cascade of difficulties for an effective urban development and the provision of basic services. Water supply suffers from excessive fragmentation, which then leads to further loss of economies of scale. Poor land use management and lack of waste treatment, recycling and disposal solutions complicate waste management which affects negatively Comoros' environment and landscape, further exposing its inhabitants.

To address these issues and reduce the effects of seismic and climate-related shocks, it is essential to promote resilient construction practices and better manage the adoption and enforcement of building codes, and be opportunistic in working towards clarifying property rights based on common principles to set the stage for a more ambitious land reform.

## Comoros' Multi-hazard Reality : Protecting residents from adverse natural events

Comoros' geography exposes the island nation to a diverse, multi-hazard risk profile, consisting of both rapid and slow-onset events. Hydro-meteorological and seismic risks feature most prominently, but drought is a growing risk for Comoros' especially vulnerable agricultural sector, as well as offshore volcanism. Man-made contributions further exacerbate the likelihood of loss and increase exposure, in particular, in the built environment.

On 24 April 2019, Cyclone Kenneth, a category 3 tropical cyclone,

brushed passed the northern rim of the archipelago, crossing Ngazidja and causing flooding there, as well as in Mwali and Ndzuwani. It affected 345,131 individuals across the three islands, representing some 40 percent of the population. Cyclone Kenneth injured 153, displaced 11,969, and was responsible for the loss of six lives. The catastrophe resulted in some US\$185.4 million in damages and losses and disrupted key public services such as schools, health facilities, water, transport (roads, maritime and air) and electricity. It had severe impacts on the country's infrastructure, mainly in the housing and transport industries, with airport, ports, and roads suffering lengthy disruptions. Severe negative

### BOX 4. Developing a Building Exposure Model for Comoros

A building exposure model consists of a complete set of characteristics, including the estimation of the monetary value (which could be replacement or reconstruction value) of the building stock of a country. For Comoros, the exposure model was developed based on a representative sample (10 percent) of the 2017 General Population and Housing Census. The methodology employed includes estimating the level of residential building occupancy of each municipality, building a structural typology schema for the residential building stock by combining external wall and roof cover material data, calculating the replacement value of the building stock by estimating unit costs of construction and built floor area, and disaggregating the results at a 1x1 km resolution with the help of a global population distribution model (LandScan 2017<sup>1</sup>), among others.

The main outcome of the exposure model consists in the estimation of the replacement value for 2017 of Comorian residential and non-residential assets. This information is disaggregated at a 1x1 km resolution, by type of construction, and urban or rural area. The results encompass three main elements: (i) the spatial distribution of the housing stock in Comoros; (ii) the typology of the buildings as well as the different classes of structural vulnerability; and (iii) the economic value of building assets in Comoros, which represents the current total replacement cost of the building stock - not including building contents nor accounting for the cost of the "Building Back Better" approach.

1. Bright, E. A., Rose, A. N., Urban, M. L., & McKee, J. (2018). LandScan 2017 High-Resolution Global Population Dataset. Oak Ridge National Lab (ORNL), Oak Ridge, TN (United States).

**BOX 5. Extraction of sand and collapsing infrastructures**

As the coastline continues to experience rapid urban growth, urbanized areas having doubled between 1995 and 2014, there is an increasing need for construction materials and greater demand for high physical and financial volumes of imported cement, lime or plaster (mainly from Pakistan, the United Arab Emirates and China). These imports reveal the lack of national resources and a deficit of construction infrastructures, which hamper the economic development of the sector. In recent years, quarries on the island of Ndzuwani have been opened, reducing the need for expensive imports. However, these raw materials still remain inaccessible for many households leading to widespread informal extraction of sand on the coasts or in the rivers. This practice accounted for approximately 20 percent of the island production of building materials in 2016<sup>1</sup> and is both a

arduous and yields less profit. Moreover, it has disastrous consequences for the landscape, the environment, as well as for coastal transit infrastructure, which at times collapses due to the retreat of the beach. Despite regulatory bans renewed by public authorities, 13 percent of the consumption of construction materials comes from this informal sector. Furthermore, these construction processes are sometimes less reliable and less resistant to climatic hazards such as floods and cyclones. The extraction of sand for construction material has therefore a strong negative environmental impact, but also generates social work constraints and faulty infrastructures.

1. Bahers, Perez and Durand (2019).

impacts on subsistence crops, livestock and fisheries were also registered.

**On 21 March 2020 a magnitude 5.3 earthquake struck the Comoros and was felt across all islands.** Its epicenter was located roughly halfway between Maore and Ndzuwani. The Bureau Central Sismologique Français (BCSF) noted that between 1984 and 2019 four earthquakes of between 3.3 and 4.3 magnitude were recorded, but this was the first time that an earthquake of more than 5 magnitude on the Richter scale occurred in that area. There were no reported damages. An earthquake of higher magnitude with an epicenter closest to a more populated area could have catastrophic consequences.

**Comoros weak capacity for spatial planning and poor building construction standards make it even more vulnerable to the effects of these disasters.** The Comoros have seen strategic infrastructure, internal and inter island means of transportation destroyed in the past by tropical cyclones. Past natural disasters have resulted in disruptions to economic activity and the delivery of basic services to the population such as water and electricity supply. Among the factors explaining these impacts is the lack of coordination in prevention and risk reduction as well as in preparedness and emergency response. While laws regulate building standards,<sup>1</sup> there are significant gaps in technical aspects (e.g. no consideration of para-seismic

1. Urban Planning and Construction Code of December 2011, Loi N°11-026/AU du 29 décembre 2011.

and para-cyclonic standards), as well as in the dissemination, application, and enforcement of regulations. Despite the different initiatives and increased knowledge at the different institutions in charge of monitoring of geophysical and hydrometeorological hazards, there are considerable knowledge gaps in understanding the impact of disaster and climate-related shocks, including the long-term effects on coastal erosion, where the greatest urban population density is currently located.

**Capital investment lags behind urban population growth.** Comoros requires higher levels of investment to catch up with building backlogs in urban areas. The building stock value for 2017 has been estimated at US\$ 2.17 billion or two times the GDP<sup>2</sup>, of which 57 percent correspond to residential buildings and 43 percent to non-residential buildings (see Box 4 for details on the model, and in Annex 1 for more features). The total building value per capita is approximately US\$ 2,850, while the average floor area per capita for residential buildings is only 15.5m<sup>2</sup>. Most of the country's building stock – 56 percent – is located in rural areas, which limits the potential for agglomeration economies and reflects the early stages of urbanization in the country.

**A large proportion of residential buildings is made of corrugated or galvanized metal sheets, which are less resistant to cyclonic winds or seismicity rendering them more vulnerable to potential adverse natural events.**

**The proportion of residential buildings built with lightweight materials has decreased since 2003 but remains significant.** In 2017, 6.2 percent of households lived in poorly constructed buildings that had either leaf walls or thatched roofs (See Box 5 for cheap practices). At island level, 24.4 percent of households in Mwali live in lightweight housing, compared to 8.1 percent in Ndzuwani and 2.4 percent in Ngazidja. These numbers mark a reduction compared to 2003, when 55 percent of households in Mwali, 35 percent in Ndzuwani and 10 percent in Ngazidja lived in constructions made of these materials.<sup>3</sup>

**The quality of construction materials varies significantly between islands with only 10 percent of housing units built to code.** More than half of residential exposure is located in Ngazidja, 38 percent in Ndzuwani, and just 8 percent in Mwali (Figure 9 and Figure 10). A large proportion of residential buildings is made of corrugated or galvanized metal sheets, which are less resistant to cyclonic winds or seismicity rendering them more vulnerable to potential adverse natural events. Analysis of high-resolution aerial imagery between 2018 and 2019 for 6 villages in northern Ngazidja shows that almost 20 percent of buildings were

2. Nationally, the estimated building values is of similar value in terms of GDP compared to other SIDS.

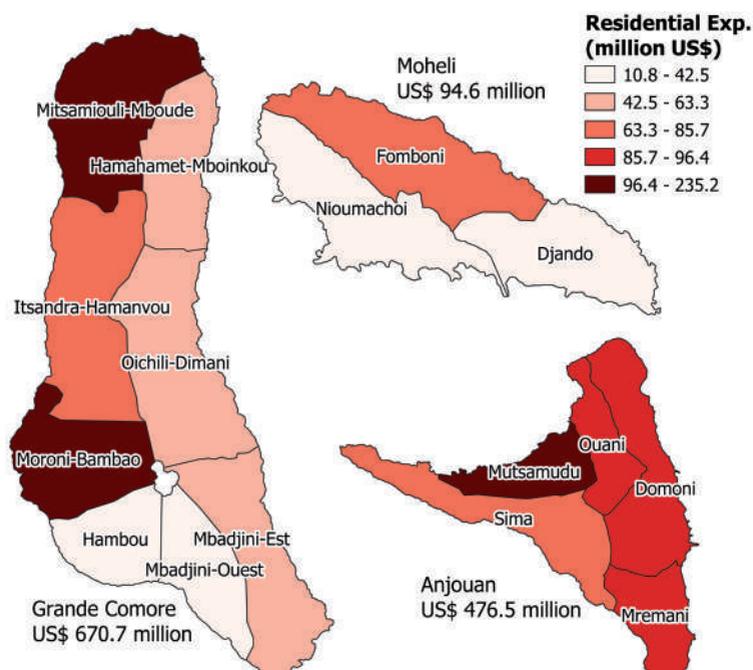
3. Katibou (2015).

Table 2. Cyclone Kenneth damaged mostly buildings with fragile roofing

City / village	Building destroyed	Buildings damaged	Buildings unchanged	Share of damaged or destroyed buildings with metal roof
Mitsamihuli	7.3%	13.6%	79.1%	90.4%
Bangoi Kouni	10.8%	14.3%	74.9%	92.0%
Chezani	5.9%	11.3%	82.3%	89.8%
Djomani	4.4%	4.0%	91.6%	91.8%
Fassi	5.5%	9.1%	85.5%	81.3%
Ivoini	17.0%	16.1%	66.6%	83.2%
Ouellah	9.0%	11.7%	79.2%	91.5%
Total	8.4%	11.2%	80.4%	90%

Source: Classification of images taken by AMCC EU 2018 and UN Habitat 2019.

Figure 9. Residential Exposure



Source: Building Exposure Model developed by World Bank Staff

Figure 10. Distribution of Residential Building Typology Classes

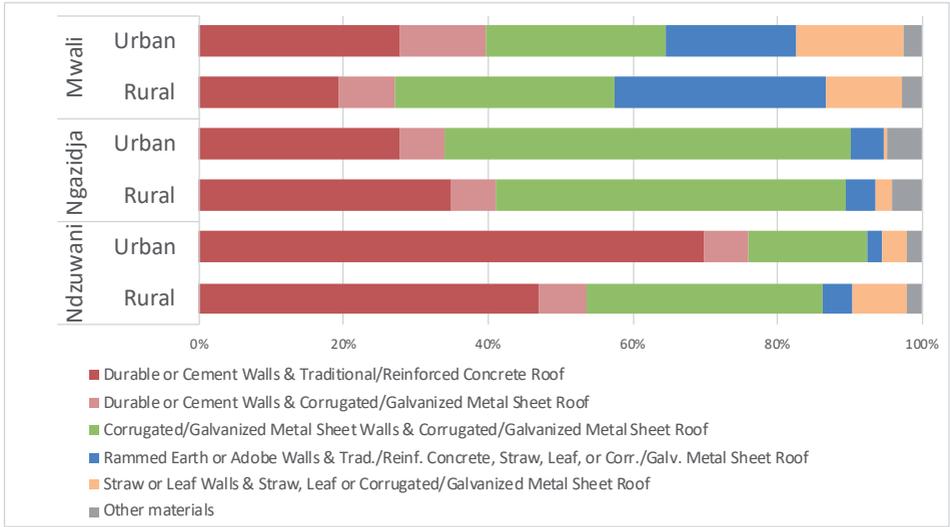
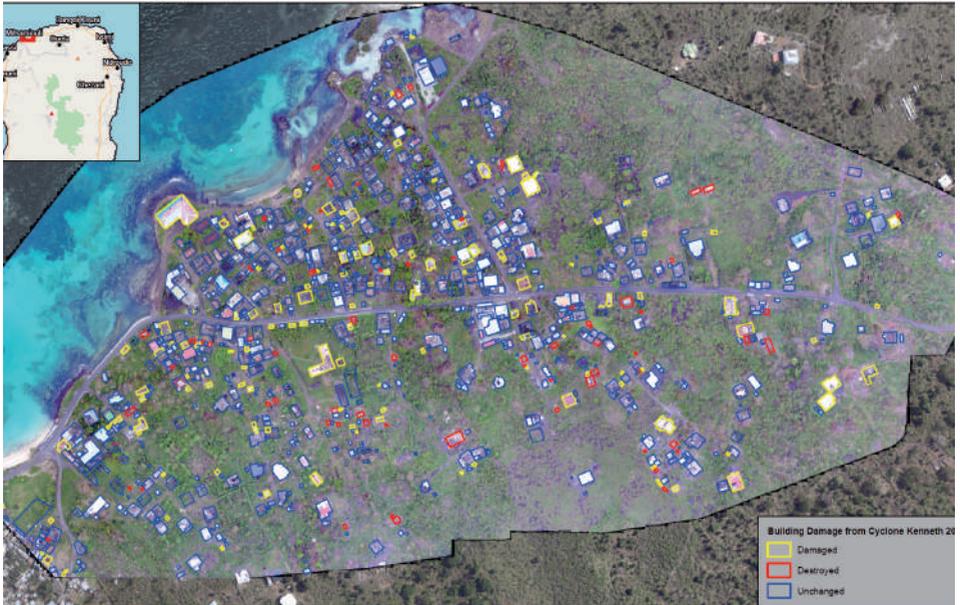
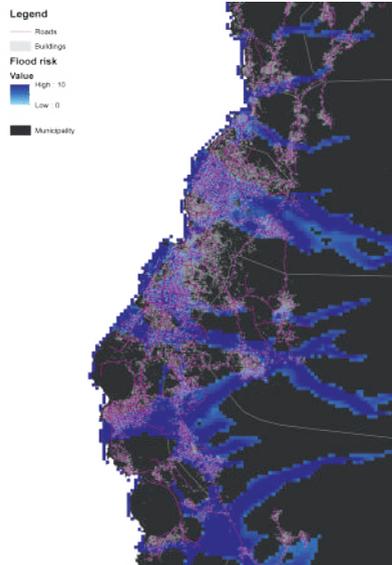


Figure 11. Over twenty percent of houses in Mitsamihuli were damaged or destroyed by Kenneth



Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 12. Buildings exposed to flood hazard around Moroni



Source: FATHOM v2 (2020) flood-hazard model, flashflood or pluvial flood hazard data, probability of occurrence 1 in 5 years.

destroyed or damaged by cyclone Kenneth. Of these, 90 percent had a galvanized metal sheet roof (see Table 2, Figure 11 and more in Annex). At the island level, unit construction costs and structural typologies are assessed to be comparable in urban and rural areas, providing further evidence to the early stage of urbanization in the country.

**As with other SIDS, Comoros' building assets are concentrated in a handful of areas mainly located on the coastline.** Spatially covariant shocks, such as tropical cyclones, can have nation-wide impacts with large losses relative to

the country's exposure, in comparison with floods, which have more localized impacts. Given the small size of Comoros, local flooding could also have significant downstream impacts on transportation and disrupt supply chain further afield from the impacted area. In fact, 36, 20 and 34 percent of building and 29, 17 and 23 percent of main roads in Ngazidja, Ndzuwani and Mwali are located in areas that could be potentially affected by pluvial flooding (see Figure 12 for Moroni, where 58 percent of building are exposed).<sup>4</sup> The Annual Average Loss (AAL)<sup>5</sup> from tropical cyclones, floods, and earth-

4. FATHOM v2 (2020) flood-hazard model, flashflood or pluvial flood hazard data, probability of occurrence 1 in 5 years, Building Footprints and main roads.

5. The AAL is an estimate of the potential losses incurred each year and corresponds to the average of all the losses incurred over the very long term. Losses include residential and non-residential buildings and infrastructure. All values are for 2014, the reference year of the assessment.

quakes is estimated at 0.92 percent of the 2014 GDP.<sup>6</sup> AAL is driven by tropical cyclones (64 percent of the losses) and floods (35 percent of the losses). Furthermore, wind, floods, and storm surge generated tropical cyclones have a probability of one percent in any given year to cause losses that exceed 6.5 percent of the GDP.<sup>7</sup>

**Disaster risk is concentrated in Ndzuwani, which accounts for nearly 80 percent of average annual losses from natural catastrophes.**<sup>8</sup> Despite having less building exposure and more durable building practices than Ngazidja, disaster risk is concentrated in Ndzuwani, which is more exposed to tropical force winds (Figure 13). However, significant damages are also experienced in other islands. In April 2019, tropical cyclone Kenneth caused around US\$ 36.5 million in direct damages to buildings and infrastructure of which 95 percent were concentrated in Ngazidja, according to early estimates (Figure 14).<sup>9</sup>

**Over the past decade, significant efforts were made to strengthen the emergency preparedness and response (EP&R) system, but to date it is not fully operational.** The General Directorate for Civil Security (DGSC) was established in 2012 under the Ministry

of Interior to oversee EP&R, supported by regional directorates in each island.<sup>10</sup> This was part of a larger initiative to strengthen governmental capacity to manage disasters and similar climate-related shocks, mainly supported by the United Nations through the UNDRR (formerly, UNISDR), the European Union, and the World Bank funded through the Global Facility for Disaster Reduction and Recovery (GFDRR). It created a stronger institutional framework for the existing Emergency Operations and Civil Protection Center (COSEP), which was created in 2007 with assistance from the UN as auxiliary support. In September 2012, based on a network of national and regional committees and a coordinating body, the National Platform for the Prevention and Reduction of Disaster Risk was established as a permanent advisory body composed of government agencies from all sectors of civil society and the private sector.<sup>11</sup>

**Different strategic and contingent plans were developed,** such as a specialized safety plan against cyclones (2011), emergency and response plans for each island (2014 plans ORSEC), a National Strategy for Disaster Risk Reduction (2015), and a National multi-risk contingency plan (2017). In April 2019, the mettle of Comoros' institu-

6. World Bank (2016b).

7. World Bank (2016b).

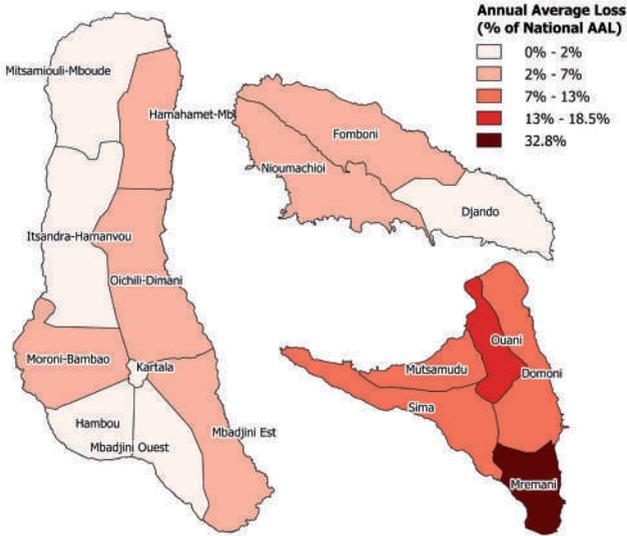
8. World Bank (2016b).

9. Union des Comores (2019c).

10. Décret N°12-054/PR Relatif à la Direction Générale de la Sécurité Civile.

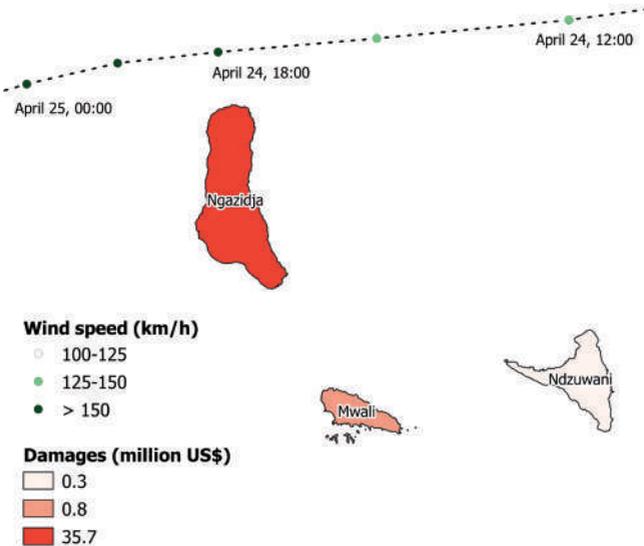
11. Décret N°12-181/PR portant Création d'une plateforme nationale pour la Prévention et la Réduction des risques de catastrophes.

Figure 13. AAL from tropical cyclones, floods, and earth-quakes by Prefecture, relative to the national total



Source: World Bank (2016b).

Figure 14. Spatial distribution of Kenneth's estimated damages to building and infrastructure



Source: World Bank (2019c).

tional and operational frameworks was tested when Cyclone Kenneth passed to the north of Comoros. From an initial allocation of the US\$ 48.3 million needed to implement the National Strategy for Disaster Risk Reduction, the Comoros government mobilized only US\$ 6.8 million by June 2019. This support enabled significant capacity building within COSEP/DGSC particularly within the Information Analysis and Processing Center (Centre d'Analyse et de Traitement de l'Information – CATI). Connected to the regional and international meteorological institutions, COSEP was in charge of monitoring and forecasting the cyclone's trajectory as the core elements of the Early Warning System to be put in place and led by the DGSC. The DGSC then officially issued alerts to activate emergency protocols aimed at protecting the population. The financing gap of almost some 86 percent<sup>12</sup> prevented the full implementation of the National Strategy for Disaster Risk Reduction. In reaction, the Government decided to create a dedicated inter-ministerial committee to manage the post-disaster situation caused by Cyclone Kenneth, instead of using the national platform.<sup>13</sup> Previously untested response plans, such as the National Multi-risk Contingency Plan, were used and presented critical gaps in institutional arrangements, political divergences and inconsistencies (see Box 6 for more details). Finally, the annual budget allocated to the DGSC remains insufficient to cover risk reduction and preparedness activities and there is no

ex-ante financing mechanism for EP&R and recovery. DGSC will be required to increase its capacity as well as coordination leadership to be able to secure higher budgets.

**Local-level responses to Kenneth were heterogeneous and continue to lack coordination.** Despite the efforts undertaken by the central government to assess the post-disaster needs, recovery and reconstruction efforts were largely considered insufficient, or sometimes uncoordinated in many municipalities. Urban centers in Ngazidja and Ndzuwani reported adopting a variety of ad hoc solutions to alert the population and undertake rehabilitation and reconstruction efforts without waiting for state intervention. In some cases, citizens and local authorities reported organized early warning systems, with forecasting information reaching the local level through radio, television or direct COSEP warnings transmitted by megaphone at the village level. Community associations played an important role in the aftermath of the disaster by organizing cleaning campaigns and providing temporary shelters, while the diaspora's contributions supported rehabilitation efforts. What appeared as an ineffective response from the central government and COSEP to address local-level needs prompted municipalities to highlight the importance of a more robust and effective centrally coordinated emergency response system including a mechanism to finance and provide support to the population in a timely manner.

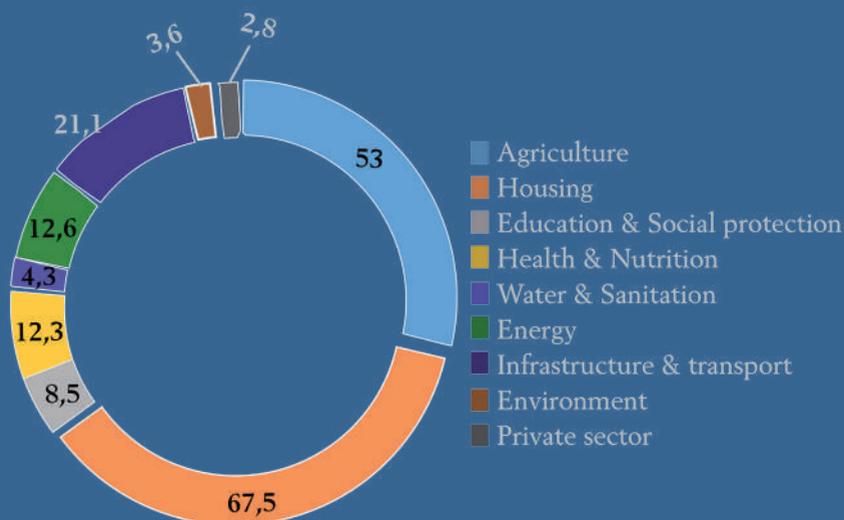
12. Union of Comoros (2019c).

13. Decree N°19 047 of May 8, 2019.

**BOX 6. The response to Kenneth**

On 24 April 2019, early warning alerts coordinated by the Center of Relief Operations and Civil Protection (COSEP) and the municipalities issued a ban on trips out at sea and the evacuation of at-risk individuals on the cyclone's trajectory. Those measures considerably limited the impacts on the population.

The consequences of the cyclone on the housing sector, especially those informal structures made of precarious materials, highlighted the failures in urban planning and weaknesses in construction-related codes and enforcement in Comoros. Cyclone Kenneth damaged a total of 11,867 houses, destroyed 4,854 houses made of sheet-metal and/or straw, and partially damaged 7,013 concrete houses. The impacts revealed that the housing sector remains highly vulnerable to natural hazards, especially cyclones and floods. Vulnerability can be explained by (i) the limitations or lack of territorial/urban management and planning tools; (ii) a major number of houses made of precarious materials; and (iii) the absence of resources and mechanisms to enforce the construction-related codes. Over 50 percent of households lived in precarious housing, of which the majority is poor.<sup>1</sup>

**Estimated damages and losses from cyclone Kenneth (US\$ million)**

Source : Union des Comores (2019c).

1. Union of Comoros (2019c).

The housing sector in Comoros, particularly on the coastline, is highly exposed to natural and climate related disaster risks. The residential sector alone is estimated to absorb 80 percent of the combined losses from earthquakes, floods, and tropical cyclones.<sup>2</sup> The high cost of more resilient materials and the low quality of construction and engineering techniques are a serious threat to resilient housing since the construction of a house in Comoros can take many years to complete. Typically, local masons do housing construction with help from the community. In the absence of urban planning and management tools and the challenges municipalities are facing to fulfill their urban management functions, more and more households have settled in informal settlements and in high-risk areas.

Flooding and strong winds affected most houses with no safety or sub-par construction standards. According to the post-Kenneth Damage Assessment, the largest share of recovery and reconstruction needs was located in the housing sector, amounting to a total of US\$ 87.6 million. Many affected households benefitted from a typical demonstration of solidarity from the communities to rebuild their homes, from within Comoros but also from the diaspora. However, given the lack of robust regulatory and operational frameworks in the housing sector, the government could not provide a reconstruction strategy early enough. In their urgency to rebound as quickly as possible, many households failed to use resilient materials or construction engineering approaches when rebuilding or retrofitting their homes. In addition to these estimates, restoring electricity, water and sanitation and infrastructure services (including transport) required an additional US\$ 70.7 million.

### *Disaster response in the aftermath of the cyclone Kenneth*

In many municipalities, citizens' and volunteer associations effectively increased the dissemination of early warning and information campaigns and provided resources and manpower in distributing supplies to the population. Shelters were offered at the community level (as preparedness action to evacuate people before the cyclone hit and as response to host displaced households), and impacted households were temporarily relocated with less distressed family members or neighbors. In Moroni, the government converted a private hotel facility into a temporary emergency shelter. Emergency relief was essentially coordinated by UN agencies (e.g. UNDP, UNICEF, OCHA) and NGOs (such as the IFRC) for immediate needs, sanitation and disinfection, and the distribution of basic necessities (emergency shelter kits, cooking kits, buckets, jerry cans, soap, mosquito nets, and solar-powered lights etc.).

On 9 May 2019, the Government declared a state of emergency.<sup>3</sup> The General Directorate of Civil Security (DGSC), with support from the UN System, especially UNDP as lead coordinator, the World Bank and the IFRC, conducted a fast-track post-disaster evaluation and damage assessment. Recovery and reconstruction needs were estimated at US\$ 277.5 million over a five-year period. An emergency funding mechanism helped to raise US\$ 650,000 by temporarily retaining ten percent of the civil service monthly wages<sup>4</sup> to finance first aid for the cyclone's victims which thereby ensured the swift restoration of main accesses to essential infrastructures,

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2. World Bank (2016). Comoros Disaster Risk Profile, 2016.

3 Decree N°19-048 of May 9, 2019.

4. Decree N°19-045 of April 27, 2019.

like the airport, power for health facilities and immediate safety works. Donors' support was mobilized in response to the emergency for food distribution, water and sanitation, and provision of shelters for families that had no relatives to temporarily host them.

Comoros received support from various international partners in the form of humanitarian assistance and is now receiving assistance for recovery planning and reconstruction. UN Central Emergency Response Fund (CERF), UNICEF, the World Food Program (WFP) and the IFRC were some of the organizations that provided immediate post-disaster assistance. The Comoros Red Crescent Society intervened immediately after the cyclone to conduct a rapid needs assessment, provide first aid services and clean flooded houses. The IFRC then mobilized to provide humanitarian assistance to the most vulnerable among those affected by the cyclone.<sup>5</sup> UN agencies focused on specific areas of reconstruction such as shelter and housing (UNDP and UN-HABITAT), water and sanitation (UNICEF), and food distribution and agricultural relief (WFP and FAO, respectively). The DGSC coordinated the response, in collaboration with UN-OCHA. At a higher strategic level, the Inter-ministerial committee was responsible for coordinating the development of the needs assessment and recovery plan including securing and tracking its financing. In response to the Government's request for financial assistance to support recovery, the World Bank prepared a joint « Post-Kenneth recovery and resilience project » with the government and coordinated with other development partners on specific aspects of particular importance for the country's urban development (with the African Development Bank, and the delegation of the European Union on roads and with the French Development Agency on urban planning). The project was approved in December 2019 and is financed through the Crisis Response Window from the International Development Association (US\$ 45 million). It not only focuses on sectors that were the most impacted by Cyclone Kenneth (housing, infrastructure including roads and coastal resilience) but also introduces critical resilience elements to begin addressing major challenges such as risk knowledge, territorial/urban planning<sup>6</sup>, land use and resilient housing, erosion, resilient road infrastructure and coastal protection.

5. IFRC (2019). Emergency Plan of Action Comoros: Tropical Cyclone Kenneth. Geneva: International Federation of Red Cross and Red Crescent Societies.

6. World Bank, Post Kenneth recovery and resilience project, 2019, PAD3473, Washington, DC: World Bank.

**The response to cyclone Kenneth highlighted strengths and exposed weaknesses in the EP&R system.** Forecasts for the category 3 cyclone proved effective, as information circulated widely and evacuations were organized on all islands, which minimized the casualties. Within a couple a few days, DGSC succeeded in producing a pre-

liminary list of the most urgent humanitarian needs with support from the UN-OCHA and drawing heavily on information collected by communities and villages. The mobilization of all the sectors, at the central and regional levels, as well as of municipalities was effective and immediate to start a more detailed needs assessment. Clear coor-

dination roles and responsibilities were given to DGSC/COSEP and the Inter-ministerial committee. However, in spite of a strategic framework in place and pre-existing guidance notes, protocols and training, there were significant challenges in their operationalization, due to a lack of information and capacity to adequately collect, organize, process and analyze information. This was further hampered by a lack of dedicated resources (financial, human, material) within the administration.

**Because of its vulnerability, adequately managing multiple hazards and climate-related risks is critical for the country's resilient development.** Added to the high exposure to hydrometeorological hazards, the country is also exposed to less frequent geophysical events. Karthala, Ngazidja's southernmost volcano, is among the most active in the region erupting on average every 11 years. Besides volcanic hazards such as ash falls, pyroclastic flows, and lahars, Karthala's activity is also linked to seismicity in the island. Compounded with a high prevalence of low-quality constructions, this additional risk profile calls for more comprehensive action to better manage disaster and climate-related shocks including the adoption and enforcement of resilient building codes as well as appropriate territorial and planning and land use management instruments. There is an urgent need to develop and implement training programs for the dissemination of safe construction and engineering practices to both public and private sector builders. Furthermore, campaigns could

support the promotion and enforcement of building codes, the importance of construction permits, certificates of occupancy, and building inspections. See for example some preventive measures to promote resilient construction practices in Haiti, post 2010 earthquake (Box 7).

**Cyclone Kenneth's impact on the urban environment and especially the housing sector highlighted major gaps impeding timely reconstruction process in a complex institutional and operational framework.** It raised awareness and incited to realize that without a structured urban system with good governance mechanisms, addressing land, housing, service delivery, mobility, disaster risk issues, it was difficult if not impossible to provide swift assistance and sustainable solutions. The cyclone also came as an opportunity to shift the paradigm around long-term planning, sustainable development and resilient investment, prompting (i) the government to start addressing key issues as part of a longer-term and phased but comprehensive approach to "building back better;" and (ii) the citizens to demand good governance. For instance, in the housing sector, it is fundamental to address land tenure issues and establishing dedicated mechanisms to do so to be able to provide efficient and sustainable assistance to affected households. Ensuring that minimum safety standards of construction are in place and complied with is equally important. Considering recurrent coastal flooding events affecting all associated infrastructure and residents along the coastline, it is urgent to take

into account the serious threat of erosion and sea level rise, assess the risks and factor them into not only the policy (protecting the environment, the people and the assets) but also the engineering solutions and design (including nature-based solutions and social engineering).

**Slow-onset hazards, such as droughts, also generate measurable economic disruptions.** Climate change has contributed to the rainy season becoming shorter and more unpredictable in recent years. Disturbances in the hydrological cycle have also led to the drying up of rivers and water sources in Ngazidja, and a lowering of the water table.<sup>14</sup> Simultaneously, accelerated soil erosion due to deforestation from the heavy use of wood burning for ylang-ylang extraction has increased runoff and led to flooding. Attempts from partners to introduce and encourage the use of alternative solar-powered extraction systems have not been successful. Understanding how other similar countries manage risk from a multi-hazard perspective could support the Comorian government in understanding its own risk profile. Like in Comoros, the Caribbean and Pacific Island states, cyclonic and hydrometeorological events, both frequent and infrequent, make up the vast majority of the risk landscape.

## Promoting the development of all residents

### *Considering the poor*

**The urban poor are disproportionately**

**exposed to natural or man-made hazards.** When choosing where to settle, the urban poor can neither compete with firms and more affluent households and nor can they choose to settle in more desirable areas closer to the city center and in greater proximity to better labor markets and service sectors. The urban poor end up on cheap land, which reflects the risk of natural or man-made hazards. Housing is often informal, which exacerbates the risk of damage to homes. Alternatively, in the outskirts of the city the urban poor face the risk of living in areas disconnected from jobs, infrastructure and services (such as water, transportation, sanitation and electricity), similarly putting their livelihoods at risk.

**Overcrowding increases exposure to communicable diseases, such as Coronavirus.** While pandemic impacts on society are multifaceted, the urban poor are likely to pay the highest price. As with other catastrophic events, the poorest and those living in informal conditions are more vulnerable. Urban areas, particularly in lower income neighborhoods and informal settlements increase the risk of contagion of both residents and workers, which have no choice but to continue earn a living to feed their family (see Box 8 for its impact in Comoros and the response so far.)

**Historically, natural disasters have caused wide scale displacement of population and increased poverty.** Devastating cyclones in 1949 and 1951 have

14. World Bank (2018a).

### BOX 7. Haiti, an island state struggling to reduce housing vulnerability

Haiti, like the Comoros archipelago, is highly exposed to natural hazards primarily hurricanes, floods and earthquakes. Over 93 percent of its surface and more than 96 percent of the population are exposed to two or more hazards.<sup>1</sup> In 2016, Hurricane Matthew affected over two million people, resulted in over 500 deaths and displaced 175,000 people, while the 2010 earthquake in Port-au-Prince claimed about 220,000 lives. The human and economic impacts of hydrometeorological and seismic disasters in Haiti have been extremely severe, given the high vulnerability of its infrastructure, poorly managed urban growth, and general institutional fragility. The two countries share similarities in the use of traditional labor in construction. In both countries untrained masons or “boss-maçons” with no or little technical training in following the guidelines of the national building code are the main technicians.

Adopting safer and less costly construction practices can significantly reduce the vulnerability of infrastructure to cyclones, flooding or earthquakes and associated damages. Drawing lessons from the devastating 2010 earthquake, Haiti immediately took a proactive standpoint to address its key weaknesses in the construction sector. In the aftermath of the disaster, the Haitian Ministry of Public Works made the right decisions to revise and update its building code and regulations and initiated an extensive nationwide training program in building techniques for resilient structures. The program targeted all kind of technicians from the traditional masons to engineers and student engineers, aided with a solid communication strategy. The promotion of resilient construction practices with para-seismic and para-cyclonic standards and the enforcement of building regulations are crucial to reduce the vulnerability of infrastructure (both public and private/residential). That decision put a strong impetus in mobilizing and sensitizing all stakeholders in the necessity of « building back better. »

In Haiti, the newly created Bureau Technique du Bâtiment has been successful in providing technical training and advisory services in safe construction practices to local practitioners, masons, homeowners, architects and engineers. It has also successfully raised awareness towards the importance of safer buildings through an unusual outreach strategy known as the « Constructobus program. » In that mobile training program, clearly labeled and easy to identify yellow buses reach out to the remote villages to promote the dissemination of construction guidelines and training material. This awareness program also targets municipal staff providing awareness on building codes, as well as promotion and enforcement of building permits for construction, occupancy certification, and building inspection.

Likewise, the Government of Comoros, through the Post-Kenneth Recovery and Resilience Project is committed to strengthen and enforce its building code and regulations with the intention to bolster the capacity in the construction sector while sensitizing the public on life-saving technical behaviors.

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1. In 2005, the World Bank Report on natural disasters estimated that 59 percent of the land area in Comoros is exposed to natural disaster risks (at least two hazards) and that 54.2 percent of the population are living in these areas at risk.

resulted in massive Comorian waves of emigration to Madagascar. Since 2005, approximately half of the Comoros' population has been affected by a natural disaster. Floods disrupt every sector of the economy by destroying strategic infrastructure, internal and inter island means of transportation, and water supply, causing secondary negative impacts in the delivery of local supply chains. The 2012 floods affected 8 percent of the total population and threatened its food security<sup>15</sup> as rural populations are particularly exposed to flooding. In the case of Cyclone Kenneth, agriculture was the second most affected sector behind housing. Agriculture represents a key source of livelihood in Comoros and is highly susceptible to shocks. Natural disasters, combined with an overexploitation of natural resources, particularly along the coast, cause displacement of farmers who tend to migrate to urban areas where they settle in precarious conditions, joining the ranks of the urban poor.

**Rural poverty is more severe than urban poverty**, despite other shortages in living standards (e.g. informal housing). Those living in Ndzuwani and Mwali are respectively 8 and 6 percent more likely to live in poverty than those living in Ngazidja. The overall number of poor also tends to be relatively higher in cities, despite lower poverty rates. Areas with the highest po-

verty rates are not always where most poor people live (Figure 15). There are more poor people in Moroni than in all of Mwali, for example.

Because census data does not account for consumption or income, we relied on other indicators that were likely to predict poverty. The resulting wealth index includes access to key public services and asset ownership (see Box 9 for more details.)

**Urban areas are wealthier.** Rural households tend to own fewer (non-agricultural) assets and live in smaller dwellings compared to urban households. Island capitals tend to be wealthier and less unequal, with the exception of Moroni, where inequality is higher and the average household is less wealthy than in other urban areas of Ngazidja, which may reflect urbanization of poverty (Figure 16).

**The poor are disproportionately affected by risk.** Excluding the capital, the urban poor are more likely<sup>16</sup> to live in informal settlements, where constructions made of sheets and easily destroyed materials makes them vulnerable. Unlike in other urban areas, in Moroni, close to all the people living in informal settlement are poor (Figure 17).

**Moroni provides an extreme example of how rapid population**

15. World Bank (2014a). Comoros Policy Notes: Accelerating Economic Development in the Union of Comoros. Washington, DC: World Bank.

16. Predictions are based on a simple Probit model with precarious housing as dependent variable, poverty status and residence as explanatory factors.

**BOX 8. A new context: Impact and response to the Covid-19 pandemic**

The Covid-19 pandemic introduced a new context with impacts still difficult to quantify, affecting both Comoros' global links and local economy. The Government's National Contingency Plan<sup>1</sup> sets out a response to epidemics (e.g. Ebola, H1N1-type flu), focusing on healthcare and early humanitarian responses. However, the plan lacks a comprehensive ex-ante analysis of potential impacts on livelihoods and infrastructure as well as the policy lines to prepare the response planning. No comprehensive policy response to epidemics has been put in place. On one hand, global lockdowns and suspended economic activity due to the Covid-19 pandemic have had serious impacts on the Comorian diaspora and in the country itself, resulting in a reduced remittances and tourism, both critical sources of revenue and foreign exchange for the government, as well as a key source of income for the most vulnerable households. On the other hand, decreased domestic economic activity is putting a strain on private businesses and on the financial sector, which in turn demand additional efforts and resources from the central government.

At the outset of the Coronavirus crisis, the national health sector found itself unprepared in several critical areas: it lacked any testing capacity; there were no identified sites for quarantine; and the isolation and treatment of confirmed cases are still not fully operational. Drawing from practices from other developing countries with high urban densities, measures have addressed the specificities of such vulnerable residential areas. For example, in Brazil, the municipal government of Rio de Janeiro installed hand washing stations at the entrances of favelas, while in Kigali, the capital of Rwanda, similar interventions were set up at bus stops, restaurants and bars. Waste-pickers organizations in Colombia and India are promoting the use of personal protective equipment and practices to prevent physical contact with rubbish and to socially distance from people as well as from waste generated by COVID victims. The South African Waste Pickers Association is conducting an information campaign to promote separating of potentially hazardous household waste.

The Comorian economy feels a double sting. Lower growth in Europe (where over one-third of Comorian diaspora live) will translate into fewer remittances and thereby more severe economic impacts for households. Lower tourism revenues will, in turn, negatively affect the trade balance and services sector (the tourism industry accounted for over 6 percent of GDP in 2019, mainly driven by diaspora traveling back to Comoros). The global economic downturn will inherently translate into lower exports and FDI inflows. Domestically, economic activity has weakened as a consequence of social distancing, while the financial sector is under strain as banks face increased withdrawals as the population shows a greater preference for holding cash.<sup>2</sup>

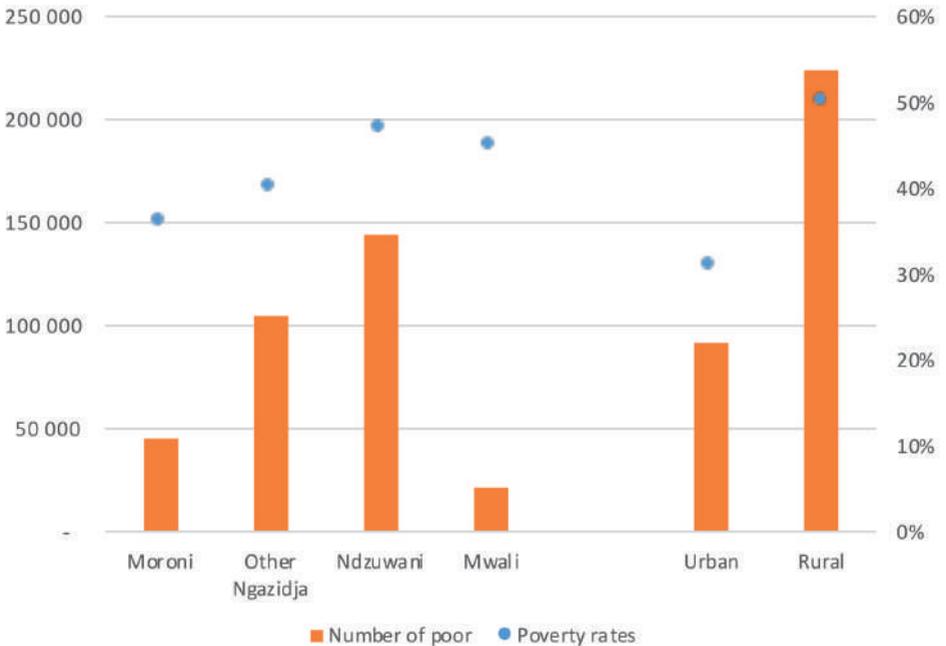
Benefitting from international support, the government adopted a multisectoral approach for its crisis response. On 18 March, the Government of Comoros created a Permanent Executive Committee for the coordination of the EP&R in charge of logistics, raising and managing funds, healthcare, and data collection and analysis. It also started to implement an epidemic preparedness action plan in collaboration with

1. Union des Comores (2017).

2. IMF (2020).

UNDP (tasked by COSEP to coordinate the response) and WHO. The estimated cost of this plan is US\$ 2.2 million, which international partners have agreed to finance. A broader response plan was drafted in March 2020, with an estimated budget of US\$ 7.6 million. Overall, strengthening the health sector response will require boosting healthcare spending by two percent of GDP and bilateral donors as well as the IMF are providing financial assistance to the country. At the local level, measures addressed social dynamics: opening hours for markets were reduced, schools (including Koranic) were closed and mass prayers suspended, and public messages were broadcast regularly through media and on the streets. International partners also supported the government by training 250 fire fighters and paramedics from the Directorate General for Civil Protection, volunteers from the Comoros Red Crescent and civil society organizations (CSO) and by providing personal protective equipment (PPE).

Figure 15. Poor areas are not necessarily where most people are

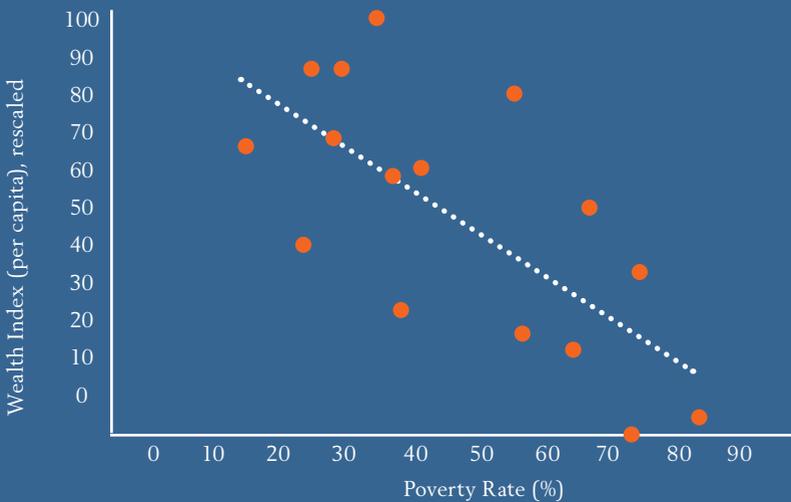


Source: World Bank (2017); EESIC 2014.

### BOX 9. A Wealth Index as a proxy for poverty

As for the Wealth Index computed in Demographic and Health Surveys,<sup>1</sup> a combination of household assets and access to services serve as the basis to proxy household wealth. This index<sup>2</sup> differs as it excludes all indicators related to housing structure as these are used to identify precarious housing.<sup>3</sup> The asset based poverty rate is then the proportion people for which the wealth index is less than half the country's median index.<sup>4</sup> It is a conservative measure as it estimates poverty to be 19 percent of people nationally, compared to 42 percent based on consumption. The wealth index per capita is significantly correlated to the poverty rates in 2014 at the prefecture level and therefore a good proxy for capturing poverty.

#### Household wealth (2017) and poverty rates (2014) at Prefecture level



Source: World Bank staff calculation based on INSEED (2017) and World Bank (2017).

1. Rutstein, S.-O., & Johnson, K. (2004). The DHS wealth index (Vol. 6). ORC Macro, MEASURE DHS.

2. We rely on a polychoric correlation matrix as some of the indicators are discrete variables.

3. Kolenikov, S., & Angeles, G. (2009).

4. A commonly used measure of relative poverty, see Smeeding, T. M. (2016).

**growth can lead to vulnerable housing conditions for internal migrants.** While migration from rural to urban areas (particularly island capitals) takes place on all islands, Moroni receives most of the influx, with an estimated 78 percent of the city's population growth coming from internal migration.<sup>17</sup> Among people who moved to Moroni, 40 percent are from Ndzuwani (approximately 10,000) and 50 percent come from outside of the Union. Among the migrants from Ndzuwani in Moroni, 84 percent live in informal housing. The share of poor of migrants from Ndzuwani in informal settlements in Moroni is half of other urban areas. Due to the limited availability and consequently higher costs of residential land in the capital, 56 percent of urban migrants have set up in vulnerable settlements, where land is leased to them informally, often without connections to electricity, water or sanitation networks.<sup>18</sup>

**Public service delivery is lower in informal neighborhoods.** Lower shares of households living in vulnerable dwellings enjoy access to electricity, running water and municipal sewer, storm water and water treatment systems. Whilst still available to the majority of urban households, access to electricity drops by 8 percent in informal settlement. Access to drinking water drops by half, from 67 to 31 percent; and is

the lowest in Moroni, where only 22 percent of household in these neighborhoods have access to safe water.<sup>19</sup> In the short to medium term, the rapid and unmanaged increase in urban populations in these neighborhoods will likely continue to amplify difficulties in accessing potable water, electricity or other public goods and services, as private and public infrastructure is virtually non-existent in these neighborhoods.<sup>20</sup>

### *Empowering Women*

**Comoros' matrilineal society allows women to enjoy informal power within communities.** The lineage or clan membership is the primary point of reference for an individual and is acquired maternally. Matrilinearity also determines inheritance of property, house and land, however, women generally need the consent of their family, husbands' uncles or brothers to exert their usufruct rights, for instance, the possibility to mortgage their house.

**Despite constitutional guarantees for gender equality, women are under-represented in civil service.** This lack of economic empowerment means that women are less likely to aspire to public office. Although women tend to be entrepreneurial, their businesses are generally small with the sole objective to secure financial autonomy. Women's participation in the labor force

17. AfDB/OECD/UNDP (2015). « Comores ». African Economic Outlook 2015: Regional Development and Spatial Inclusion, Paris: Organisation for Economic Co-operation and Development.

18. INSEED (2017).

19. INSEED (2017).

20. AfDB/OECD/UNDP (2016).

is lower than that of men,<sup>21</sup> but businesswomen have organized themselves through the development of associations and groups. In addition, female associations are very dynamic at the local level. In the aftermath of the Cyclone Kenneth for instance, women associations have been instrumental to mobilize communities and organize cleaning campaigns in Mwali.<sup>22</sup> Generally speaking, women are more autonomous in making decisions about the money they earn in urban settings, and when they have a higher level of education.<sup>23</sup>

Although men and elders traditionally dominate public and political affairs,<sup>24</sup> women's endorsement is often essential to cement decisions made in these male-dominated village assemblies.<sup>25</sup> Mothers and daughters maintain social cohesion and tend to be more supported by the diaspora. Many female-headed households rely on remittances as their only source of income.

**The tradition of the « Grand Mariage » preserves matrilineage and community cohesion.** Hence girls are expected to marry, as this tradition is a rite of passage for men to access political responsibilities and offer social prestige for mothers and their daughters. However, family pressure to partake in

these ceremonies is declining for those in the diaspora. Girls' education is not prioritized as they are taught to be obedient<sup>26</sup> while boys are raised to become future community and group leaders. As a consequence, women voices and aspirations are often ignored and the primary school completion rate for women is lower than that for men (70 to 90 percent).

Although gender-based violence is presumed to be underestimated due to social censure related to the importance of family and community honor, Ngazidja and Moroni have a higher share of the 17 percent of women and girls reported to suffer from physical and sexual violence.<sup>27</sup> Rural areas seem to register a higher prevalence of teenage pregnancy in low education groups and in poorest households.

### Offering healthy and clean-living conditions.

#### *Planning*

**Comoros has witnessed many draft development plans, but thus far none has been implemented.** As other developing countries, Comoros has struggled with land use and planning regulations which are based on inapplicable and outdated legislation (see Box 10 for

21. Demographic & Health Survey – DHS 2012.

22. Union des Comores. Lessons Learned from cyclone Kenneth, 2019.

23. Demographic & Health Survey – DHS 2012.

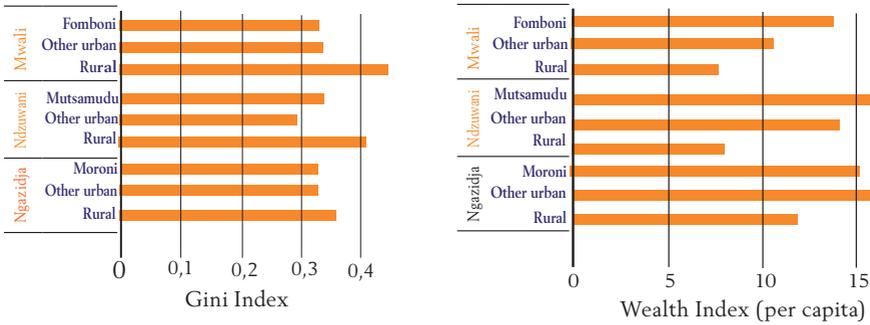
24. Heads of villages are held by men at a ratio of 90 percent and the country is ranked 179 out of 190 for female representation in government.

25. Blanchy, S. (2010).

26. Union des Comores/UNICEF (2004).

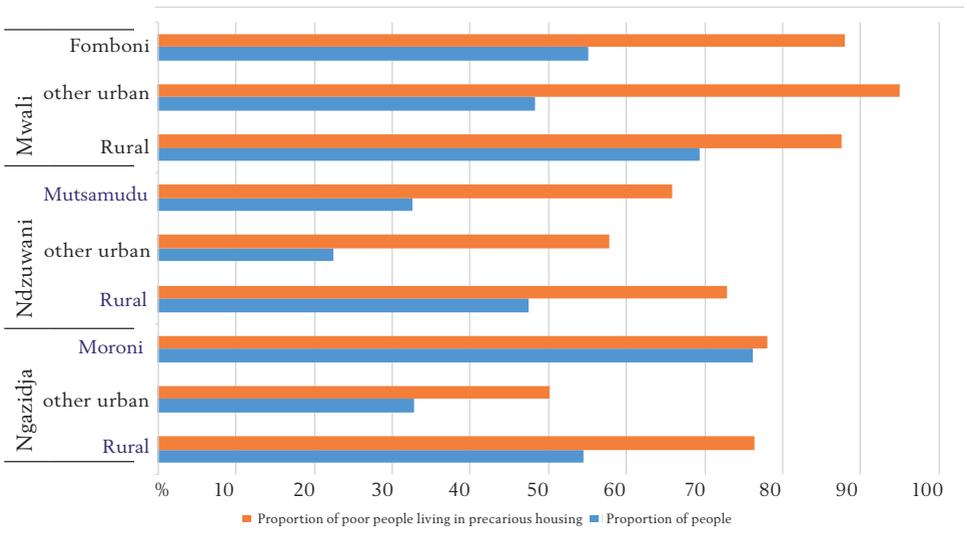
27. Demographic & Health Survey – DHS 2012.

Figure 16. Urban areas are wealthier



Source: World Bank staff calculation based on INSEED (2017). Note: the Gini coefficient is based on the computed household wealth index described in Box 9.

Figure 17. The urban poor are disproportionately living in vulnerable housing



Source: World Bank staff calculation based on INSEED (2017). Poor people are defined as described in Box 9. Precarious housing is made of either metal sheet, leaves or clay.

recent examples). The preparations of master plans require too much time and fail to address implementation issues, such as associated funding. Moreover, planning is too heavily centralized and not sufficiently coordinated with central financing. Finally, centrally administered land development leads to delays and inefficiencies for land users (See Box 13 below).<sup>28</sup>

As other East African examples have shown, where urban development plans and regulations are in place, implementation depends more on governance rather than on technical capacity.<sup>29</sup> To effectively improve urban management, attention should be placed on governance arrangements and the processes of decision-making.<sup>30</sup> For Comoros, this implies that simple tools for controlling urban development must be identified that are politically less contentious and can immediately benefit from capacity building.

Urban planning has traditionally been largely the function of the central government. After decentralization, it suffered a lack of fiscal and technical capacity. The Urban Planning and Construction Code provides two planning tools for regions and urban areas,

but no municipality has the means to utilize them. At governorate level, Mwali initiated the elaboration of a regional development plan, as the sole island progressing towards a regional plan in the near foreseeable future. The AFD-funded Adapt'Action framework focuses on concerted actions for climate-change risk adaptation. Guidance around land use planning for Ngazidja was envisioned in the Government Plan d'Action 2011-2016 but has yet to materialize.

*To effectively improve urban management, attention should be placed on governance arrangements and the processes of decision-making.*

The most recent approach to formal planning was the Preliminary Development Plan: Grand Moroni – a strategic vision for stakeholders in planning, land and decentralization policy.<sup>31</sup> The proposed vision is to establish the « Commune Urbaine du Grand Moroni » which will bring mayors and elected officials for the region together in one body that has not been created yet. It established physical boundaries around the « Grand Moroni » region that stretches from Hahaya by the international airport in the north to Mitsoudje in the south. The 36km north-south axis would be a new reference to plan infrastructure investment and urban expansion with the aim to transform Moroni into a « modern city » that

28. Farvacque, C. & McAuslan, P. (1992).

29. Goodfellow, T. (2013), p. 83-93.

30. Rakodi, C. (2001).

31. UN-Habitat (2016)

**BOX 10. Formal planning never took off in Comoros**

Looking at its capital, Comoros has a poor record in agreeing on urban plans. A comprehensive plan for Moroni has been on the political agenda for more than two decades but has yet to materialize. In 1997, a PDU was elaborated but not adopted; the central government's five-year plan 2016-2021 envisioned a new plan that did not see the light of day. In 2016, the Government elaborated a preliminary planning strategy for the region of "Grand Moroni" that defined new boundaries for growth scenarios for the city and its surrounding Municipalities but did not manifest in any detailed land-use planning<sup>1</sup>.

Large urban development projects with high visibility have shared the same fate as comprehensive regional plans and eventually did not see the light of day. The redevelopment of the Corniche waterfront that was validated by the Ministry of Land Planning was supposed to finish construction in 2010 and foresaw US\$ 70 million of investment. It most likely did not survive the ending mandate of its champion, former President Sambu, who left office in 2010<sup>2</sup>.

Pilot projects in Mitsamihouli and Nyumakomo, financed by AFD and NGOs, have elaborated Communal Development Plans (PDC). Despite bringing municipalities into the decision-making process, these plans have not distinguished between urban and rural localities. Given the high vulnerability to disaster risk of these coastal municipalities, it is unfortunate that such plans did not account for a basic disaster risk planning, e.g. in defining zones that do not allow for construction<sup>3</sup>.

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1. UN-Habitat (2016).

2. Said Ahmed, Ali Said (2015).

3. Commune de Nyamakomo (2015) ; Commune de Mitsamihuli (2015).

could support the economic potential of the country.<sup>32</sup> The process was launched after recognizing the need for a regional approach with larger geographic focus of Moroni's growth. This process integrates various growth scenarios and disaster risk considerations.

**Decisions on land use today have long-term implications.** Rapid urban expansion brings about important chal-

lenges : it can significantly increase the delivery costs of services provision reliant on networks, such as water, drainage and electricity, but also planning for schools and clinics. For African cities, it is estimated that doubling urban density can reduce the per capita cost of a package of infrastructure improvements by about 25 percent.<sup>33</sup> Large cities that develop a fragmented urban form are associated with increasing the

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32. Assisted by the UN-Habitat Planning and Urban Design LAB, the plan was the output of the cooperation between the Union of Comoros and the UN-Habitat III participatory process, validated in 2017 by the Vice-Presidency in charge of regional development, urban planning, and housing.

33. Foster, V., and C. Briceño-Garmendia, (eds.) (2010).

cost for service delivery and reduce the chance of benefitting from agglomeration economies.<sup>34</sup> Poor integration of complementary land uses, exhaustion of urban resources and social inequality are equally costly for the society and the environment.<sup>35</sup> Decisions on land use become therefore more critical in the context of a country threatened by serious coastal erosion, regular disruptive coastal and inland flood with limited knowledge today on the risks. Decisions on land use require more information and deeper knowledge on the behavior of water basins, the mutual interactions with human activities and construction, and the effects of climate change.

**In fiscal, economic and environmental terms, better coordination of new urban development and land use will be key to keeping Comorian urbanization sustainable from a fiscal, economic and environmental point of view.** Estimating future land consumption for different population growth scenarios, an urban growth scenario of just 4 percent over the next 20 years, at low density, would lead the urban agglomeration of Moroni to grow by 38km<sup>2</sup>. This future land use is estima-

ted at only half of that (19km<sup>2</sup>) if densification is moderate, and only almost at a third (14km<sup>2</sup>) if densification is high (Figure 18).<sup>36</sup> As Comoros' urban infrastructure lags behind cities population growth, the country needs to maximize the benefits of investments by encouraging density.<sup>37</sup>

**New urban residents will likely settle in hazard-prone areas if urban development and land use are not better coordinated.** Land for urban expansion in the « Grand Moroni » region seems to have potential for spatial growth. However, the « Grand Moroni» region features at least 22km<sup>2</sup> of land not suitable for urban settlement, due to agricultural preservation, steep slopes, areas of high environmental risks, and direct waterfront areas (Figure 19).<sup>38</sup> For Moroni, integrating this knowledge into policy will be the challenge. For other urban centers, identifying such areas can be a step in the right direction.

**Municipalities are planning local development on a project-by-project basis.** Secondary municipalities, such as Domoni (Ndzuwani) or Ouellah (Ngazidja) seem to plan and steer their

34. Lall, S., Henderson, J. and Venables, A. (2017).

35. The City Form Lab (2013).

36. UN-Habitat (2016). *Projet d'élaboration d'un Plan d'Aménagement Préliminaire*. Grand Moroni, Comoros. UN-Habitat's growth scenarios consider 5,000 inhabitants/km<sup>2</sup> as low density, 10,000 as moderate and 15,000km<sup>2</sup> has high density. Varying plot sizes, building height and mixed land-use levels have been considered as well.

37. Litman, T. *Determining Optimal Urban Expansion, Population and Vehicle Density, and Housing Types for Rapidly Growing Cities*. In *Proceedings of the World Conference on Transport Research*, Shanghai, China, 10–15 July 2016. For the costs of urban expansion see also: World Bank. 2018. *Urban Growth Model and Sustainable Urban Expansion for the Hashemite Kingdom of Jordan* (English). Washington, DC: World Bank Group.

38. UN-Habitat (2016).

development projects based on prioritized needs and availability of funding.<sup>39</sup> The lack of coordination and long-term planning in various small local development projects can lead to under-utilized and under-staffed investments in personnel and equipment (e.g. each village builds its own school or health center, sometimes despite being close from each other), high per capita construction costs, as well as operational costs. As for some bigger projects such as a city hall or a clinic, some municipalities will invest gradually over years as costs are often borne by one village alone. Municipalities that have embraced a consultative and transparent planning and resource-sharing system seem to be better able to serve their citizens. Even if resources stay in the village account because of lack of trust or fear of free riding, mayors could start playing a role of coordinator and provide a platform for dialogue by bringing together village chiefs to discuss project prioritization and show the benefits of pooling resources for shared infrastructure such as schools.

**Civil society organizations engage in small-scale development projects, filling the voids created by the absence of governmental action.** Such practices tend to favor high-income neighborhoods. Urban development projects steered by civil society such as the CASM (Association d'Animation Socio-culturelle de Mtsangani) that advocates for Moroni's city center have self-funded public space and road reha-

bilitation. Neighborhoods with limited resources go without these possibilities.

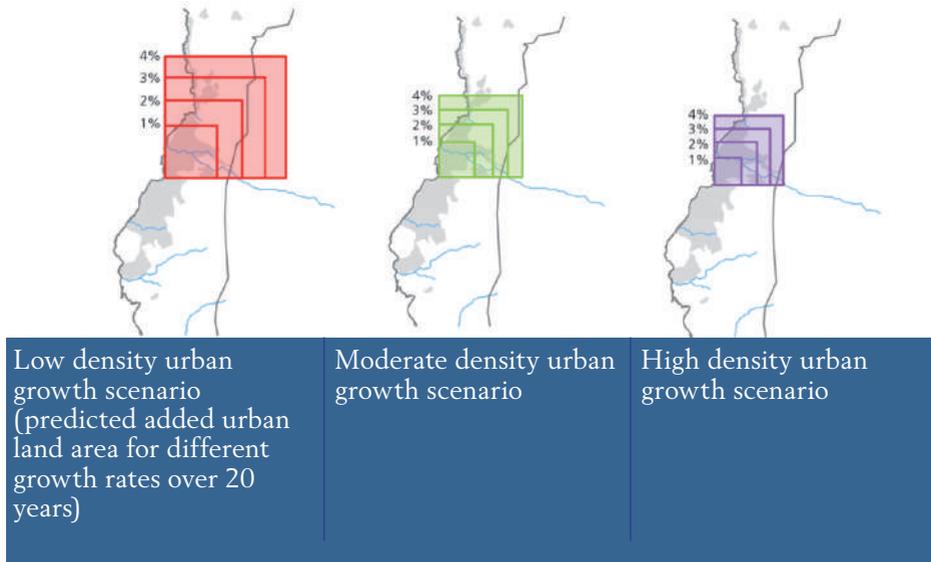
**The central government provides ad hoc support to municipalities.** The government engages in civil works of local redevelopment in selective ways, without a clear process, and to address mainly issues of hygiene. For example, it initiated a drainage project in the neighborhood of Kourani Zawiani in Moroni and it facilitated and negotiated an arrangement between Hahaya and the airport administration and provides ad hoc sanitation services and solid waste collection when the needs become critically urgent with conditions creating a public health issue or a danger. In Domoni, the municipality received funding to rehabilitate its major arterial roads and for a solid waste management project.

**The decentralization process brought municipalities to the forefront of local development, but they still require improved capacity and appropriate tools.** In 2015, the government transferred more responsibilities to the municipalities. As the first municipal elections were held, mayors were put in charge of municipal affairs. Regarding land administration and planning, Article 75 of the 2011 decentralization Decree No. 11-147/PR provided municipalities with competencies over their urban regulatory framework and the cadaster.

**The updated urban development regulations do not give municipalities the**

39. Interviews with stakeholders, March 2020.

Figure 18. Predicted urban expansion of Moroni for 3 different population growth scenarios.



Source: UN-Habitat (2016) Projet d'élaboration d'un Plan d'Aménagement Préliminaire. Grand Moroni, Comoros.

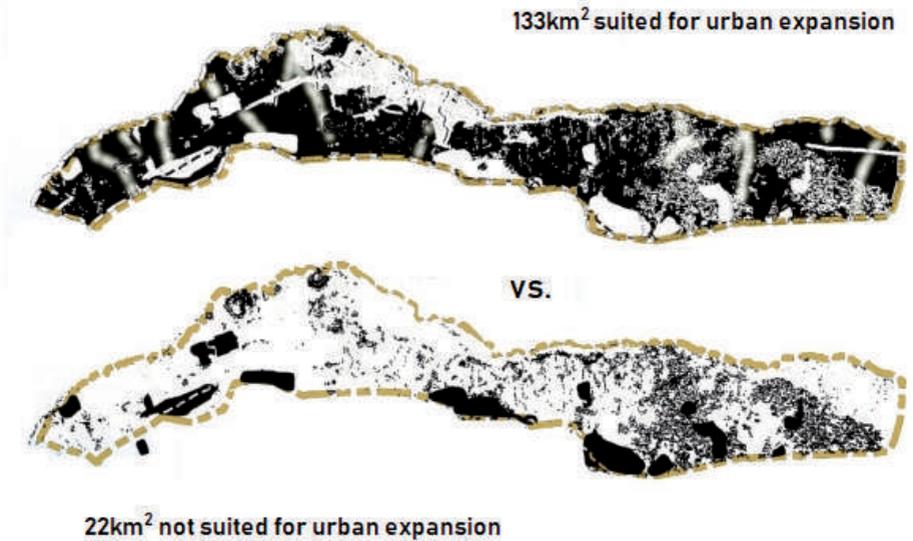
tools they require to effectively steer spatial development. The 2011-adopted Urban Planning and Construction Code is the sole planning law, governing urban development and building codes, but it is neither enforced nor does it involve compliance regulations. The code regulates construction and urban development instruments, such as subdivisions, and allows municipalities to constitute their own urban development plans (PDU).<sup>40</sup> Moderate efforts have been taken for awareness raising and training on the respect of urban planning and construction rules at the level of each Island by the Ministry of Land Planning, but were not

sustainable.

The Urban Planning and Construction Code were not sufficiently financed for the necessary planning tools that could help the municipalities guide or enforce the regulations. Municipalities received the competencies but not the necessary financing to properly train staff. The central and island governments have yet to commit to planning for the municipalities since it has become their responsibility. Regarding enforcement, the need to keep non-constructible areas free from settlement is acknowledged by the municipalities and would be enforced

40. Article 2, Law N. 11-026/AU, relative à l'Urbanisme et à la construction en Union des Comores, adopted December, 29th, 2011.

Figure 19. 133km<sup>2</sup> of land suited for urban expansion (top), vs. 22km<sup>2</sup> not suited for urban expansion (bottom), in « Grand Moroni ».



Source: UN-Habitat (2016).

through the police. But these areas are not specified, and the police do not necessarily follow the orders of the municipalities.<sup>41</sup> This creates an unfavorable legal vacuum in the oversight of urban expansion.

**Strict planning standards keep housing out of the formal sector.** Regulations in the Urban Planning and Construction Code do not correspond with on-the-ground realities - in part as it relies on a non-functioning land administration system. For instance, someone applying for construction permits needs to prove registration of

the property with the cadaster services (Service des Domaines) and very few have titles. Rigid minimum housing standards, such as minimum room sizes of 9m<sup>2</sup> for residential, and 12m<sup>2</sup> for shops, or minimum plot sizes of 200m<sup>2</sup>, make a lot of the existing building stock illegal, and formalization of construction less affordable, as they adhere to middle class housing standards.<sup>42</sup> Often, the poor have no option but to illegally access and subdivide land into very small parcels, which creates slums. The code is more progressive on construction standards that explicitly do not prohibit traditional

41. Interviews with stakeholders, March 2020.

42. Art. 32; 33; 110, Law N. 11-026/AU, relative à l'Urbanisme et à la construction en Union des Comores, adopted December, 29th, 2011. Bertaud, A. (2018).

**BOX 11. Leaving housing regulations at the local level, while providing for infrastructure: The Case of Kampung's Urbanization in Indonesia**

In the densely populated island of Java, Indonesia, rapid urbanization in the 1960s led to rural migrants settling in overcrowded, unsanitary manner in the villages, or « Kampung », around the cities. Urban land use regulations and building codes for greenfield development on municipal land surrounding the villages were quickly found not to match the income levels of the newly arrived migrants, settling wherever the Kampung legislation allowed them to, which led to unsanitary conditions and increased flooding, since prior flood management measures were not adapted.

The Indonesian government waived municipal codes in special zones around the Kampung and instead, the villages set the requirements. Through the Kampung Improvement Program (KIP), the central government helped the traditional authorities in building connections to the municipal water network, to pave footpaths, to improve drainage and to include solid waste collection into the municipal network. The average lot size in such settlements is 100m<sup>2</sup>, which is half of what the Urban Planning and Construction Code in Comoros prescribes for any subdivision.<sup>1</sup> When Philadelphia was settled, the city authorities set a minimum plot size of about 30 square meters.<sup>2</sup>

Until today, the urban planning policy vis-a-vis including surrounding villages into the urban framework in Indonesia has not changed substantially and sanitary and living standards of Kampung in Indonesia are far higher than those of informal settlements in countries with comparable GDPs<sup>3</sup>.

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1. Art. 110, Law N. 11-026/AU, relative à l'Urbanisme et à la construction en Union des Comores, adopted December, 29th, 2011.

2. Lall, Henderson and Venables (2017).

3. Bertaud (2018).

construction methods but are based on performance. For example, a building has to be « durable », rather than have walls of a certain material. The code can build on these performance-based standards<sup>43</sup> and include more resilient-specific norms.<sup>44</sup> Adapting planning

standards and land use regulation to the local context and on-the-ground monitoring can help better inform and update urban regulations to support affordable and resilient housing (Box 11).

**Municipalities need simple, acces-**

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43. By which the developer can choose which material or method as long as specific targets are met. This should allow more flexibility.

44. Art. 27, Law N. 11-026/AU, relative à l'Urbanisme et à la construction en Union des Comores, adopted December, 29th, 2011.

## BOX 12. Guided land development and sites-and-services to steer urban growth

A simple grid to steer expansion: The Case of Ciudad Netzahuacoyotl in Mexico

In the case of a development in Mexico City in the 1950s, the government laid out a street grid and allowed private investors to build housing without too much constraints and sell to low-income buyers. The 45km<sup>2</sup> site had 570,000 inhabitants in 1970 and over 2 million today and is fully developed.<sup>1</sup> In the Comorian context, guided land development could be a starting point for municipalities to negotiate favorable areas for growth with land rights holders and leverage funding from the central government or from development partners.

Guided infrastructure investments through sites and services projects

Sites and services projects, building on empty unpopulated lands and upgrading squatter settlements have proven to increase land values. Sites and services projects covered cities in Brazil, El Salvador, Jamaica, Peru, Senegal, Tanzania, Thailand, and Zambia by laying down essential infrastructure, including local communities and allowing them to incrementally upgrade their houses. This approach was discontinued because it was costly, difficult to scale-up and did not take into account the needs of urban poor. Long-term outcomes have shown that they brought benefits despite the relatively high costs in the short-term. The neighborhoods emerging out of those projects are better serviced than others, due to early investment and have higher land values. The sites and services areas have a higher building footprint to plot area ratio.<sup>2</sup>

Providing information about vulnerability to development actors: urban reference plans

Urban reference plans have the sole purpose of defining no-build zones to inform the municipalities' decisions. For vulnerable coastal areas, a simplified urban reference plan could lead the way to less settlement in hazard prone areas. These municipal plans can identify "no-build" areas, but also approve land that could be made safe for settlement. For instance, the government of Vanuatu is currently developing Guided Land Development options to address vulnerability with World Bank funding (Mainstreaming Disaster Risk Reduction Project).<sup>3</sup> Additional policies promoting alternative use of high-risk areas, such as converting them into football fields or publicly accessible spaces would also make people less likely to settle there.

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1. Gattoni, G. (2009).

2. Buckley, Robert M. (Ed.); Kalarickal, Jerry (Ed.) (2006).

3. Leal Filho, W. (Ed.). (2018).

**sible tools.** Comorian municipalities need understand the value of tools and be able to appropriate and better communicate those tools placed at the disposal of their citizens. One example is the sites and services development, which lays out primary and secondary roads to physically organize urban land extensions. For infrastructure development projects, such as a new road, the municipality installs an urban land operator who negotiates the right-of-way with land rights holders. The roads may be serviced as funds allow, but what is important is that the right-of-way allows the installation of services such as sewage, drainage, electricity and water networks later.<sup>45</sup> Such development work well where there are fewer landowners to negotiate with. In Tanzania, benefits translated into higher land values and a more durable and functioning road network in Dar es Salaam.<sup>46</sup> Capacity building for municipalities should focus on enhancing such negotiations around land access and infrastructural priorities (see more examples in Box 12).

### *Land*

**The inadequacy of regional and urban planning inherently involves challenges in the functionality of land administration.** The central government of Comoros maintains limited control

over its territory and is thereby unable to manage land conflicts between individuals, villages, or municipalities.<sup>47</sup> A potential reform faces opposition from vested interests. Efforts to effectively implement urban development could be hampered in their infancy by the inapplicability of the current land regimes.<sup>48</sup> Local development projects could also be set back if municipalities are unable to access land (Figure 20).<sup>49</sup>

**The rules governing land in the Comoros are a concurrent system of colonial, Islamic and customary rules, superimposing each other.**<sup>50</sup> The systems have been assessed as both competing and complementary. Three overarching legal frameworks co-exist:<sup>51</sup>

a) Law derived from colonial French law (Code civil) that has been updated or is still applicable in its original (partially referencing to the territory of Madagascar).

b) Rules rooted in Islamic jurisprudence that mostly apply to communal spaces of public and/or religious use or indicates rules for the obligation to make use of 'dead', i.e. underdeveloped land.

c) Rules emanating from customary rights, which most notably, exclusively governs family land ownership (undivided, transferable by women only and alienable only under certain condi-

45. Asian Development Bank (2016).

46. Regan et al. (2016).

47. Said, Mahamoudou (2016).

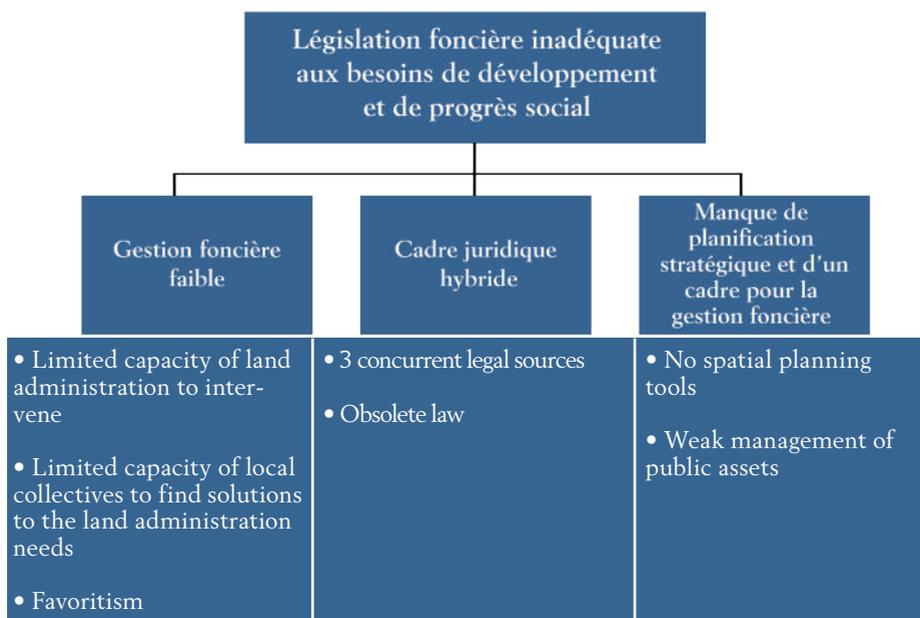
48. Said Ahmed (2015, p. 85).

49. Interviews with stakeholders, March 2020.

50. There are further subdivisions of tenure types, see Annex 3.

51. Said (2016).

Figure 20. Three main weaknesses of land governance as identified in the National Land Strategy



Source: Union des Comores (2019d). Rapport sur la stratégie nationale foncière. PRCIII.

tions), known as Manyahule. It is partially recognized by the modern law.

The process of registering land is time-consuming and ineffective but informal alternatives lead to conflicts. In Moroni, the total number of registered defined property titles with the agency has been calculated at 1,412 titles as of 2012. The registration process for privately owned land has been described as lengthy and costly. The registration process for land originating from the public domain takes the most procedures (Box 13).

As Comoros' urban population grows, pressure on scarce land will intensify. Historically, land was not commercialized but often managed as a common good.<sup>52</sup> This is changing as the urban areas and their population grow. The pressure on the land management system is high: land titles are reported to play an increasing role in the development of the municipalities and the commodification of land leads to more sales of formerly unalienable land tenure, such as the manyahule, and lead to conflicts.<sup>53</sup> Municipalities have started to engage in conflict reso-

52. Le Roy, Étienne (2017).

53. Interviews with stakeholders, March 2020.

**BOX 13. The 33 tedious steps to a property title from state-owned land<sup>1</sup>**

Transferring state-owned land (public domain or domain privé d'état) to private property is reportedly the lengthiest and costliest process of land registration and titling in the country. The land has to be developed in some way over the course of three years. Mahamoudou Said identifies 33 steps from identification of piece of land to a property title:

6 steps for preparation and submission of a request to acquire a piece of land,  
requiring: service des domaines, service de la topographie

8 steps for the initiation of a case with the Prefecture,  
requiring: Prefect, service des domaines, service de la topographie

4 steps to obtain the deed of land sale,  
requiring: Prefect, service des domaines

8 steps for Preparation of subdividing / delimitation of the land,  
requiring: service des domaines, neighbors, prefect and chef de village, service de la topographie

6 steps for subdividing / delimitation of the land,  
requiring: witnesses, service de la topographie

1 final step for obtaining the property title, given that there is no public opposition and development is anticipated

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1. Said (2016).

lution leading to mixed results.<sup>54</sup> Land conflicts are will continue to constrain growth scenarios of major cities, as is exemplified in Moroni.

**Moroni's geography allowed for the expansion of the city outside its municipal boundaries, especially to the south.** The constraining factors for Moroni's expansion have been land conflicts with surrounding municipalities and the village of Iconi. In 1992, land conflicts stemming from the poorly defined authority over territory

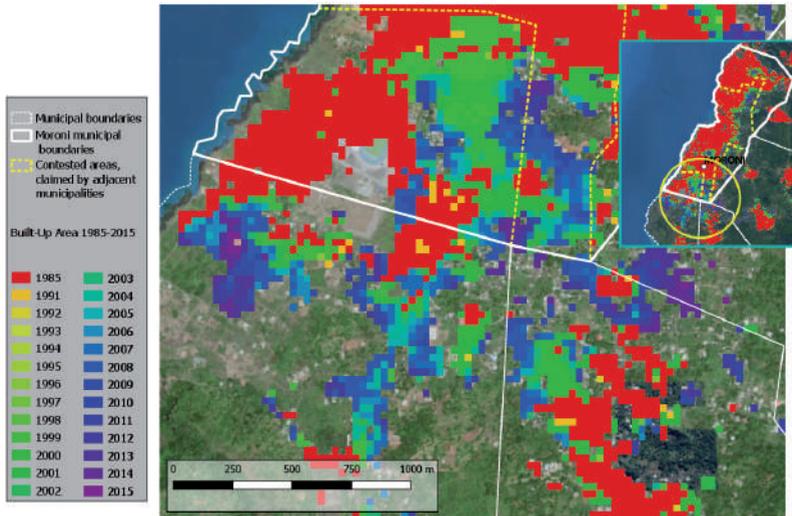
that changed hands between sultanate, colonial and post-colonial rule.<sup>55</sup> While the municipality's footprint is growing and the validated Preliminary Plan for Grand Moroni has proposed an extended Commune Urbaine Grand Moroni to facilitate coordination, the municipality's current limits remain contested. Parts of Moroni are claimed by the neighboring municipalities of Itsandra, Bangaani, Bambao Yadjou and Bambao Ya Mboini, more specifically by the cities of Iconi and Itsandra and by the villages of M'de, Mavinguni and

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54. Interviews with stakeholders, March 2020.

55. Sidi, Ainouddine (2002).

Figure 21. Little geographical constraints limit expansion to the south of Moroni, but land conflicts with neighboring municipalities persist.



Source: World Settlement Footprint Evolution 2015 (Marconcini et al. 2020), Université des Comores 2012.

Mkazi, making unified planning efforts more difficult (Figure 21).<sup>56</sup>

**Expansion constraints put more people at risk and make Ndzuwani's capital less livable.** Mutsamudu has expanded more slowly than Moroni. Surrounded by steep slopes, the city expanded most rapidly in the 1980s but its growth slowed down in the 1990s.<sup>57</sup> New settlements emerged in the form of gradual encroachments on the surrounding slopes and the Plateau Hombo (Figure 22).<sup>58</sup> This gradual exploitation of the « Plateau » also means

that more people are exposed to risks, such as landslides, and are increasingly disconnected to the urban core, making services harder to reach.<sup>59</sup>

**An increasing commodification of land can be witnessed in the areas where land pressure is high.** For instance, this was felt in the village of Patsy, where a favorable climate and close proximity to Mutsamudu, the largest city in Ndzuwani, led to an influx of non-villagers and subsequent land acquisitions.<sup>60</sup> Formerly inalienable Manyahule properties are increasingly subject

56. UNDP/Université des Comores (2012) and Interviews with stakeholders, March 2020.

57. Gérard, Y. (2009).

58. Gérard, Y. (2009).

59. Gérard, Y. (2009).

60. Said (2016).

to land sales.<sup>61</sup> The land administration of the Island has to be prepared to use existing resources efficiently, as land conflicts are already a considerable threat to social cohesion in the island nation.<sup>62</sup>

**The judicial system does not resolve land conflicts; hence, alternative conflict resolution mechanisms have been initiated.** Land conflicts that have been escalated to the respective legal institutions can stall there for decades. For example, a land conflict between the City of Mitsoudje (south of Moroni) and the neighboring village of Salimani had waited for judgment for 25 years (as of 2011).<sup>63</sup> In Mutsamudu, the municipality has steered some land conflicts between individuals, albeit many go directly to court. If the commune is managing a conflict, it consults an engineer for an assessment of documentation provided by the parties. These cases are sent to court only if the commune cannot mediate between the parties.<sup>64</sup>

The lack of a sufficient land administration poses multiple problems for the government as a developmental actor, as illustrated by these examples:

- **The Government does not have sufficient access to land for development projects.** The airport administration of the Hahaya International

Airport faced constraints in negotiating the development of the airport on state-owned land by modern law, as it intersected with customary law claimed by village authorities. The argument seems to have been settled only recently by the benevolence of customary land rights holders (in exchange for digging a well and financing a water pump, see Box 15).<sup>65</sup>

- Municipalities are identifying land access as a key constraint to their development projects, directly after access to decentralization financing. As secondary urban centers, such as Domoni, actively plan their local development projects and infrastructural investments; they identify land access as a key constraint. In Ngazidja, most municipalities are looking after a searching for an appropriate site for their landfill but are confronted with the scarcity of land. In fact, 50 percent of visited municipalities declared to face land issues to implement their development project.<sup>66</sup>

- **Delimitation conflicts of cities and their periphery hamper concerted regional planning and urban-rural integration.** The commune of Moroni faces uncertainties in their administrative territory as they are confronted with a complex problem of identifying and

61. Interviews with stakeholders, March 2020.

62. UNDP (2011a).

63. UNDP (2011a).

64. Interviews with stakeholders, March 2020.

65. Interviews with stakeholders, March 2020.

66. Interviews with stakeholders, March 2020.

Figure 22. Mutsamudu's spatial expansion can only go up the slopes. Aerial view from 2003 (bottom) and 2020 (top).



Source: Google Earth

delineating the commune. Latent land conflicts with surrounding cities and villages (Iconi, Itsandra, M'de, Mavinguni, Mkazi) keep surfacing as the city area is expanding. These communities claim land rights of sultanic origin over large parts of the administrative area of Moroni (see also Figure 21).<sup>67</sup> On the contrary, Moroni's limits have been envisioned as expanding from the Hahaya International Airport, to Mitsoudje in the south, by the approval of the validated Preliminary Development Plan and the central government.<sup>68</sup>

- The City of Ouani is constrained by a land conflict for a project of reforestation around a water source that was located in neighboring Patsy. Since the planting of trees connotes land acquisition,<sup>69</sup> villagers of Patsy destroyed the trees. The commune had to find a different water source in Patsy.<sup>70</sup>

**Operational improvements in land administration without substantial reform are a short-term option.** Madagascar has improved its land administration by transitioning from a state-ownership focused registration system to a decentralized and more accessible land administration (see Box 14). The Comoros' cadaster registration pro-

gram did plan for the operational side of this reform and its implementation is still high on the political agenda (recent approaches to reform are in Annex 3).<sup>71</sup>

### *Water*

**While in theory an abundant resource, Comoros in practice suffers from water scarcity.** Comoros is a country with significant water potential from surface sources (e.g. rivers and streams) in Mwali and Ndzuwani, and rainwater collection and underground sources in Ngazidja. Demand for water is expected to double between 2012 and 2030,<sup>72</sup> putting pressure on the state to serve a growing population. Water scarcity currently arises from irregular rainfall patterns, negative impacts of human activity (e.g. pollution, overexploitation, deforestation), and salt intrusion in aquifers due to rising sea levels, disputes between villages and municipalities, and lack of maintenance.<sup>73</sup>

**Providing safe drinking water brings additional complications along the entire chain of operations.** From an infrastructural and technological standpoint, the country lacks efficient water sourcing and distribution systems. Because of the volcanic nature of the islands, the high cost of exploring and exploiting underground sources limits

67. Said (2016).

68. CPAN (2018).

69. In Comores, planting trees imply the planter claims ownership. Tree planting signifies a form of capital, in the sense of savings, or for exploitation. In addition, planting trees demonstrates the principle of vivification, where land belongs to whoever puts it to use.

70. Said (2016).

71. CPAN (2018).

72. Union des Comores (2019a).

73. DGEME (2014).

**BOX 14. Broader access to land rights through comprehensive land reform in Madagascar**

Before 2005, Madagascar's land administration, which derives from the same colonial law, shared many similarities with that of the Comoros. In fact, some land related law in Comoros still refers to « the territory of Madagascar. » Poorly defined land rights hampered development and generated land conflicts. The decentralized authorities, responsible for processing title requests, made it slow and cumbersome to obtain a land title, the only form of formal proof of ownership. With 5-10 years of processing time, averaging some US\$ 500 in costs, the cadaster office that relied solely on paper records produced roughly 1000 titles per year while having half a million pending demands in 2005.<sup>1</sup> Civil courts were heavily burdened with land related cases. Clearly, the land regime did not allow for citizens to have tenure security, nor did it allow the Government of Madagascar to plan land use without a comprehensive understanding of their domain.

The 2005 reform simplified legal concepts around land access, but also invested substantially in new decentralized institutions, the municipal land offices (*guichet foncier municipal*) and the digitalization of land administrations. The main innovation has been the shift from presuming that untitled land belonged to the domain of the state (as is the case in the Comoros), to the presumption that someone unknown privately owns untitled land, until titled. This shift was important as the presumed state ownership of all land was a relic of the colonial era, designed to negate customary land rights. Land rights holders, especially in rural areas gained access to the formalization of their land for the first time, as the cost for obtaining a "land certificate", a deed that is legally equal to the previous title, were significantly lowered to US\$ 14 and the process were made more straightforward. In its first seven years, the new land regime equipped 546 municipalities of 1,550 with municipal land offices and issued 100,000 certificates, a third of what the previous system had issued in 100 years.

Even though the new land administration is still deemed improvable (municipal land offices risk being underfinanced, land administration offices are hampered by technical capacity), the 2005 land reform managed by the "National Land Program" marked an important shift in the decentralization of land affairs, as well as a legal shift from a system where the state was the owner of vast lands that it did not control, to a system where customary ownership was assumed and its registration encouraged.

As urban land in Madagascar is often titled under the conventional ownership model, the 2005 reform in Madagascar was geared mostly towards rural land rights. In Comoros, however, the urban periphery, where future expansion will take place, are likely not to be titled, but tend to be legally under the domain of the state. A reform in the Malagasy sense could help regularize the rural land around Comorian cities to secure land rights and prepare the ground for planned urban growth.<sup>2</sup>

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1. Thalgotte, Eric (2009).

2. World Bank (2014b).

cost recovery return on investment for operators and access to water for the poorest. Additionally, incomplete regulatory frameworks, monitoring systems, and coordination mechanisms are also holding back the development of an efficient potable water network.<sup>74</sup>

**Decentralizing water management and distribution to the village level showed that poor governance hampers the potable water sector.** Globally, devolving responsibilities in the water sector to local governments has had mixed results with excessive fragmentation leading to the loss of scale economies and of financial viability due to excessive operational costs.<sup>75</sup> Comoros has been no exception. In the past three decades, millions of dollars have been spent on projects to develop water sourcing and distribution at community-level in Ngazidja with only a few positive outcomes in localized areas thanks to effective governance, fee setting and collection set-ups and operational costs under control. In the majority of the villages, however, the lack of maintenance of the equipment and the issues around the financial management of the community structures put an end to that experience.<sup>76</sup> Other issues related to land ownership where these water systems have been built have emerged in some cases. A key reason for the island's lack of water is poor governance. Mistrust in the state led to decentralized water management

solutions, which have continually underperformed as they lack the technical and financial means (see Box 15 for an example). Despite their mandate, many municipalities are not able to effectively manage and deliver public services – including water.

**Cities are not equipped with sufficient infrastructure to supply water to a growing population.** Access to water is generally higher in urban areas, except in Ngazidja where less than 30 percent of households in urban areas, including Moroni, have access to piped water in their homes.<sup>77</sup> As cities and villages expand, new residential areas are built farther away from public infrastructure or pipes for direct connections.<sup>78</sup> Over 60 percent of households in Mwali and Ndzuwani are connected to the water network (68 and 61 percent, respectively), while only 20 percent of households in Ngazidja have a direct water connection (Figure 23). While 84 percent of Fomboni and 80 percent of Mutsamudu residents have access to water from their houses, only 29 percent of households are connected to the water grid in Moroni (Figure 24). In the capital, public fountains are the main source of water (over a third of households use them), while in the rest of Ngazidja households rely primarily on private tanks and reservoirs for their water supply (64 percent in rural areas and 59 percent in urban areas excluding Moroni).

74. Union des Comores (2019a).

75. World Bank (2004).

76. Mohamed, I. (2014).

77. INSEED (2017).

78. Mohamed, I. (2014).

**BOX 15. Land donation and unfair taxation for the common good: the Story of Hahaya**

In the 1970s when the international airport serving Moroni was being designed, the seven highest ranked families of Hahaya, who owned most of the land around the village, located some 20 kilometers north of the capital, donated in good faith the land necessary to build the Moroni international airport Prince Saïd Ibrahim.

At the time, a water distribution system was studied and integrated in the airport technical design. In the decades that followed, the village of Hahaya petitioned the central government to request a partnership with the airport administration. Negotiations led to a water distribution system partially financed by international partners and the Hahaya community with water being provided by the airport's two water cisterns. Today, Hahaya is supplied with permanent water benefitting the entire village, purchased against a monthly fee from the airport authority.

Despite the apparent success of this situation, it has created land and legal disputes. Today, the village claims a share of the land occupied by the airport adjacent office buildings that was not in the original 1970 deal. The portion is contested by the families who had initially donated their land to build the airport. In addition, the Village of Hahaya had contributed to the airport water cisterns works and is not benefitting in return from the revenue generated by the airport activity (airport taxes, car parking fees, etc.). The village claims to be unfairly taxed by having to bear the cost for the water distribution equipment maintenance while also having to pay for their water consumption to the airport authority.

From the 1980s to 1990s, many towns and villages in Ngazidja, such as the towns of Foubouni and Mitsoudje managed to get funding from international partners to support the construction of community-run water distribution systems. Despite mixed results from those community-led water management projects, Hahaya's experience highlights some shortfalls that explain why communities in Comoros are sometimes reluctant to support a common good effort. Nevertheless, Hahaya remains among the few villages in Ngazidja that has been able to secure effective and permanent water distribution mechanisms.

Source : Interviews with stakeholders, March 2020.

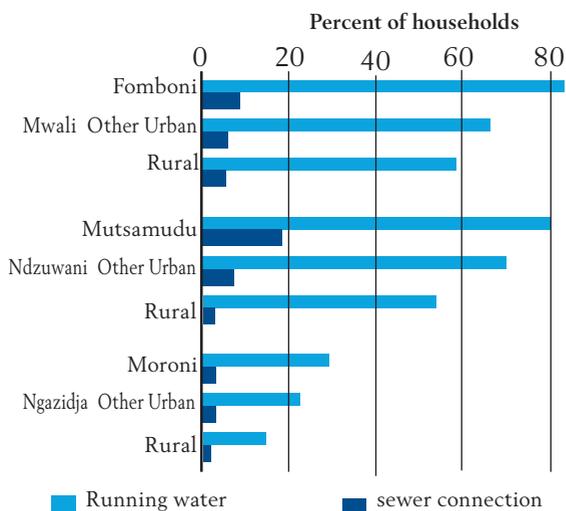
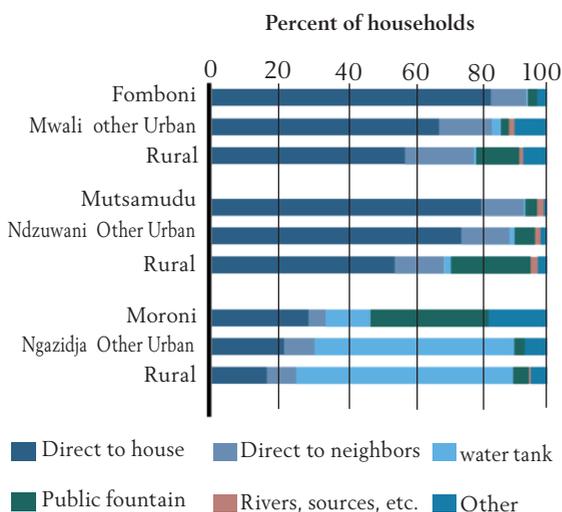
**Achieving 100 percent drinking water coverage by 2030<sup>79</sup> requires a multi-sectoral approach.** Government actors will need to address key constraints ranging from the lack of adequate technical and technological capabilities to land issues and payment delinquency.<sup>80</sup> As a prerequisite,

local governments and water service providers will require a regulatory framework that delegates and enables operations effectively and at the right scale, allowing, if necessary, for operations across administrative boundaries.<sup>81</sup>

79. Union des Comores (2019b).

80. DGEME (2014).

81. World Bank (2004).

**Figure 23. Household access to running water and sewer connections**

**Figure 24. Means of accessing water vary across islands and areas**


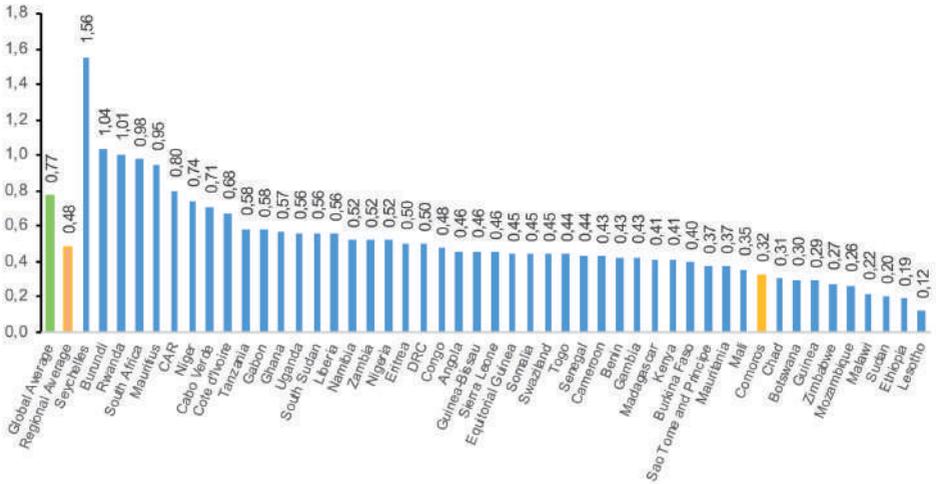
Source: World Bank staff calculation based on INSEED (2017). Note: In Figure 24, « Other » includes water sourced from: (i) wells with pump; (ii) basic wells; (iii) mineral/purified water; (iv) by car or cart.

## Solid Waste Management

Urban growth in the Comoros poses a problem for waste generation and disposal. Integrated waste management systems that would entail collection, treatment and safe disposal with recycling and composting are currently nonexistent due to technical, financial and organizational challenges. Volumes are difficult to estimate, but, according to a recent empirical study, Ndzuwani produces around 0.4 kg per capita per day of household waste, 80 percent of which is organic. The island's mountainous terrain places certain limitations on the amount of areas for new settlements, leading to high population density and, as a result, a high concentration of household waste in a limited area and social tensions among the population.<sup>82</sup> In the absence of appropriate service and infrastructure, and even in spite of the relatively limited amount of waste generated on a per capita basis (Figure 25), open air landfilling or open burning are widespread practices. Municipal waste is poorly managed by local authorities, which is one of the main sources of pollution of soil, water, air, and the coastal ecosystems and poses public health risks including of epidemics such as cholera. The rich land-

82. Bahers, Perez and Durand (2019).

Figure 25. Waste generation rates for sub-Saharan African countries (kg/day per capita)



Source: Kaza, Yao, Bhada-Tata, and Van Woerden (2018).

scape and ecosystems of the Comoros are not only threatened by deforestation and climate change, but also by sources of contamination created by mismanaged waste often ending up in the rivers, waterways, and the ocean.

**Much of household-generated solid waste in Comoros is disposed of improperly, leaving serious environmental impacts.** With no public collection services, households can turn to the private sector for waste collection or they can find other alternatives (Figure 26). In the case of solid waste management in Ndzuwani, household rubbish is often illegally dumped or burned. In Mwali, over 56 percent of households illegally dump refuse on the side of the street or along the coast, while 40 percent do so in Ngazidja. Only in Moroni does

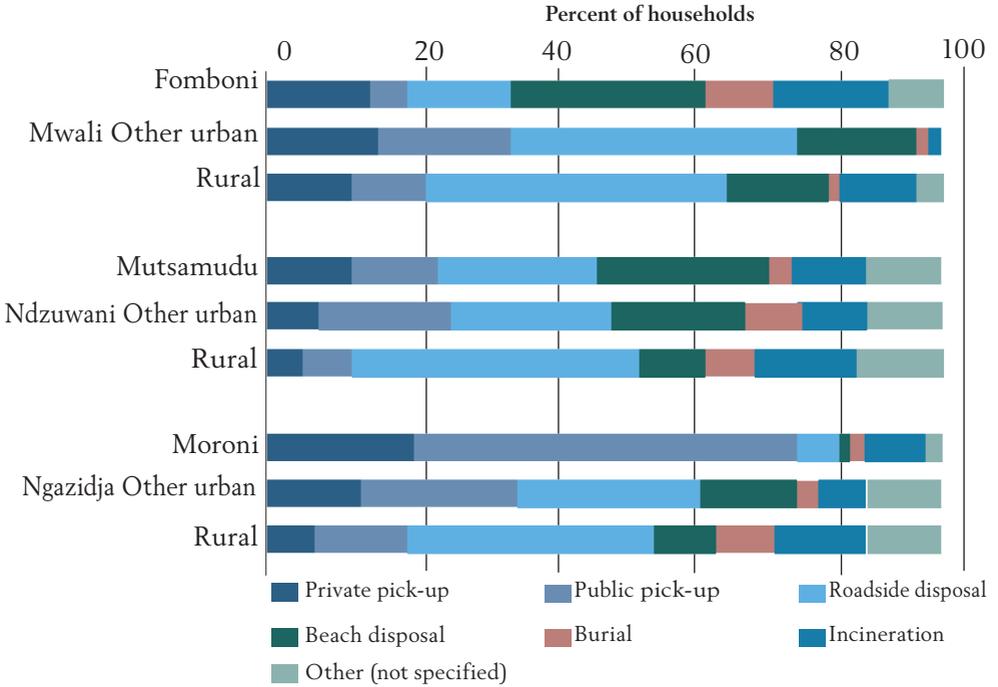
public waste pick-up cover the majority of households (approximately 60 percent).<sup>83</sup>

The management framework for solid waste relies on both the Ministry of Environment and local authorities:

- Environmental issues of the Union of the Comoros are governed by the framework law on the environment (No. 94-018 of June 22, 1994 modified by No. 95-007 on 19 June 1995), which purports that every Comorian citizen has the fundamental right to live in a healthy environment. The framework also has the duty to contribute individually or collectively to protect the environment. The law aims to: (i) preserve the diversity and completeness of the environment of the Islamic Federal

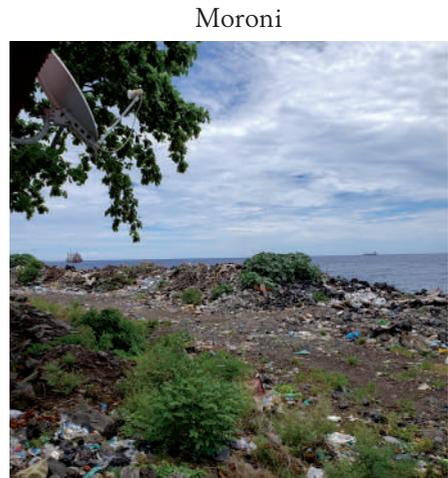
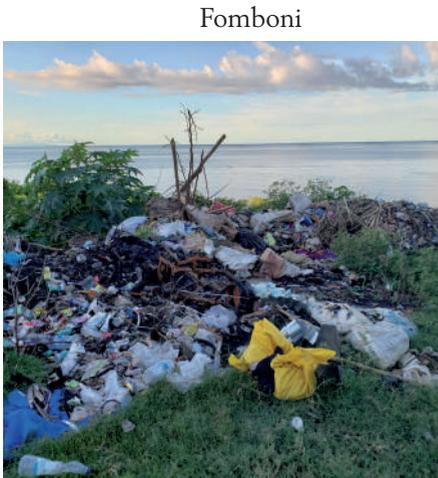
83. INSEED (2017).

Figure 26. Method of solid waste disposal by households



Source: World Bank staff calculations based on INSEED (2017).

Figure 27. A Stark contrast



Republic of the Comoros, an integral part of the universal heritage, which insularity makes particularly vulnerable; (ii) create the conditions for the use, quantitatively and qualitatively, of natural resources by present and future generations; and, (iii) guarantee to all citizens an ecologically healthy and balanced living environment.

- The location of treatment facilities, their operation and the choice of disposal procedures are subject to prior authorization by the Minister of the Environment (Article 62).

- Local authorities have the mandate to collect, treat, and dispose of waste, including that generated by households through Article 54 of the Environment Framework Law. Local decision-makers are considered active stakeholders for local economic, cultural, scientific and sanitary development, territorial administration and planning, environment protection, and the improvement of living conditions. The mayor is in charge of hygiene regulation compliance, pollution and risk prevention (against catastrophes, natural disasters, epidemics and infectious diseases, epizooties), with the ability to call for state intervention to deal with nuisances. Furthermore, according to the Public Health law N°11-001 of 26 March 26 2011 and its parallel Decree N°11-141/PR), the mayor can issue, when necessary and supported by the municipal council, orders to help protect public health (to be approved by the Ministry of Health).

**Public authorities and despite local and international NGOs' support are struggling to put a sustainable system in place.** With no political leadership on the solid waste sector and a lack of information on the regulatory, technical, and financial needs to build an appropriate and sustainable waste management system, only temporary solutions have been developed so far. Moreover, actors in the sector do not always share the same vision and the different initiatives show weak signs of transition towards a more cost-efficient, environment-friendly, and sustainable waste management system, which would need to look at regional options in addition to localized initiatives because of the challenges faced by such a small archipelago.

**Most initiatives so far promoted local recycling activities.** Many informal initiatives implement in situ solutions such as, for example, recycled bags made from recovered paper and fabrics, carpets made from the remains of plastic sandals from informal dumping on the coast, pots made of aluminum cans, cardboard bricks for fireplaces, and tablecloths made by groups of women from used textiles. These solutions, while modest in scope and volumes, attest to local dynamism and collective capacities. However, plastics, scrap metal, vehicles, textiles, medical waste, packaging are thrown on the beaches and in the areas of illegal dumping, while they are salvaged materials that could be recovered on the spot or exported to the international market. Instead, construction waste is often

reused for embankments or for new construction, which further supports the potential of a viable recycling market. However, the introduction of regulatory parameters is needed to reduce the uncontrolled reuse of construction materials, which, when recycled, often decreases the structural integrity of buildings, thereby reducing their resilience.

**The lack of waste treatment infrastructure poses a serious concern when it comes to hazardous and hospital wastes, which is a severe threat to public health, natural resources including fisheries, and all the more critical in the current context of the COVID-19 pandemics.** In the context of the small archipelago of Comoros where household waste is mostly organic and where the challenges are multiple with significant needs and gaps to be able to provide waste management services including safe disposal, the most pressing issue is that of hazardous and hospital wastes. These wastes are not properly collected with the majority ending up in the environment including in rivers and ultimately in the ocean, and for the part that is collected, there is no treatment and disposal methods are not safe (uncontrolled dumpsites). It is estimated that hospital and health centers in Comoros generate almost 230 tons of waste per year, with 45

percent of it being biomedical wastes. About 73 percent of the 230 tons are produced in Moroni, and it is estimated that only half of what is produced in Moroni is collected and disposed of in the official dumpsite.<sup>84</sup> This means that about 84 tons of hospital wastes including toxic and infectious wastes leak into the environment and ocean, with a direct and severe impact on human health, fisheries and natural resources. The Ministry of Health, responsible for hospital waste management, developed a five-year National hospital waste management plan in September 2018 that was revised in April 2020 to include specific COVID-19 considerations and a budget plan for implementation over the period 2019-2024.<sup>85</sup>

In Moroni, **waste management has reached crisis levels**, where an integrated waste management sector (including pre-collection, collection, sorting, controlled landfill, recycling, composting) is missing and where urban growth poses a critical problem of increased production in light of insufficient waste services and most importantly no safe disposal methods. Past initiatives, often supported by international institutions and NGOs, including UNDP and the World Bank, in the capital and other urban centers on waste management often gave mixed results and/or missed opportunities to be followed through.<sup>86</sup>

84. National Hospital Waste Management Plan 2019-2024, UoC Ministry of Health, 2018 revised in 2020.

85. With support from the World Bank via the COMPASS Project (Comprehensive Approach to Health System).

86. Studies showed that given the high fermentable rate of the waste produced (80 percent), this represents a hypothetical loss for the agricultural sector, which could benefit from organic residues as soil fertilizer.

Further analysis especially on the cost recovery and sustainability aspects is critically needed, including an assessment of the regional options with consideration of the proximity to other Indian Ocean and Southern African countries.

In Moroni, the level of collection service provided by private operators is relatively low, while the management of facilities financed by public subsidies remains unsatisfactory. Collection rates could be significantly improved by changing the remuneration method of private operators. Technical assistance conducted by the World Bank in 2014<sup>87</sup> in Moroni identified several ways to strengthen the financial sustainability of the waste sector. The objective was to identify interventions that can improve the quality of service by gradually implementing a « waste collection » fee and setting up a professional private operator with clear specifications and performance-based compensation. An increase in local solid waste taxation would strengthen the sector's self-financing capacities and sustainability and reinforce the PPP framework, which would create a favorable environment for much-needed private sector investments.

**The Government of Comoros could also draw inspiration from other island nations' experiences, with which it**

**shares a key constraint: land availability and shipping costs.** Comoros is in a difficult position for making recycling financially viable, especially if there are no national buyers. Land issues, limited space, unavailable sites or conflicts between local administrations mean that the central or island governments may need to take the lead in identifying waste management sites.<sup>88</sup> In Bermuda,

a country with unique land constraints and the highest per capita of waste in North America, the government set up a central incinerator that reduces waste volumes by 90 percent, while at the same time generating electricity. This requires a robust regulatory framework, especially on air-pollution control, and the capacity to financially manage such facilities. Furthermore, a regulatory body would depend on a detailed analysis of waste composition and recovery models. To cope with plastic and food waste resulting from tourism, Palau implemented a recycling program for beverage containers by providing financial incentives to consumers and levying a small tax to finance at local and central government levels waste collection and recycling (see Box 16).<sup>89</sup> Comoros is a member of the African Clean Cities Platform, an initiative from the Ministry of Environment of Japan, JICA, the United Nations Environment Program (UNEP), UN-Habitat, and City of Yo-

87. World Bank (2014c)

88. IAGU (2014).

89. Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank (2018).

### BOX 16. Managing waste strategically for the generations to come: Examples from Africa

The Kenya National Environmental Management Authority published Kenya's National Solid Waste Management Strategy in 2014 in response to citizen complaints of poor waste management. The strategy outlined how collective action mechanisms can systematically improve the quality of the environment to preserve the quality of life and landscapes in Kenya.<sup>1</sup>

Mozambique developed a national strategy for integrated waste management drawing lessons from the current waste management situation and outlining a 12-year framework for action to address the most pressing solid waste management challenges. The strategy provides guidance on topics from landfill construction to organization of waste pickers and describes the roles of all stakeholders, including central governments, municipalities, private sector, waste pickers, residents, and nongovernmental organizations.<sup>2</sup> National strategies often define metrics, such as recycling rates, to track progress over time. Because waste management is a local service, it is common for cities at a more mature stage of development to devise a local solid waste management-focused master plan than for countries to create a national strategy. Master plans formalize the municipality's goals for solid waste management and plans for implementation.

In South Africa, the City of Johannesburg created a waste management plan that builds on a thorough stock taking of existing waste generation and characteristics, as well as disposal practices, to define key roles and responsibilities, and instruments for its implementation, including funding sources. The plan also details goals and targets for waste minimization, recycling and recovery, promotes the use of information systems to optimize waste collection routes and pollution control, advocates for improved governance, and estimates budgets to sustainably support the waste management sector in Johannesburg.

Source: Kaza et al. (2018).

1. NEMA (2014); Akinyi (2016)

2. Tas and Belon (2014).

kohama. It is focused on « sustainable waste management toward clean and resilient cities ». As Comoros regularly participates in the events organized

in the subregion (knowledge sharing, networking, technologies demonstration, etc.), it is therefore well positioned to build on these initiatives.

## Chapter 3. Key Recommendations and overarching themes for a more resilient Comoros

### Keys messages

By passing pending laws, the existing legislative framework for municipalities will be completed to accelerate the decentralization agenda. This would clarify key aspects of municipal management as they relate to taxation, physical delineations, transfers, and monitoring and supervision systems, among others. Moreover, empowering municipalities inevitably entails using a participatory approach for enhancing the planning, budgeting, fundraising, and service delivery capacities of newly elected mayors. Here, hands-on trainings could be provided in tandem with small-scale local investments in the context of local economic development programs. This two-pronged approach would expand the capacity of elected officials and strengthen the social contract with citizens.

Building upon the necessity for greater social trust for the decentralization process, the recommendations that follow hinge upon the broader issue of deepening more transparent governance models. Political will is an integral element, as mayors have the unique ability to enhance public trust by communicating how public expenditures are used. The newly elected cohort of mayors have the advantage of filling this gap, for example, on tracking investments in DRM, housing, education, waste management or water services.

This is of particular importance to ensure that municipalities are better equipped with the appropriate tools to address basic housing regulations and enforce updated building codes. Given Comoros multi-hazard profile, especially the threat from climate and seismic risks, strengthening Disaster Risk Management and disseminating resilient construction standards are a priority.

Incremental improvement of current operational approaches to land use management and land tenure would also considerably support the ability of municipalities to manage urban development. The creation of a cadaster through

the integration of the different land regimes may take time and might not be realistic in the short run, but it could prevent conflicts and improve long-term urban planning.

These arrangements should accompany strategies to improve compliance to regularize informal settlements in risk areas. Municipalities must become effective planning institutions by better managing urban growth through decisions that benefit strategic infrastructure. To achieve this goal, municipalities can also be supported in accessing new technologies, such as telecom data, to analyze mobility for disaster response and road infrastructure investments. Similarly, the use of simplified ICT tools or high-resolution satellite imagery can assist in property registration.

Finally, long-term planning and enforcement of laws are required to meet the urgent needs for sustainable waste and water management at the local level. Here, private sector engagement and participation by the citizenry can be mobilized to promote service uptake and environmental conservation.



## Strengthening institutions

### *Recommendation 1 : Pass legislations to enable better municipal functionality*

The National Strategy for Decentralization and Deconcentration, MIKOWANI 2030, is the result of a participatory process led by the government in 2017 with the support of partners aimed to accelerate the decentralization agenda and allow for greater national ownership by all stakeholders. It positions the state in its leadership role by driving territorial governance and promoting local development. The strategy's intention is to be the national reference tool for decentralization and deconcentration of the state, as well as for local authorities and partners for current and future interventions.

The draft MIKOWANI 2030 document outlines an implementation strategy for the decentralization, including the clarification of the institutional framework, which should guarantee predominance of the Union of the Comoros as the ultimate authority of legislative power through the elected Assembly of the Union. The strategy recognizes the free administration of the islands and the municipalities within the framework of the laws and regulations of the union and ensures the mutual support of those mechanisms that the state decides to put in place such that the islands and the municipalities are in a better position to bring sustainable, harmonious, and managed development. MIKOWANI 2030 proposes that an independent “Maison De

La Décentralisation” (MDLD) be set up by presidential decree to gathers stakeholders at all levels. As a guarantor for continued institutional dialogue and to oversee support programs, the MDLD would configure the capacity trainings for elected representatives, managers and deployed staff and maintains its own operating staff and budget.

MIKOWANI 2030 includes a series of implementation arrangements and laws that should be submitted to the National Assembly, which would complete the current legal framework. Legislative and regulatory policies on decentralization and deconcentration currently not part of this framework include, among others, key aspects of municipal management, such as power transfers, budget assignments, resource management, local taxation provisions, physical delineations (such as the still contested territories in Ngazidja), and a platform for inter-municipal cooperation. Some of these legislative pieces touch upon vertical coordination across levels of government, starting from mission statements and the functioning of the MDLD, as well as defining the mandate of the governorates, prefectures and municipalities. As a first step, the State could strengthen the administrations responsible for decentralization, in particular the General Directorate and the Regional Directorates. Then, through these structures and at the level of prefectures, agencies could be set up to help municipalities mobilize resources and build capacity.

*Recommendation 2: Strengthen DRM to protect economic assets, lives and livelihoods*

The frequency and intensity of natural disasters and climate change will increase the archipelago's exposure, already threatened by one of the most active volcanoes in Africa, and thereby the likelihood of human and economic loss. Natural disaster risk management must be a prominent feature of the country and for all sectors in the short term and beyond.

In terms of preparedness, integrated systems of monitoring and early warning (for climatic and seismic risks) with trained operators and reliable communication for effective inter islands dissemination are needed and will require greater financial support. A first step will be to identify the information gaps still existing to better understand the risks that threaten the archipelago, and the development of adequate systems to manage them. To ensure the soundness and sustainability of early warning systems, these should be regularly assessed through simulation exercises at the community level and supported by awareness campaigns. Continuous training of host agents and feedback from end users, at the municipal and community levels, will also be needed to inform decision-makers. It is important to capitalize on all initiatives and build on the existing capacities within the various DRM institutions (especially DGSC/

COSEP, National Observatory of Karthala, Ministry in charge of urban planning<sup>1</sup>) and make operational use of the entities, strategies, and tools that have been developed thus far. These include the National Platform for Disaster Risk Reduction, the Strategy for Disaster Risk Reduction, as well as models, data and imagery that were sponsored by different donors. At the regional level, Comoros can rely on existing partnerships with regional entities and neighboring countries. For instance, the Indian Ocean Commission (IOC) – of which Comoros is a member – has adopted a climate change adaptation strategy that advocates strengthening forecasting and climate anticipation capabilities, increasing the capacity of all actors, and disseminating climate information more broadly. The South Africa Weather Service (SAWS) is accredited as regional specialized meteorological center (RSMC) for severe weather forecasting, and provides guidance to all countries of the Indian Ocean since 2006 through the Severe Weather Forecasting program (SWFP).

Undoubtedly, building codes need to be significantly updated and disseminated from a multi-hazard perspective to promote para-cyclonic and para-seismic standards while accounting for the effects of climate change, in particular, flooding. This is critical for the housing sector, buildings, schools, public health and transportation infrastructure. The change and full enforcement may be progressive, but it

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1. Ministère de l'Agriculture, de la Pêche, de l'Environnement, de l'Aménagement du Territoire, de l'Urbanisme, des Transports Terrestres, chargé des Affaires Foncières.

is critical to ensure in the short-term that safety and resilience minimum standards are in place. Improving capacities in managing building codes has the potential to streamline standards of resilience for new or existing facilities and infrastructure. This should be the priority over rigid middle-class housing ideals. Following a “building back better” approach, continuous improvement of abilities to enforce new housing building standards will allow for a better integration of resilient standards during post-disaster reconstruction campaigns.<sup>2</sup>

Recovery and reconstruction efforts must ensure that future risks are mitigated through construction standards so as to better protect people and assets. Long-term recovery planning and budgeting remain weak and both have demonstrated the need for an integrated management of disaster and climate related risks. An assessment by the IMF indicated that, because of limited risk mitigation options, the country should enhance revenue mobilization to increase fiscal space available for disaster recovery.<sup>3</sup> Support to recovery needs must be further strengthened and better synchronized between various ministries and partners involved. Risk financing instruments, such as emergency funds, insurance, and contingency loans require

advanced consideration and budgeting in anticipation of future disasters.

Actions can be taken to reduce risks of the urban poor, whereas disaster-informed policies can assist households to mitigate, adapt, and transfer risk.

Local community leaders and regional authorities can overcome market failures and institutional barriers to increase the amount and variety of risk-management strategies, which the urban poor can access. For example, in areas of acute urban poverty, institutions fail to deliver reliable property title rights, which can prevent solutions from developing, and reduce incentives to invest resources in mitigating those risks. DATUH should also pursue the dialogue initiated with the DGSC and the telecom regulator (ANRTIC) to enable the use of telecom data to analyze mobility and develop a new analytical tool for disaster response. In particular, a decree should be drafted and signed by the Ministry of Interior, with legal and technical provisions relating to the use and anonymization of telecom data. Infrastructure should then be built to allow for the anonymization and analysis of data, which could then be used to look not only at urban mobility patterns, starting in Moroni, but also at where people are and where they seek refuge when a disaster happens. Telecom data have proved useful in light of

*Improving capacities in managing building codes has the potential to streamline standards of resilience*

2. Hallegatte, S., Maruyama, J. & Walsh, B. (2018).

3. IMF (2018). Union of the Comoros: 2018 Article IV Consultation – Staff Report. IMF Country Report No. 18/189. Washington, DC: International Monetary Fund.

the COVID-19 epidemic to target and tailor needs-based response elsewhere (Box 17).

### Improving the urban living environment

#### *Recommendation 3 : Empower mayors for leadership roles*

In the short term, and in light of the multiple challenges that can only be addressed progressively, mayors could play a focused and critical role in coordination. The credibility of municipal authorities has eroded since the beginning of their term in 2015, as many civil servants have departed because of unpaid salaries. Caught in between village chief and higher level of authority, mayors have done their best to respond to constituents' needs. Mayors can position themselves as coordinators to foster or restore trust with village chiefs. Convening municipal councils and discussing with village chiefs what they envisage, which funds are needed and what action plans require funding can provide the necessary common knowledge to identify where gains could be made and what duplications can be prevented.

The inauguration of newly elected mayors in 2020 represents an opportunity to provide sustained support to municipalities in fulfilling their mandate. There is an immediate need to reinforce new mayors' capacities and enhance their basic capacity to plan, budget, fundraise for and deliver services through a participatory approach. This could present itself as an oppor-

tunity for: (i) building the capacity of municipal authorities for better planning and management, (ii) strengthening social accountability for improved service delivery, transparency and participation of communities and villages, and (iii) ensuring the availability of financing to deliver decentralized services, thereby enabling a stronger social contract between elected representatives and the population. Assistance could take the form of local economic development programs that would finance small-scale local investments (including footpaths, public lighting and storm water drainage) prioritized through a transparent and participatory process guided by a socio-economic blueprint (including common themes such as the environment, women and the youth, etc.). Finally, technical assistance for the recruitment of key staff, the financial management, procurement, asset management, and maintenance, as well as training on citizens' engagement and dialogue with villages' representatives, round out potential areas of impact for new mayors.

A local development program would empower municipalities to allocate limited resources to prioritized collective needs through a demand-driven process (participatory community planning process), thereby increasing the likelihood that resources are applied most efficiently in response to local priorities at both village and municipality levels. The support provided to each commune would be adapted and tailored to the local context and designed to ensure that their capacity

**BOX 17. Using cell-phone data records to inform policy.**

The timeliness and volume of information (big data) contained in Call Detail Records (CDR) captured from the mobile phone infrastructure has opened new possibilities to inform policy.<sup>1</sup>

**Cell-phone data can help mitigate impacts and improve response to natural disasters.** The efficiency of emergency response after a disaster depends on the availability of timely information, for example, on the movements of affected populations. It can also help improve planning and the protection of critical infrastructure. For example, in Port-au-Prince (Haiti), cell-phone data records were used to identify the most common traffic patterns and the vulnerabilities of the transport network to flood risk so as to better plan and protect the city's transport infrastructure.<sup>2</sup>

**In general, having such rich information can also help decision makers to prioritize road infrastructure investment to increase access to economic opportunities.** In Haiti, it appeared that improving the management of public space and road occupation can improve the security of pedestrians and reduce congestion. The number of round trips that shared taxis can complete could therefore increase, reducing the costs of operation and potentially the fares charged to the users. As cities grow, information allowing for improved coordination between land use and investment in infrastructure is key to decision-making. Such improvement could improve access to labor markets, encourage growth away from the most risk-prone areas and ensure that new developments are still connected to the areas that concentrate opportunities.<sup>3</sup>

**The location of mobile phone data can be leveraged to inform communication campaigns and strengthen policy response to future waves of COVID 19.**<sup>4</sup> CDR data can be used to assess the extent to which social distancing measures are changing the way people move and interact with each other. As the country resumes activities while social distancing measures are still in place, it will be useful for policymakers to understand the immediate impact of their policies and document whether long or short distance moves such as from urban to rural areas or within urban areas, persist, and identify areas that may require more intensive communication campaigns to strengthen the impact of social distancing measures. This can be done by looking at the evolution of mobility patterns as measures get implemented, assessing the extent of individual interactions and how they vary through time, and looking at the evolution of time spent at significant locations (e.g. home vs work).

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1. See among others Pastor-Escuredo, D., Morales-Guzmán, A., Torres-Fernández, Y., Bauer, J. M., Wadhwa, A., Castro-Correa, C., & Oliver, N. (2014, October). Flooding through the lens of mobile phone activity. In IEEE Global Humanitarian Technology Conference (GHTC 2014) (pp. 279-286).

2. Lozano-Gracia, N. & Garcia Lozano, M. (2017).

3. Lozano-Garcia, N. & Avner, P. (2018).

4. GPURL working group on Urban Economic Impacts of Covid-19.

is built in relation to functions they actually perform. This program could help leverage further resources and be used by both the central government and other development partners to channel funds to municipalities for local development and service delivery needs.

Such programming could be tested as pilot projects in selected cities or municipalities that are considered to have higher capabilities and that comprise a reasonable population base. A performance assessment mechanism would be set up to mediate the amount of the eligible transfer to which each municipal government is entitled to by measuring the extent to which each participating municipal government has met certain indicators. Such performance-based design serves as an incentive for municipalities to provide the government with a monitoring tool. It can start small, focusing on a subset of investments that are relatively simple to execute, both institutionally and functionally, like local roads, local drains, solid waste or streetlights. Gradually, and as municipal administrations gain expertise, more complex interventions could be passed on to them.

The training of civil servants can be expanded. Capacity building should continue through a training program for managers, which was implemented by the European Union-funded Pro-

gramme de Coopération Décentralisée (PCD) between 2006 and 2012. More than 150 officials were trained in various disciplines such as budget management, planning, monitoring and evaluation. At the end of the project, the agents were not integrated into the civil service, and without incentives strong enough to retain them, this important pool of human resources for the municipalities disappeared. Within the framework of these trainings, teaching materials were produced and should be capitalized upon.

As a long-term strategy, a legislative and regulatory framework on the organization and use of funds from the diaspora directed to public investments could also help facilitate their channeling towards priority actions. Incentives such as tax rebates or matching contribution could help municipal administrations to leverage remittances. In Mexico, matching contributions by the public sector allowed to invest over US\$ 2.5 million in local development projects jointly approved by the government, residents and emigrants.<sup>4</sup>

*Recommendation 4 : Land reform : taking small steps to adapt strategies*

A comprehensive land reform does not seem attainable in the near future. Hence, gradual improvement of operational land administration remains

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4. Bahar (2020).

a priority.<sup>5</sup> Recent consultations with land governance stakeholders as part of the National Land Strategy indicated that actors do not have a vision for possible land reform. Solutions to urgent challenges to governance seem to hamper the attention of land governance authorities. The inexperienced nature of institutions with major system changes does not make land reform a higher priority. Interviewed stakeholders in Moroni, Mwali and Ndzuwani have voiced their support for change in the land tenure system, but only at an incremental pace. The National Land Strategy has prioritized operational short-term goals for land administration over reform processes (human and financial resources for Spatial Data Infrastructure (SDI)<sup>6</sup> and cadaster planning documents, stock-tacking of state-owned land, and awareness creation around land-questions).<sup>7</sup>

For short-term gains, land administration projects are the main entry points for improvements. In the framework of the World Bank-funded Post-Kenneth Recovery and Resilience Project, Resilient Housing Committees (Comité d'Habitat Résilient, CHR) are to be established in every village and city. Their mission is to accompany the beneficiaries in the formalization of

the legal status of their land (deed of public notary, registration certificate, land title) and obtaining a construction permit, as well as creating sensitivity for compliance with principles of resilient construction and urban planning. These committees could be an institutional prototype for facilitating decentralized land regularization.

Harmonizing legal and rules- and compliance-based land governance is seen as the starting point for land reform in the island nation. An initiative to harmonize the three frameworks into a comprehensive and binding land law would take the existing complementarity as a starting point. A comparative analysis of the three concurrent legal frameworks has found that there is a degree of compatibility between them<sup>8</sup>:

« There is no real conflict between the different legal regimes governing the transfer of property ownership. In theory, it is entirely possible for them to be made complementary. In fact, this possibility of complementarity between the three legal systems is borne out by practice in the field. While largely privileging Islamic law (except in cases such as the transfer of Manyahule property), participants also

5. A special commission, the Comité National chargé de l'identification des Terrains Domaniaux (CNITD) has the mission to do this stock-taking since 2018.

6. SDI is increasingly built with cost efficient open source software in developing countries. See: Choi, J., Hwang, M. H., Kim, H., & Ahn, J. (2016). What drives developing countries to select free open source software for national spatial data infrastructure?. *Spatial Information Research*, 24(5), 545-553.

7. Union des Comores (2019d).

8. Said (2016).

have recourse to the other regimes. »<sup>9</sup>

Reforms to integrate the three land regimes have been proposed by stakeholders. For land transfers among individuals, but also for the registration of state-owned land to individuals, road maps have been suggested that would integrate the approaches, such as creating a binding text that recognizes approaches and applies their complementary deeds of transferring or registering ownership titles. Debatably, a cadaster based on modern jurisprudence would harm rather than help the Comorian people. Under ideal conditions, the creation of a cadaster accounts for the types of concurrent ownership and can integrate them based on common principles, which may take time but could prevent conflicts between the Government and the citizens.<sup>10</sup>

The *de facto* decentralization of tenure securitization by setting up local land administrations (« administrations foncières de proximité ») as a one-stop-shop for land registration could also be envisaged in the short-term,<sup>11</sup> but would require technical staff and funding, which are currently missing in most municipalities. Incentivizing people to formalize tenure in an easier and more affordable way and consolidating the information at both the regional and national levels could serve as a

starting point for a new cadaster. Municipality officials in Ndzuwani estimate that, if land registrations were free, demand would surge.<sup>12</sup> In 2013, for a period of five years, the government froze fees associated with land registration to 10,000 KMF (instead of 8-9 percent of the property value, plus fees). But the cap was still subject to application fees, land demarcation costs, and costs related to the establishment and delivery of the title, which limited the impact of the policy.<sup>13</sup> The Ndzuwani island government reportedly did not adopt the federal legislation.<sup>14</sup> Agents could be trained in the use of simplified ICT tools (i.e. cell phone and tablet-based monitoring system) to capture activities for information consolidation and follow-up in real-time.

The most recent governmental effort to streamline cadastral information is the yet to be completed National Program for Registration of Built and Non-built property (PNEPBNB) in 2014. The intention of the program is to respond to the growing demand for property registration through the formalization of unwritten property rights and securing written rights through regularization. Working with pilot municipalities, the program envisioned the digitalization of property rights through consultations of high-resolution satellite imagery with pilot

9. Said, Mahamoudou (2013), p.54.

10. Said (2016).

11. UN-Habitat (2015).

12. Interviews with stakeholders, March 2020.

13. Interviews with stakeholders, March 2020.

14. Said (2016).

municipalities and equip municipalities with the technical means to manage the established ownership information. The pilot experiences should then have been adopted at a national scale. Originally planned to conclude in 2018, the PNEPBNB has not been implemented to date and remains the first priority 2019 National Land Strategy and the Report of the National Assembly.<sup>15</sup> Such ambitious effort requires more consultations and should build upon and complement reforms aimed at integrating the different land regimes.

*Recommendation 5 : Invest in accessible tools for more resilient infrastructure and housing*

To steer urban development in a spatially coordinated way, municipalities should adopt the most appropriate tools for controlled development implemented on a pilot basis. Simple approaches such as guided urban development, guided grid, or construction code waivers in dedicated zones could improve urban planning considerations without the need for large scale technical planning. For implementation, technical and financial capacity building is needed and can start at the municipal level.

The Urban Planning and Construction Code can be amended to allow for the « regularization of informality » and be less dependent on formal land registration. The cases of Mwanza and Dar es Salaam, Tanzania, have shown that building and development stan-

dards elaborated at the neighborhood-level can increase compliance significantly. A community-led planning process with the aim of regularization of informal settlements helped improving compliance while adjusting rigid development standards to the local reality of informal settlements (minimum plot-sizes, set-backs, etc.). In the case of Ubungo Darajani in Dar es Salaam, minimum plot-sizes of 12m<sup>2</sup> were accepted in exchange for the regularization of settlers' tenure. The agreed-upon standards were publicly communicated by neighborhood leaders and therefore saw increased compliance. In Comoros, simplified negotiations between the municipality and landowners could establish minimum standards, such as right-of ways, sub-division procedure and plot-sizes to achieve enhanced compliance.<sup>16</sup>

In the short-term, municipalities must be equipped with appropriate tools to address basic land-use necessities and housing regulations. Island capitals and secondary urban municipalities have a different outlook to planning. The two major cities, Moroni and Mutsamudu, have to prepare themselves for rapid population growth and land conversion. For these scenarios, they could apply tools such as the guided grid, sites and services or building code waivers. Secondary cities need simplified tools of regulation and enforcement to avoid settlement in risk areas and reserve necessary space for road extensions.

15. Interviews with stakeholders, March 2020.

16. CPAN (2018).

In the absence of planning, urban development principles must be mainstreamed in all development projects. Local government is already actively engaged in development planning by coordinating funding from international donors, the diaspora and the central government.<sup>17</sup> Municipalities should build capacity to account for urban planning principles in those projects to integrate considerations of disaster risk, future growth and land-uses to coordinate with actors.<sup>18</sup> It's important to remember that strategic public infrastructure investment and enforced easement rights can guide future urban expansion more than unimplemented plans.<sup>19</sup>

Beyond urban plans, public infrastructure investment can be a strong signal to guide urban development. Early public infrastructure investments, such as roads and road upgrading, are a sunk commitment that have a long-term effect where people settle and invest. Historically, even small investments that have depreciated can be a mechanism to coordinate investment by individuals.<sup>20</sup> Road investments in traffic infrastructure have proven to guide spatial development and increase density. Paved road investments in Addis Ababa, Kigali, Dar es Salaam,

and Nairobi have increased density by 37 percent along their respective corridors. It also increased economic activity and industrial land uses.<sup>21</sup> The cases of early sites and services projects in Dar es Salaam give further evidence to the long-term impact of such investments. They can also be an effective tool to increase formal land use and profitable construction. Beyond the lack of enforcement of urban plans, public (or private) infrastructure investments raise expectations and confidence in the future success of an urban area and unlock untapped potential for growth. Formal investment from individuals, commercial or real estate developers of higher density buildings or industrial usage require some certainty that an area has potential to generate return on investment. New infrastructure acts as a coordinating device, because it creates a credible commitment that informs future decisions.<sup>22</sup>

Investing in early infrastructure is more cost-effective than upgrading later. Targeting infrastructure investments before the design and building of housing or industrial properties reduces the costs of all the three investments. Appropriate roads, drainage, electricity, and water connections can

*In the short-term, municipalities must be equipped with appropriate tools to address basic land-use necessities and housing regulations*

17. Interview with stakeholder, March, 2020.

18. Adelekan I. O. et al. (2015).

19. Lall, Henderson et Venables (2017).

20. Bleakley, H., and J. Lin. 2012.

21. Felkner, J., Lall, S. and Lee, H. (2016).

22. Lall, Henderson and Venables (2017).

be provided cheaper at scale, than in costly upgrading operations.<sup>23</sup> Infrastructure investments in the early stages of development create multiple efficiencies for urban growth: they guide where people invest and settle and they are less costly as they create higher densities and at lower costs for construction. Comorian municipalities have the opportunity to better manage their urban growth through strategic infrastructure decisions and should gear acquisition of funds towards this goal. It will be key that these structuring investments are well planned and designed to last, i.e. outside of high-risk or eroded areas and in resilient materials, considering operation and maintenance costs.

In the long-term, municipalities can become more effective planning institutions, which requires investments in local expertise and human and financial capacity. Less complex than urban plans, simple and realistic approaches can be used to enhance coordination between sectors and the private sector. Resources need to be channeled to appropriate urban administration, through institutional re-alignment, capacity building and skills development (e.g. training in basic spatial development tools).

*Recommendation 6 : Transform solid waste to create economic opportunities and reduce vulnerability*

The country is still in a transition towards the full delegation of competencies to local authorities and is in urgent need for developing and implementing sustainable waste management. Long-term planning following a com-

prehensive review of the organizational, regulatory, legislative and financial frameworks for solid waste management at the national and municipal level, an in-depth assessment of the recycling potential including regional approach considerations as part of the Indian Ocean and Southern African countries, and the identification of gender-sensitive pathways or livelihood alternatives to integrate waste-pickers in the formal system, is necessary.

Municipalities must be guided by a clear national solid waste management policy and supported in the development and implementation of Waste Management Plans promoting waste valorization initiatives, including reuse, recycling, composting, and thereby reducing the amount of waste going to landfill or open dumping sites (currently only small-scale and uncoordinated waste valorization activities are in place). Technical assistance to identify and operationalize best practices in waste reduction, waste collection schemes, recycling, the creation of value-chains, citizen engagement and public awareness would be highly beneficial. An outreach program to sensitize and improve public behavior on solid waste management, including ocean litter, is an important step to take, adopting a participatory and inclusive approach with citizens, communities, and non-governmental organizations (NGOs) (with a particular focus on women's organizations).

Municipalities could be supported through a strategy to operationalize best practices in waste reduction and recycling including the identification of value chains with potential for local recycling and circular economy oppor-

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23. Lall, Henderson and Venables (2017).

tunities. A program supporting small- and medium-sized enterprises (SMEs) in relevant recycling techniques could help develop entrepreneurial skills and act as an incentive for local waste collection by reinforcing the value chains and the economic opportunities for each category of waste (plastic, metal, glass, organic waste etc.).

Implementing a recycling scheme requires collecting a high volume of the materials to recycle and ensuring there is a buyer. Establishing a separate collection of recyclables can be challenging with incomplete waste collection services, raising costs in the short term and therefore reducing incentives, especially in the absence of a local recycling market and if the waste needs to be shipped.<sup>24</sup> A viable alternative is having waste pickers add value to recyclables by baling materials or cleaning them before reselling, lowering downstream processing costs and holding the potential to become part of a formal recycling value chain. Involvement by municipal governments, micro and small enterprises, civil society and cooperatives could also help waste pickers gain bargaining power vis-à-vis buyers of recyclables, thus increasing income and improving their livelihood.<sup>25</sup>

The Comoros' ambition for an integrated and sustainable solid waste management system cannot be financed and supported by the municipalities

alone. Rather, global experience shows that private sector participation in solid waste infrastructure and service provision, if done properly, can leverage investment and greatly improve service provision. Technical assistance to municipalities to promote private sector dialogue and optimize the upstream functions of waste collection and transportation would be a beneficial step for service improvement. Alternatively, the central government or municipalities could engage with large private sector actors to set up extended-producer responsibility policies requiring producers to collect and manage packaging waste (such as Coca-Cola bottles).

*Recommendation 7 : Reform the water sector for greater efficiency*

Setting up regulatory frameworks and governance mechanisms will be essential to enable the water sector to operate more efficiently. The government has begun reforming the legal and institutional framework of the water and sanitation sector with legislation currently underway.<sup>26</sup> In 2015, the government planned to transfer the mandate and responsibilities for managing water resources and distribution from villages to municipalities as a step towards greater efficiency.<sup>27</sup> This « upward » delegation could also bring municipalities to collaborate, pool resources, and achieve greater

24. Kaza, Yao, Bhada-Tata, and Van Woerden (2018).

25. In light of low waste recycling rates at municipal level, the IFC-PetStar partnership in Mexico identified waste pickers as key suppliers of recyclable plastic. PetStar then found a large beverage manufacturer as guaranteed buyer of the plastic. This enabled PetStar to pay waste pickers a decent wage, and ensure a higher rate of plastic was recycled (Kaza, Yao, Bhada-Tata, and Van Woerden, 2018: 132).

26. The country has Water legislation dating back to 1994 and an institutional framework document for 2013 (Union des Comores, 2019b).

27. Comité National LDI (2015).

efficiency of scale while maintaining a local dimension. The government is also considering the revision of the Drinking Water Supply and Sanitation Strategy (Stratégie d’Alimentation en Eau Potable et d’Assainissement, AEPA) 2013-2030 and the Strategic Framework document to align it with the Comoros Emerging Plan 2030 and the new Water and Sanitation Code.<sup>28</sup> Improving institutions in the sector will help to resolve other issues, such as the last mile problem and regulatory oversight. For example, poorly defined property rights may make it difficult to impose and enforce regulations.<sup>29</sup>

On the retail side, providing a combination of incentives could increase direct connections to households and revenue. In addition to information and sensitization public awareness campaigns for consumers to promote the uptake of commercial water distribution services, a mixed system of subsidies and penalties may maximize the benefits to communities. Penalties should be low enough to avoid extortion with subsidies providing the remaining incentive.<sup>30</sup> To increase the chances of success, local operators or authorities should consider imposing rules on landlords as opposed to tenants. Pricing water correctly requires striking a balance between profits and financial buffers

(e.g. for maintenance) for the sustainability of operations and promoting service uptake as well as environmental conservation.<sup>31</sup>

Evidence from Lusaka shows that service providers need to be reliable. In case of unexpected water interruptions, alternative water sources may be unhealthy and present high opportunity costs particularly in terms of time.<sup>32</sup> Improving the maintenance of existing infrastructure can significantly improve household welfare without the need of expanding coverage immediately. Enforcing contracts, ensuring everyone pays for their water supply and policing theft could increase revenues in the short term for maintenance and service expansion at municipality or village level.

### **Building communities today, transforming lives tomorrow**

The challenges outlined in this report need immediate action to transform lives and secure a better future for the Comoros. A summary of recommendations is presented below. Their success will rely on the extent to which these build on communities to conceptualize solutions, anchor the role of community-based organizations and involve municipalities.

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28. Union des Comores (2019a).

29. Ashraf, N., Glaeser, E. L., & Ponzetto, G. A. (2016).

30. Ashraf et al. (2016).

31. Ashraf et al. (2016).

32. Ashraf et al. (2016).



## Summary of recommendations

### Key to Table

Time Horizon	Priority	Leading Institution
ST – Short Term (next 12 months)	H – High	ANMC – Association of Mayors of Comoros
MT – Medium Term (next 1 – 3 years)	M – Medium	DATUH – Direction de l'Aménagement du Territoire, de l'Urbanisme et de l'Habitat
LT – Long term (next 3 – 5 years)	L – Low	DGEME – Direction Générale de l'Energie, des Mines et de l'Eau DGSC – Direction Générale de la Sécurité Civile COSEP – Center of Relief Operations and Civil Protection

# Strengthening institutions

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
Incomplete administrative and fiscal decentralization	Clarify administrative mandate of governors and municipalities and enforce the legal and regulatory framework for governorate and municipal financing	Finalize the laws and application decrees pertaining to the implementation of the decentralization of administrative and financial resources	1	ST	H	Minister of the Interior, Information and Decentralization
		Undertake a detailed review of municipal finance and transfer system from the central level; Establish an allocation formula for budget transfer to the municipalities	1	ST	H	Minister of the Interior, Information and Decentralization

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
Lack of use of existing risk mitigation and response strategy	Improve and make operational use of existing systems for monitoring, early warning and response	Integrate systems of monitoring and early warning Train operators on a continuous basis and ensure reliable communication	2	ST	H	DGSC/COSEP/ National observatory of Karthala, Ministry of Environment with technical support from relevant institutes
	Better inform the development of the planning strategies and tools especially regarding the terrain/natural disaster risks	Identify gaps in understanding risk and update existing vulnerability assessment of critical infrastructure, in particular in the densest/most populated areas	2	MT	H	DDGSC with technical support from relevant institutes
	Increase fiscal space available for disaster recovery	Consider risk financing instruments	2	ST	H	Ministry of Finance, Economy, Budget, Investment and Foreign Trade

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
Weak construction regulation	Update building code	Streamline resilient building standards in building code	2	ST	H	DATUH
	Regulate land use and construction to prevent settlement in the highly risky areas	Relax rigid standards including those to increase floor-area to land ratio to reduce housing prices and ensure compliance  Promote alternative use of high-risk areas prone to hazards such as flooding or landslides. For example, make them football fields or public spaces.	2	MT	H	DATUH
Lack of information on disaster risk	Diffuse accurate and accessible information	Use existing information, and improve dissemination through social media, radio, tv, newspaper, pamphlets (that should be accessible to all citizens)	2	ST	H	DATUH / Municipalities

## Improving the urban living environment

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
	Strengthen the system governing the intergovernmental fiscal transfers	Improve the tools available to municipalities for linking investment planning, budgeting and execution	3	ST	M	Minister of the Interior, Information and Decentralization
Limited sources of municipal revenue		Train civil servants in budget management, planning, monitoring and evaluation	3	MT	M	Minister of the Interior, Information and Decentralization
	Expand financing opportunities	Set up a legislative and regulatory framework on the organization and use of funds from the diaspora (including incentives such as tax rebates or matching contribution)	3	LT	L	Ministry of Finance, Budget, and Banking sector

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
	Improve flow of information	Schedule municipal councils regularly to discuss village priorities, coordinate investments and budgets	3	ST	H	Municipalities
Lack of accountability and transparency		Establish an effective tool to help Municipal Councils to assess their own performance in a more systematized and scientific manner (such as Consultative Citizen's Report Card)	3	MT	H	Municipalities
	Engage citizens	Establish a mechanism where the municipalities' budget and annual expenditure report are published, and the Mayors report to their councils on regular sessions open to the public.	3	MT	H	Municipalities/ Minister of the Interior, Information and Decentralization

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
Lack of accountability and transparency	Engage citizens	Support and strengthen inter municipal dialogue and experience sharing to improve capacity of municipal administrations.	3	MT	M	ANMC
	Improve basic service management	Set up a performance assessment system for disbursement that encourages municipalities to perform (starting with simple investments adapted to the expertise available)	3	ST	H	Minister of the Interior, Information and Decentralization
Weak land administration and regulation	Clarify property rights and reform land governance	Pilot Housing Committee	4	ST	H	DATUH
		Establish one stop shop for land registration	4	ST	H	DATUH
	Undertake cadaster update (PNEPBNB)	Set up dispute resolution mechanism and platform for municipal cooperation	4	MT	H	Municipalities/ ANMC
		Undertake cadaster update (PNEPBNB)	4	LT	H	DATUH

Issue	General recommendation	Specific action	#	Time Horizon	Priority	Leading institution
Haphazard urban expansion	Review the consistency and relevance of spatial planning strategy and tools (down to the local level)	Develop the most critical plans in a participatory and inclusive way (e.g. master plan, local development plan) that can frame «structuring» investments	5	ST	H	DATUH/ ANMC/ Municipalities
		Leverage existing initiatives, uniformize collection fees and the services provided	6	ST	H	Municipalities/ ANMC
		Promote waste valorization initiatives and support to young entrepreneurs	6	ST	H	Municipalities/ ANMC
High concentration of solid waste, low collection rate and lack of safe disposal methods resulting in pollution and contamination	Improve management of solid waste	Undertake detailed review of the organizational, regulatory, legislative and financial frameworks for solid waste management at the national and municipal levels (including recycling potential and formal integration of waste pickers)	6	MT	H	Ministry of Agriculture, Fisheries, Environment, Territorial and City Planning, Transport and Land
		Develop a national solid waste management strategy (including a strategy to secure land)	6	LT	H	Ministry of Agriculture, Fisheries, Environment, Territorial and City Planning, Transport and Land
Water resources mismanagement	Improve supply of water	Finalize reform of the legal and institutional framework of the water and sanitation sector	7	MT	H	DGEME

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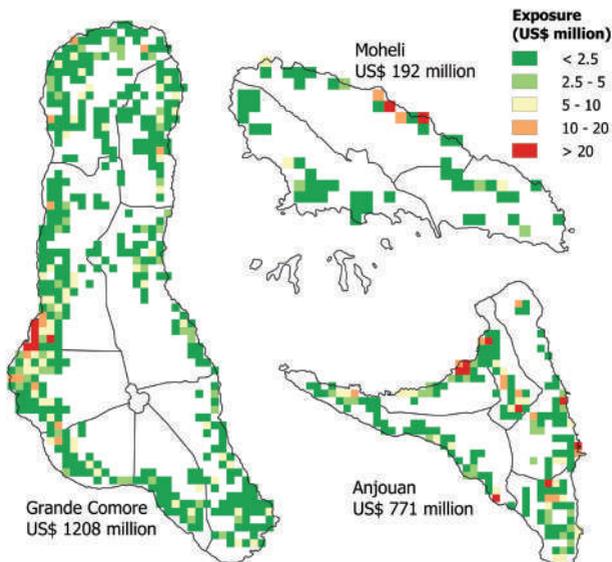
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# Annexes

## *A Building Exposure Model for Comoros*

A residential and non-residential building exposure model was developed in early 2020 to assess the characteristics of the building stock of the country. The analysis was based on a 10% sample dataset of the 2017 National Population and Housing Census, representative at the commune level for December 2017. The main outcome of the exposure model is the estimation of the replacement value for 2017 of Comorian residential and non-residential buildings assets, disaggregated at a 1x1 km<sup>2</sup> resolution, by type of construction in urban and rural areas. The total value of the replacement cost of buildings in Comoros is estimated at US\$ 2.17 billion, and its spatial distribution is presented in Figure 28. A brief description of the assumptions and limitations of the model for residential and non-residential buildings follows.

Figure 28. Spatial Distribution of the Building Exposure at 1x1 km<sup>2</sup> Resolution



*Methodology and assumptions*

**Residential buildings.** By combining external wall material and roof cover material, a building typology schema consisting of nine structural classes was proposed for the residential building stock of Comoros. An average building size (m<sup>2</sup>) and Unit Construction Cost (UCC, US\$/m<sup>2</sup>) per typology were estimated (presented in Table 3) based on a literature review and data of comparable countries in the region taking into account key socio-economic indicators. These figures were used to estimate the replacement value of the residential building stock, estimated at US\$ 1.24 billion.

Table 3. Structural Typology Schema for Residential Buildings in Comoros

Typology Class (Walls & Roof)	Distribution of Residential Buildings per Typology							Floor area (m <sup>2</sup> )			UCC (USD/m <sup>2</sup> )	
	Mwali		Ndzuwani		Ngazidja		Comoros	Mwali	Ndzuwani	Ngazidja	Comoros	
	Urban	Rural	Urban	Rural	Urban	Rural		Urban & Rural		Urban	Rural	
Rammed Earth/Adobe & Reinforced/Traditional Concrete	2,2%	1,2%	0,5%	0,7%	2,2%	2,2%	<b>1,5%</b>	50,7	40,1	82,9	35	28
Rammed Earth/Adobe & Straw/Leaf	5,7%	13,7%	0,1%	1,1%	0,0%	0,0%	<b>1,1%</b>	50,7	40,1	82,9	25	20
Rammed Earth/Adobe & Corrugated/Galvanized Metal Sheet	10,3%	14,3%	1,5%	2,5%	2,5%	1,9%	<b>2,9%</b>	50,7	40,1	82,9	30	24
Durable/Cement & Reinforced/Traditional Concrete	27,8%	19,4%	69,9%	47,0%	27,9%	34,9%	<b>41,2%</b>	65,2	60,1	91,3	170	137
Durable/Cement & Corrugated/Galvanized Metal Sheet	11,7%	7,6%	6,1%	6,6%	6,0%	6,1%	<b>6,5%</b>	65,2	60,1	91,3	135	110
Straw/Leaf & Straw/Leaf	9,5%	6,3%	1,1%	2,9%	0,0%	0,4%	<b>1,7%</b>	39,9	39,2	36,9	50	40
Straw/Leaf & Corrugated/Galvanized Metal Sheet	5,3%	4,3%	2,4%	4,6%	0,4%	2,0%	<b>2,8%</b>	39,9	39,2	36,9	60	50
Corrugated Metal Sheet & Corrugated/Galvanized Metal Sheet	24,9%	30,5%	16,3%	32,5%	56,3%	48,4%	<b>39,1%</b>	59,2	47	65,1	62	50
Other Walls & Other Roof	2,6%	2,7%	2,1%	2,1%	4,8%	4,1%	<b>3,2%</b>	46,2	41,7	64,9	96	78

UCC = Unitary Costs of Construction

**Non-Residential buildings.** As non-residential buildings in Comoros are not enumerated by a “Buildings Census” and information on their numbers, built floor area, use-type and structural type are difficult to obtain, proxy data were used to estimate the non-residential built floor area by use-type. The principal proxy data used for this purpose were labor statistics derived from the 10% census sample dataset. The labor data give the number of people aged 15 and over that were employed in 2017 in terms of 140 economic activity types. From this detailed categorization, the data were aggregated into nine economic sectors based on the occupancy type of non-residential buildings where employees work (Industrial; Commercial-Offices; Public; Critical-Health; Critical-Education; Commercial-Retail; Commercial-Warehouse; Agriculture; Mining). The ratio of workers in each commune and economic sector was estimated based on the sample data and subsequently the number of employees per commune was derived based on the commune population. The built floor areas per employee and the Unit Construction Cost per economic sector were estimated (presented in Table 4) for Comoros’s nine economic sectors and used to compute the replacement cost of the non-residential building stock, estimated at US\$ 0.93 billion.

**Table 4. Proposed Built Floor Area Per Employee (m<sup>2</sup>) and Unit Construction Cost (UCC, US\$/m<sup>2</sup>) By Economic Sector**

	Commercial (Office)	Commercial (Retail)	Commercial (Warehouse)	Critical (Hospital)	Critical (Education)	Industrial	Agriculture	Mining	Public
Floor Area / Employee (m <sup>2</sup> )	20	20	70	35	50	30	10	20	35
UCC (US\$/m <sup>2</sup> )	150	130	80	270	165	120	80	80	225

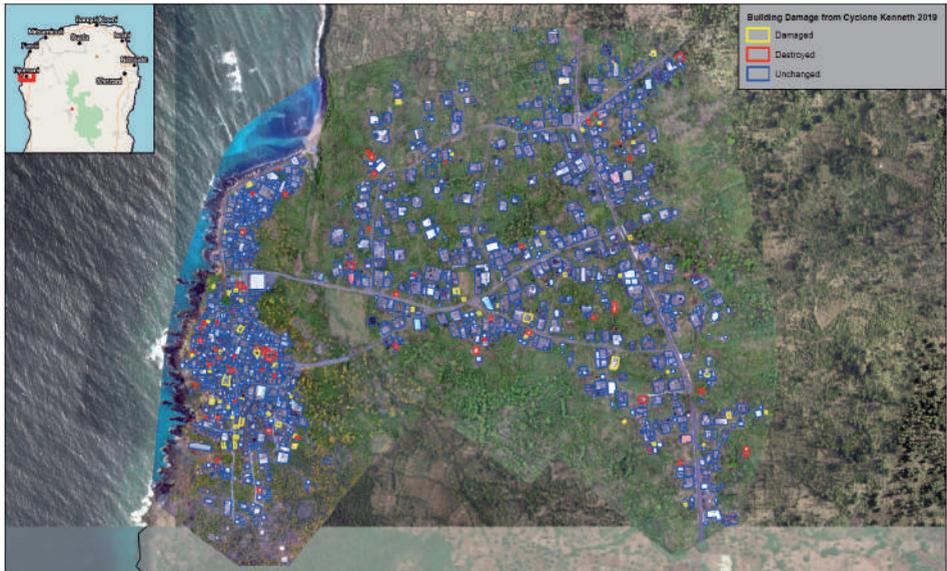
## Damages from cyclone Kenneth

Figure 29. Damage by cyclone Kenneth in Bangoi Kouni



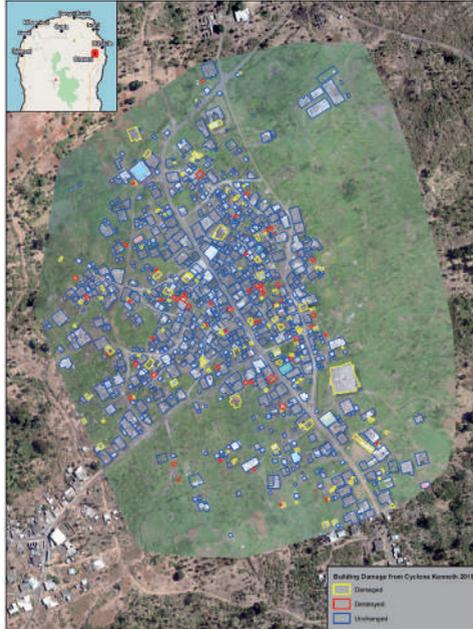
Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 30. Damage by cyclone Kenneth in Djomani



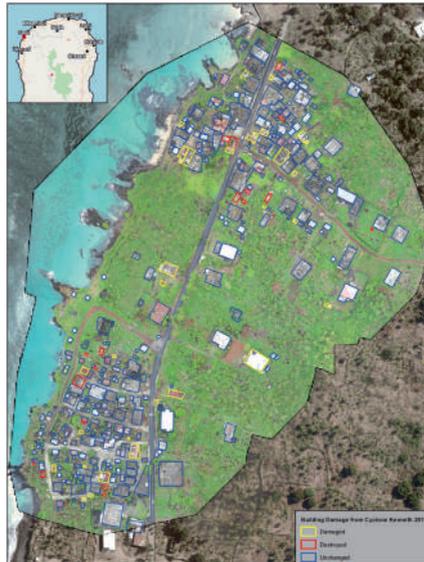
Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 31. Damage by cyclone Kenneth in Chezani



Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 32. Damage by cyclone Kenneth in Fassi



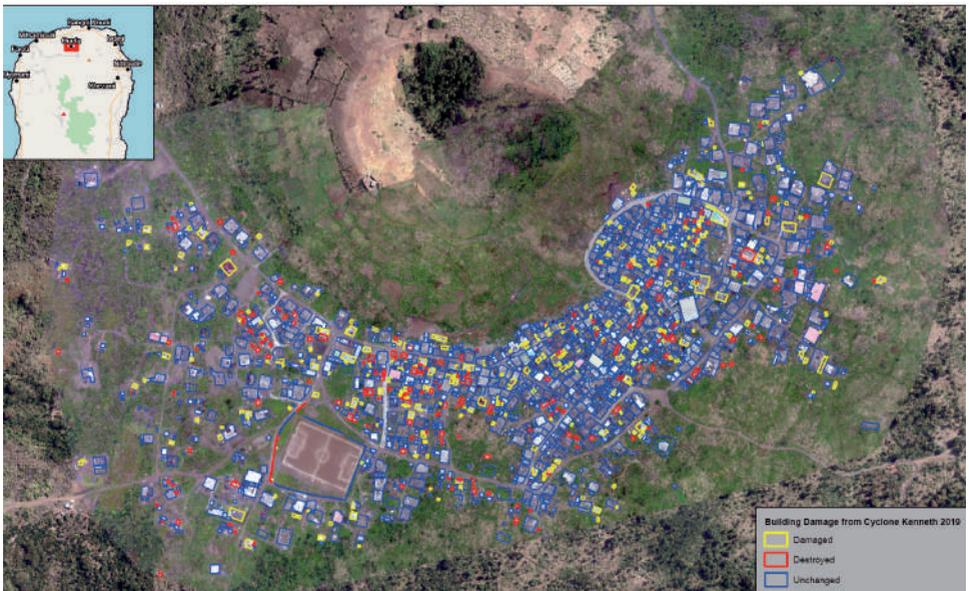
Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 33. Damages by cyclone Kenneth in Ivoini



Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

Figure 34. Damages by cyclone Kenneth in Ouellah



Source: Classification of images taken by AMCC EU 2018 and UN-Habitat 2019.

## Background on the complexity of land administration challenges in the Comoros

Table 5. Concurrent types of land management and types of ownership in Comoros

Type of management	Examples of types of ownership	Actors
Private (personal ownership)	Milk (Islamic right) Private property (Modern law) Private domain (Modern law)	Private individual
Internal (Ownership by a group)	<i>Manyahule</i> (Customary right) <i>Village reserve</i> (Modern law) <i>Waqf</i> (Islamic right)	Community (family, village or religious)
External (ownership by multiple groups)	<i>Uswayezi</i> (Customary right)	Multiple village communities
Internal-External	<i>Uswayezi</i> (Customary right)	Two village communities
Public (ownership by all)	Public Domains of the state (Modern law)	All constituents

Source: Said (2016), p. 32.

Tableau 4. Approches récentes de réforme de la gouvernance foncière par le gouvernement

Document (Année)	Status	Objective
PRCIII Strategy (2019): Report on the National Land Strategy. (Rapport sur la stratégie nationale du foncier)	Planning vision document	<p>Recently presented options for a land reform. The PRCIII Strategy proposes to harmonize the concurrent frameworks of land administration explained above in the long term. Islamic and customary law shall be integrated into legally binding and up-to-date documents. In the short term, the capacity for land management shall be strengthened (human and financial resources for Spatial Data Infrastructure (SDI) and cadaster; planning documents; stock-tacking of state-owned land; awareness creation around land-questions).</p> <p>The process is to be led by a multi-level committee comprising all public and non-public stakeholders.</p>
<i>Cadaster program PNEPBNB (2014) : Programme National d'Enregistrement des propriétés bâties et non bâties</i>	Not implemented	<p>This major cadaster update program, planned for implementation between 2014 and 2018, envisioned to provide all levels of decentralization, starting with the 54 municipalities, with the technical and human capacity for digital documentation and the 16 Prefectures and 3 Direction Regionals with the technical capacity for topographical works.</p> <p>Using high-resolution aerial imagery (at 10cm resolution), the Comorian territory would be analyzed by a land-registration software. Landowners are supposed to initiate registration, following a public awareness campaign.</p>

<p>Comité National chargé de l'identification des Terrains Domaniaux (CNI-TD)</p>	<p>Status unclear</p>	<p>A national committee has been set up to identify and stock take state-owned land for development projects. To identify and potentially recuperate, i.e. register, state-owned land (terrain domaniaux) remains a Government priority. At the end the process should be a map of land belonging to the public domain or private domain of the state.</p> <p>Especially, the state-owned land in the municipality of Moroni, which are under the responsibility of the Housing Services, are on the national agenda.</p>
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**Reimagining Urbanization in Comoros** focuses on a set of foundations and variables considered necessary for Comoros to raise the standard and quality of urban life and its environment, as well as strengthen models of local governance while advancing an agenda of urban resilience.

**Comoros Urbanization Review**

**Reimagining**

**Urbanization in Comoros**

*Bundo la miji leo ndo maesha bora meso*



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