

SHELTER ACADEMY 2018

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1 INTRODUCTION



This document contains background information about the participating cities of the Shelter Academy 2018. This information was sent by the participants. Some information (e.g. maps) was found by Arcadis.

2 PARTICIPANTS SHELTER ACADEMY 2018

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Mrs.	Heather Anne Elizabeth Pinnock	Deputy general manager, Urban development corporation	Jamaica	Kingston
Mrs.	Mercy Betty Dube	Deputy Director for Urban Development, Central Government, Ministry of Lands, Housing and Urban Development	Malawi	Lilongwe
Mr.	Angkeara Prak	Deputy Director General for General Department of Housing, Ministry of Land Management, Urban Planning and Construction	Cambodia	Phnom Penh
Ms.	Lívia de Oliveira Monteiro	Technical Advisor of Urban Policy, Belo Horizonte City Hall	Brazil	Belo Horizonte
Mr.	Mahesh Baral	Chief Administrative Officer, Municipality of Dhulikhel	Nepal	Dhulikhel
Mr.	Ramesh Maharjan	Mayor, Municipality of Kirtipur	Nepal	Kirtipur
Mr.	Anthony Kobina Kurentsir Sam	Mayor, Sekondi - Takoradi Metropolitan Assembly	Ghana	Sekondi - Takoradi
Ms.	Idélcia Rebeca Domingos Mapure	Technical Advisor for Urban Planning and Resilience to Climate Change, National Association of Municipalities of Mozambique	Mozambique	Maputo

3 BACKGROUND INFORMATION

3.1 Philippines, Tagum

Demographic overview

The Philippines, officially the Republic of the Philippines, is a unitary sovereign and archipelagic country in Southeast Asia. Situated in the western Pacific Ocean, it consists of about 7,641 islands. The capital city of the Philippines is Manila and the most populous city is Quezon City, both part of Metro Manila. Bounded by the South China Sea on the west, the Philippine Sea on the east and the Celebes Sea on the southwest, the Philippines shares maritime borders with Taiwan to the north, Vietnam to the west, Palau to the east and Malaysia and Indonesia to the south. The Philippines' location on the Pacific Ring of Fire and close to the equator makes the Philippines prone to earthquakes and typhoons but also endows it with abundant natural resources and some of the world's greatest biodiversity. The Philippines has an area of 300,000 km² with a population of 100,981,437. Almost half (45,3%) of the population is living in urban areas.

The Philippine economy is the 34th largest in the world, with an estimated 2018 gross domestic product of \$371.8 billion and the GDP per Capita is 2891.36 US Dollars.

The Philippines has a democratic government in the form of a constitutional republic with a presidential system. It is governed as a unitary state with the exception of the Autonomous Region in Muslim Mindanao (ARMM), which is largely free from the national government. There have been attempts to change the government to a federal, unicameral, or parliamentary government since the Ramos administration.

Tagum is the most populous component city in Mindanao and the city is one of the top most livable cities in the Philippines. The city has a population of 270,000 with a land area of 19, 580 Hectares. The main industries are Agriculture and Aquamarine, Trade and Industry, Manufacturing and Food Processing.

Planning challenges in the coming years

The local government of Tagum oversees the following topics: urban planning, disaster response, zoning, building regulations, environmental protection and business regulation. The strategic location of the city makes the city a significant trading and economic hub in Mindanao. The specific local urban challenges related to climate change that Tagum is facing are:

- Frequent Weather Disturbances resulting to the displacement of people, rain-induced landslides
- Lack of Necessary Infrastructure to help in climate change mitigation
- The decline of Green Spaces due to rapid urbanization
- Sea-level rise
- Liquefaction
- The increase of Greenhouse gases
- Human settlements are affected resulting to problems on housing
- Lack of equipment on disaster response

Current policies and goals to address the issues of climate change in the next 1-10 years

The city has three specific concerns and they developed three special actions plans to deal with these local urban challenges, namely:

1. Displacement of people
 - Strict relocation of Families living in danger zones
 - Continued acquisition of land for relocation
 - Construction of a centralized and permanent evacuation centre
 - Creation of new departments under the LGU: City Housing and Land Management Office and the City Disaster Risk Reduction and Management Office
2. Infrastructure concern
 - Wise usage of Disaster Management Funds for the construction of infrastructure facilities aimed at mitigating the impact of climate change like flooding. This includes road maintenance and flood control projects
3. Environmental and agricultural concerns
 - Passage of the City Environmental Code providing the legal framework of the city's efforts on environmental protection

- Strengthening of Environmental Programs focused on greening, solid waste management, marine protection, mangrove area rehabilitation
- Strengthened support to the agriculture sector following the build-back better principle

Furthermore, the city government is also working on other local climate actions like:

- Watershed Project
- Mangrove Reforestation
- Artificial Coral Reefs Installation
- Green Spaces Development
- Reforestation, Conservation and Environmental Protection Fee
- Community-based Environment Protection Group
- Public-Private Partnership
- Formulation of critical plans like the Comprehensive Land Use Plan and the Local Climate Change Adaptation Plan

Financial and human resources to meet these goals and implement these policies

The financing of climate change adaption measures is divided in funding of the national and local government. The national government established the People's Survival Fund (PSF). The PSF is the Philippine government's flagship climate finance program. It is a resultant program of the 2012 PSF Law (Republic Act 10174), which addressed the lack of climate finance provisions in the 2009 Climate Change Act (RA 9729). It intends to finance climate change adaptation projects proposed by local government units (LGUs) and accredited local community organizations. It also supplements the annual appropriations allocated by relevant government agencies and local government units for climate change-related programs and projects. The law guarantees an annual USD 22.2 Million. The local government is responsible for the disaster and reduction and management fund. 5% of the total estimated income of local government units in the Philippines is mandatorily allocated for Disaster Risk Reduction and Management Fund. In the case of Tagum, we allocated P78,360,330.00 for 2019. 70% of this will be for Disaster Response and Rescue Equipment, Repair of Drainage, Roads and Government Properties, Rehabilitation/Construction of Drainage and Training for Disaster Preparedness while the remaining is intended as a Quick Response Fund or Stand-by Fund for relief and recovery programs and other rescue operations and rehabilitation brought about by the occurrences of fortuitous and disastrous events.

Lessons learned

Key lessons learned in Tagum:

- Concerns on Shelter for displaced communities should compel local government units to think of innovative ways to address the issue
- Effective planning engaging all sectors of the community is important
- Data banking should be given priority on the premise that "what you cannot measure, you cannot manage.
- Institutionalization of local efforts is key towards sustainability

3.2 Jamaica, Kingston, Port Royal

Demographic overview

The island of Jamaica, located in the Caribbean Sea, is derived from the Arawak word Xaymaca, which means "land of wood and water". The island has a mountainous interior surrounded by a narrow coastal plain where most settlements are located. Jamaica is 146 miles long, 51 miles wide, with an area of 4,411 square miles. The island is 600 miles away from south of Florida (USA) and 90 miles south of Cuba.

Jamaica's multi-racial population of approximately 3 million, is predominantly of African with European, East Indian and Chinese heritage. The national motto is "Out of Many, One People".

Jamaica is a constitutional monarchy and The Queen of England, represented by a Governor-General, is head of state. Jamaica is divided into 14 parishes, in the context of local government the parishes are designated "Local Authorities." or "Municipal Corporations".

The economy is heavily dependent on services, which accounts for more than 70% of GDP. Jamaica derives most of its foreign exchange from tourism, remittances and the mining of bauxite. 2017 GDP was \$14.6 Billion/\$5,117 per capita.

Planning challenges in the coming years

The focus area is Port Royal, a village located at the end of the Palisadoes at the mouth of the Kingston Harbour, in southeaster Jamaica. Jamaica suffers huge economic losses because of the environmental effects of climate change. More severe hurricanes, increased flooding, harsher periods of drought have left many agricultural workers unable to cope, and each year the cost in lives and infrastructural damage rises. Billions of dollars have already been lost in recuperation efforts, and increasingly governments are becoming aware that adaptation and capacity building are crucial to communities' continued survival. Port Royal is facing the following challenges:

- Risk of further catastrophic natural disasters including earthquakes and climate change fueled tropical storms and hurricanes
- Risk of the effects of climate change and tourism on its heritage sites
- Risk of the effects of climate change and tourism on its natural ecosystems
- Risk of development excluding the existing residents in terms of social amenities for locals
- Lack of funding to support resilient infrastructure developments outside of core tourism activities

Current policies and goals to address the issues of climate change in the next 1-10 years

The vulnerability to the climate change impacts has motivated the government in Jamaica to develop a national climate change policy framework. Under this policy, climate resilient action plans are being developed by key economic sectors to help the country meet its national development goals. The response to the development challenges in Port Royal are being addressed as follows:

- The development of a "Sea Walk" floating pier which will allow for the establishment of a Port of Call for cruise ships with little or no damage to the ecosystem
- The development and expansion of resort facilities with strict guidelines for the protection of environmental and historical areas in construction and long-term operations
- Planning for eco-friendly and heritage attractions to be managed state agencies with by the local community
- Planning for major infrastructure upgrades including coastal protection, sustainable energy, water and waste management
- Development of integrated plans for housing and community development with supporting social amenities.

Financial and human resources to meet these goals and implement these policies

Jamaica is the beneficiary of research, technical assistance and direct financing for climate mitigation and adaption through a variety of regional and global sources. All climate financing is coordinated by the Planning Institute of Jamaica, an agency of the Ministry of Finance. A large percentage of international funds to Jamaica are channeled to security, justice, fiscal management, health, agriculture and social intervention projects. What little climate financing that does come to the country is primarily focused on capacity building and adaptation

projects as the overall GHG emissions are very low. Despite accredited regional institutions, much more must be done to seek funding for major climate resilience community and infrastructural projects.

Needed resources and expertise to meet these goals and implement these policies

The main outcomes and future improvements to Port Royal will be:

- Private investment in hotel development which will support local tourism and provide job opportunities for residents
- Public Private Partnership investment in a new cruise ship Port of Call which will support local tourism and provide employment for residents.
- Public Private Partnership Investment in environmentally and historically significant national attractions
- International investment in climate-resilient infrastructure and community development programmed

Lessons learned

Key Lessons Learned in Port Royal:

- One lead agency to coordinate must be established from the initiation of the development process
- Seeking international or regional financing for major climate mitigation and adaptation projects an early step
- Comprehensive research and short, medium and long-term planning are key to implementation
- Climate change can impact both environmental and heritage sites in a myriad of ways, comprehensive assessment and support is necessary to address
- Community consultation, the input of local knowledge and acceptance of development plans are critical to success.
- Learn from regional and/or international precedents

3.3 Malawi, Lilongwe

Demographic overview

Malawi is a landlocked country in Southeast Africa which is bordered by Zambia to the northwest, Tanzania to the northeast, and Mozambique on the east, south and west. Malawi is over 118,000 km² with an estimated population of 18 million inhabitants. The country has 4 major cities of Lilongwe, Blantyre, Mzuzu and Zomba, the urban population accounting for 15.3 percent. Malawi has a GDP (PPP) Per capita of \$118, 25 percent of the population live in extreme poverty

The central Government provides policy direction for urban planning and development as well as climate change adaptation, mitigation and resilience through line ministries and departments (Lands, Environment, and Disaster Management Affairs). Local councils are the implementing agencies, working in collaboration with the central Government. These local Councils are funded through the national budget, but they also implement some programmes and interventions through donor funds directly or through NGO's. Town Planning committees established under the Physical Planning act are responsible for urban planning and management in cities.

The focus area, the City of Lilongwe, is the largest and capital City of the Republic of Malawi which covers an area of 393 square kilometers. The city is named after Lilongwe river that runs across, from the West to the Eastern side of the city, another River, Lingadzi also runs across the city through unplanned and planned settlements. Lilongwe City is located on a plateau in Central Malawi forming part of the East African Rift valley that is situated at an altitude of 1050m above the sea level. Lilongwe city has a population of over 1 million inhabitants and is estimated to be at 1,5 million by 2030. 76% Of the city's population lives in unplanned settlements (with poor water and sanitation, electricity, education, health services and road network). Lilongwe offers numerous economic opportunities, namely: Retail trade, construction, manufacturing of food products, transport, Tobacco processing.

Planning challenges in the coming years

Malawi is currently experiencing adverse impacts of climate change, which are evident in the erratic rainfalls, strong winds and prolonged dry spell in some parts of the country. Most parts of the country have been greatly affected by floods and strong winds and urban communities have not been spared. Lilongwe is facing the following challenges:

- Rapid and often unplanned expansion of cities is exposing more people to climate change disasters
- Rapid urbanization and limited access to serviced land are forcing people to occupy disaster-prone areas such as riverbanks. 109 households that were affected by the 2018 floods had constructed houses along the river banks
- The government has put in place the following policies for climate change adaptation: Disaster risk management, National Climate change policy
- Flooding is one of the major climate change-related challenges facing Lilongwe city that increases the vulnerability of its population especially the poor communities, as they do not have the coping mechanisms

Current policies and goals to address the issues of climate change in the next 1-10 years

As mentioned above, one of the main challenges that Lilongwe is facing is flooding. This is the reason why a Community-Based Urban Disaster Response Framework for Poor Communities has been formulated and is being implemented by the Centre for Community Organization and Development (CCODE) and its alliance partner the Federation of the Rural and Urban Poor (Federation), both are Members of the National Habitat Committee. The aim of the programme is to empower urban communities. CCODE and the Federation have designed an urban disaster framework, which aim is to empower communities that are vulnerable to climate change disasters and risks with skills and knowledge to generate data about their communities. The alliance intends to provide communities with skills and capacity to analyse disasters evaluate risks and further respond to them by establishing the relevant infrastructure and services. This framework also seeks to strengthen coherence and consensus in how cities can plan for climate change-induced disasters.

The alliance believes that change occurs when people collectively know and understand their problems because this is how they get to the right solutions that directly address their challenges. The alliance supports

disaster data collection, which is critical for future disaster preparedness and response. The following initiatives are established under the above-described programme: The alliance believes that change occurs when people collectively know and understand their problems because this is how they get to the right solutions that directly address their challenges. The alliance supports disaster data collection, which is critical for future disaster preparedness and response. The following initiatives are established under the above-described programme:

- *Community Mobilization:* this work has commenced and includes:
 - Raising community awareness on the impact of disasters
 - Supporting the poor communities to organize themselves in groups and start saving. The savings aims at building community's resilience as it acts as a platform to discuss disasters. The saved amounts will also help the communities in their recovery process
 - In future the alliance will offer business management trainings to the saving groups aimed at diversifying livelihood opportunities
 - The communities will also be equipped with good waste management practices. It was observed that poor waste management contributed to the floods, – this will improve sanitation and hygiene conditions of the communities

Financial and human resources to meet these goals and implement these policies

The goal is to assist communities to come up with a built-up area map, the built-up area of a community consists of buildings and infrastructure (transportation, drainage, water supply, communication systems, health facilities and other infrastructures). The federation will also assist communities to come up with a profile of the residents in disaster-prone areas, understanding their waste management practices as well as identifying effluent hotspots. The data will help communities in developing an early warning system, which is an essential element in risk reduction. People-centered early warning systems empower communities to prepare for and confront the power of natural hazards.

Thereby, the national government is focusing on their vision Cities 2030, where everyone has a fundamental human right to housing, which ensures access to a safe, secure, habitable, and affordable home. Once the communities have understood how their current situation increase their vulnerability, there is a need to assist them to exercise the right to live in security, peace, and dignity. Communities will have the requisite infrastructure and services to mitigate disaster risks. CCODE and the federation intend to do this through a Community-Management Fund (CMF) Model. Under the model, communities will directly access funds to undertake all physical infrastructure projects aimed at reducing or managing disaster risks.

Lessons learned

Key Lessons Learned in Lilongwe:

- Poor communities should not only be looked at as helpless, but should be empowered to reduce their vulnerability
- Urban planning is a major climate change adaptation measure as the areas that are greatly affected are those that are not planned
- Coordination among stakeholders is key to managing disasters and the affected community should be taken as a major stakeholder
- Government policies should integrate disaster risk management and climate change adaptation measures to ensure that the vulnerability of communities is reduced
- Funds should be set aside for climate change adaptation

3.4 Cambodia, Phnom Penh

Demographic overview

Situated on the Indochinese peninsula, Cambodia is bordered by Thailand and Laos on the north and Vietnam on the east and south. The country is 181,035 Km² in the area and the capital city is Phnom Penh. The country has a population of over 15 million and the annual population growth rate is 1,4%. Phnom Penh has a population of 1,5 million and an annual population growth of 3,92%. The urban growth shows a heavy concentration on Phnom Penh and vicinity (based mainly on industries and services, FDI from China, Korea, Japan, but also Vietnam). The officially re-calculated urbanization level of 27.1% is for 2008 (much higher than the previously published level of 19.5%). Cambodia has a rich history of world heritage (Angkor Wat Temple and Preah Vihear Temple) and a complicated past of thirty years of war.

Cambodia still is an early industrializing economy, moving towards the lower middle-income country and they are highly dependent on imports for all investment goods (machinery, vehicles). Recent economic growth derived from the narrow base –tourism, construction sectors, garment, and to a more limited extent, manufacturing of electronics and automobile parts and the agriculture sector (growing at a slower pace than industries and services although there is potential for more growth). Certain types of employment are associated with larger cities, their location factors (labor availability, accessibility, infrastructure, institutional framework etc.) are more attractive than those in smaller towns.

The industrial sector is heavily biased towards the labor-intensive production of garments and footwear (80% of exports are in these sectors). Agricultural products and their export are limited by the lack of value-added products.

The focus area is Kep City, with a land area of 79.49 Km² and a population of 21.228 inhabitants. In Krong Kep, many villagers are in the fishery business, as with other towns and villages in the Gulf of Thailand. Kep City is a modern city, with the most beautiful beaches in the world, for staying, working and having a good quality of living environment, good health and happiness through urban development. Agriculture and tourism are the main sources of income in this area. Kep City is a popular destination because of the beautiful beaches.

Planning challenges in the coming years

Cambodia is ranked as one of the most vulnerable countries in the world to climate change. Many of its people rely on agriculture, and the changes to the country's climate, leading to more droughts or more floods, makes them particularly vulnerable. As described in the master plan, Kep City wants to be a green city with the quality resident, business center, education and research Infrastructure, within good governance. Kep City is facing the following challenges:

- The supply of drinking water in Kep is limited, especially since there is no public-private water supply
- Land use is seen as a challenge, due to occupation and settlement on coastal land is yet not complied with the Royal Government's directive on the development of coastal areas of the Kingdom of Cambodia
- Solid waste management is limited, especially in the preparation of dumping sites
- Some of the slopes at the seafloor are marred by the waves of the waves
- Some ancient natural and cultural sites have not yet been reformed
- Cambodia is facing a lack of occupations and jobs, the effect of the landlord not to build a dwelling

Current policies and goals to address the issues of climate change in the next 1-10 years

As the national focal point, the Department of Climate Change (DCC), General Secretariat of the National Council for Sustainable Development is the core agency responsible for climate change activities in Cambodia. At Regional Level, Cambodia participates in several regional information sharing platforms and forums, such as WGIA, Asia Adaptation Platform, ASEAN Working Group on Climate Change (AWGCC). At a national level, DCC as the technical national focal point plays an important role as the coordinating body for climate change activities, including information and networking.

Royal Government of Cambodia to announce the official promulgation of the Cambodia Climate Change Strategic Plan 2014 – 2023 (CCCSP). This is the first-ever comprehensive national policy document responding to the climate change issues our nation is facing. The CCCSP has reflected the political will, firm commitment and readiness for reducing climate change impacts on national development, and contributing, with the international community, to global efforts for mitigating GHG emissions under the UNFCCC. This plan describes the objectives, strategies, activities and planning for the coming years.

Financial and human resources to meet these goals and implement these policies

The CCCSP, together with the related action plans, will provide a strategic framework for the programming of climate change interventions in Cambodia. National climate change financing mechanisms shall support this strategic approach through the application of the following principles:

- *Alignment with national priorities:* The use of financial resources shall respond to national priorities through funding programmes and projects identified in action plans under the CCCSP. All proposed climate change financing shall be subject to NCCC review and approval.
- *Pooling resources:* To minimize transaction costs, climate change finance shall be provided whenever possible through pooled funding mechanisms. These include any existing pooled funding mechanisms in relevant sectors, and the possibility of a dedicated climate change fund.
- *Use of national systems and procedures:* The RGC's preferred modality for climate change financing over the medium to long term is direct budget support. However, as climate change is a relatively new field, a transitional period will be required to put in place adequate monitoring, evaluation and financial tracking systems to effectively assess the impact and efficiency of climate change budget support. A national climate fund may be set up to receive domestic and external financial support and allocate it to high priority climate change projects.
- *Subsidiarity:* While climate change financing will need to be coordinated by the NCCC to ensure alignment with national priorities, financing mechanisms shall ensure that the resources are managed by the most qualified line ministries or local governments. The NCCC Secretariat shall act as an implementer only for strategic or cross-cutting projects, which do not naturally fit within the mandate of another line ministry or sub-national administrations.

3.5 Brazil, Belo Horizonte

Demographic overview

Brazil is the largest country in both South America and Latin America. At 8.5 million km² and with over 208 million people, Brazil is the world's fifth-largest country by area and the sixth most populous. The capital is Brasília, and the most populated city is São Paulo. The federation is composed of the union of the Federal District, the 26 states, and the 5,570 municipalities. Bounded by the Atlantic Ocean on the east, Brazil has a coastline of 7,491 kilometers. It borders all other South American countries except Ecuador and Chile and covers 47.3% of the continent's land area.

Brazil is the largest national economy in Latin America, the world's eighth largest economy and the eighth largest in purchasing power parity according to the 2017 estimates. Brazil has a mixed economy with abundant natural resources. Its GDP per capita was \$7,894 in 2017.

The form of government is that of a democratic federative republic, with a presidential system. The president is both head of state and head of government of the Union and is elected for a four-year term, with the possibility of re-election for a second successive term.

Belo Horizonte is the sixth-largest city in Brazil, the thirteenth-largest in South America and the eighteenth-largest in the Americas. The metropolis is an anchor to the Belo Horizonte metropolitan area, ranked as the third most populous metropolitan area in Brazil and the seventeenth most populous in the Americas. Belo Horizonte is the capital of the state of Minas Gerais, Brazil's second most populous state. It is the first planned modern city in Brazil. The city is built on several hills and is surrounded by mountains. There are several large parks in the immediate surroundings of Belo Horizonte. The Mangabeiras, 6 km southeast of the city center in the hills of Curral Ridge, has a broad view of the city. It has an area of 2.35 km² (580 acres), of which 0.9 km² is covered by the native forest.

Planning challenges in the coming years

Belo Horizonte is facing three main challenges, floods, air pollution and landslides, which are all linked with climate change. Belo Horizonte is experiencing an increased magnitude and frequency of extreme weather events and changes in precipitation and temperature patterns, causing landslides, floods, heat waves and dengue fever. Furthermore, exposure to climate change-related impacts are not distributed equally across the city. The Vulnerability Assessment has provided a foundation to bring adaptive measures into urban planning, prioritizing investments to mitigate climate change impacts and vulnerability inequality.

Current policies and goals to address the issues of climate change in the next 1-10 years

Brazil has tried to align sector structures with the national and international situation on Climate Change. However, Brazil still faces issues related to scarcity of human resources (both in quantity and quality), and poor infrastructure and logistics to adequately address emerging issues related to conflicts between economic development and measures to ensure protection, conservation and sustainable use of environmental assets.

The Ministry of the Environment has restructured itself through the creation of a Climate Change Department: the Chico Mendes Institute for Biodiversity Conservation (Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio). Ibama (Brazilian Institute for the Environment and Renewable Natural Resources) has the new focus on actions aimed at environmental licensing, inspection and control.

Insufficient budgetary and financial resources, which are chronically unavailable when required, together with the low capacity for executing international grants and financing funds, hinder the ongoing management of programmes and projects essential for developing and establishing integrated management of environmental policies.

The government also established a Greenhouse Gas Reduction Plan, carried out in 2013, which lists a set of 16 proposals that can lead Belo Horizonte to achieve the goal of reducing its per capita emissions by 20% by 2030, with 2007 as the base year. Some measures have low costs and others mean savings to the city.

Currently, the government is working on a new master plan proposal, which is focused on:

- Support capacity of installed infrastructures
- Reservation of areas for production and regularization of social housing
- More permissive special zoning and reserve of areas close to metropolitan articulation axes for large utilities and industrial activities

- Density directed to corridors and centralities
- Environmental preservation and recovery connected and distributed throughout the territory

The above described policies and goals to address the issues of climate change are established in collaboration with the following local actors and external agents:

- Municipal Agencies: Municipal Secretaries: Urban Policy; Environment; Treasury; Housing and Urbanization Company of Belo Horizonte; and Transport and Transit Company of Belo Horizonte.
- Municipal Councils: council composed of municipal public agents and civil society: Urban Policy, Environment, Housing and Mobility.
- Sustainable Development Observatory: municipal forum to monitor the implementation of the Sustainable Development Objectives, composed of municipal public agents and civil society.
- Civil Society: Definition of the content of the proposal for the new Master Plan at the IV Municipal Conference of Urban Policy, which brought together 500 people during 8 months of discussions. Indirectly more than 6000 people were involved.
- Other agents: movements for housing; universities, non-governmental organizations - NGO, etc.
- UN Habitat: International seminars and meetings in the city to address the implementation of the New Urban Agenda in Belo Horizonte. There is a chapter of the new Master Plan that affirms the municipality's commitment to the New Urban Agenda.
- ICLEI: International seminars and meetings in the city to address sustainability, resilience, energy efficiency and greenhouse gas emission reduction solutions.
- WRI Brazil: Meetings in the city to treat solutions of urban development oriented to collective transport and qualification of walking mobility or by non-motorized vehicles.
- LINCOLN Institute: International seminars and meetings in the city to discuss solutions for management of the urban land value and city financing.

Financial and human resources to meet these goals and implement these policies

Brazil's financial challenges to sustainable development are part of a global trend, where financing and investment are geared to short-term rather than long-term gain. Obstacles inside and outside the financial and public policy realms intensify the challenge. But appropriate policy signals combined with the right blend of concessional funding, private resources, and risk management instruments can turn Brazil and other countries toward a low-carbon economy. The city established a strong fiscal management over taxes, which is focused on registration of updated real estate values and a tax policy independent of the updating of the real estate base. The city established also a Municipal Environmental Defense Fund – which are resources from penalties for environmental crimes and other sources. Mitigating and compensatory measures in the licensing processes of environmental impact ventures. Cost of grant for building rights is a mechanism that will enable the collection of counterparts from the beneficiaries that use the land above the basic coefficient and up to the maximum limits.

Lessons learned

Key lessons learned in Belo Horizonte:

- Shared management of the city is fundamental for urban development planning processes;
- With collective participation, the territorial plan belongs to the citizens and the city and not only to the local government;
- The partnership with other municipalities and with national and international bodies is fundamental to strengthen the support network for the plan;
- Addressing global issues at the local level is one of the premises of the proposed of the new Master Plan, which has a chapter dedicated to explaining Belo Horizonte commitment to the New Urban Agenda
- The new Master Plan links global concepts of making more sustainable, resilient, human and inclusive cities to urban policy instruments and to urban parameters that will provide real space qualification effects;
- The main challenge now is to persuade sectors of the real estate market that profit from socio-spatial inequalities that the city's economic development and sustainability are compatible and complementary;
- It is expected that the new Master Plan will be approved by the end of 2018 by the councilors.

3.6 Nepal, Dhulikhel

Demographic overview

Nepal is a landlocked country in South Asia and it is located mainly in the Himalayas but also includes parts of the Indo-Gangetic Plain. With an estimated population of 26.5 million, it is 48th largest country by population and 93th largest country by area. The population growth rate is 4.78%. It borders China in the north and India in the south, east, and west while Bangladesh is located within only 27 km of its southeastern tip and Bhutan is separated from it by the Indian state of Sikkim. Nepal has a total area of 147,181 km². The GDP per capita is \$837.

Nepal is governed according to the Constitution of Nepal, which came into effect on 20 September 2015, replacing the Interim Constitution of 2007. The Constitution was drafted by the Second Constituent Assembly following the failure of the First Constituent Assembly to produce a constitution in its mandated period. The constitution is the fundamental law of Nepal. It defines Nepal as having multi-ethnic, multi-lingual, multi-religious, multi-cultural characteristics with common aspirations of people living in diverse geographical regions and being committed to and united by a bond of allegiance to the national independence, territorial integrity, national interest, and prosperity of Nepal. All Nepali people collectively constitute the nation. Nepal is divided into 7 provinces and 77 districts, including 753 local units. There are 6 metropolises, 11 sub-metropolises, 276 municipal councils, and 460 village councils for official works. The constitution grants 22 absolute powers to the local units while they share 15 more powers with the central and state governments.

While agriculture and industry are contracting, the contribution by the service sector is increasing. Agriculture employs 76% of the workforce, services 18% and manufacturing and craft-based industry 6%. Agricultural produce, mostly grown in the Terai region bordering India, includes tea, rice, corn, wheat, sugarcane, root crops, milk, and water buffalo meat. Industry mainly involves the processing of agricultural produce, including jute, sugarcane, tobacco, and grain. Its workforce of about 10 million suffers from a severe shortage of skilled labor.

Dhulikhel is a municipality in Kavrepalanchowk District of Nepal. Two major highway B.P. Highway and Arniko Highway pass through Dhulikhel. Arniko Highway connects Kathmandu, Nepal's capital city with Tibet's border town of Kodari. Dhulikhel is located at the Eastern rim of Kathmandu Valley, south of the Himalayas at 1550m above sea level and is situated 30 km southeast of Kathmandu and 74 km southwest of Kodari. It is a small hilly town of Nepal having 33000 inhabitants, with sub-tropical and tropical climate, that is politically divided on 12 Wards.

Planning challenges in the coming years

The problems of today, such as drought, forest fires, and flooding, will only be magnified by climate change. In Nepal, changes in monsoon patterns will greatly exacerbate the situation of the unacceptable presence of poverty and inequalities of opportunities in the country. While many Nepalese people are coping autonomously with current stresses, the state must design and implement effective strategies to adapt to climate change impact to achieve economic and social progress. Adapting to long and short-term climate-related problems need creative engagement among government, market actors and the civic movement. Dhulikhel is dealing with the following possible climate change impacts:

- Heavy Rainfall/ Irregular rainfall. The average rainfall 1300 mm per year. Nearly 70 Percent of annual rainfall occurs in monsoon season (3 months)
- Flood and Droughts
- Landslides and Soil Erosions,
- Snow Melting and Avalanche,
- Glacier Lake Outburst
- Thunderbolt

Annual direct costs of current climate variability in Nepal, on average, are estimated to be equivalent to 1.5-2% of current GDP/year.

Current policies and goals to address the issues of climate change in the next 1-10 years

With aid from donor agencies and bilateral organizations, Nepal has successfully prepared a Climate Change Policy, National Adaptation Programme of Actions (NAPA), Local Adaptation Plan of Action (LAPA), and REDD Readiness Preparedness Proposal (REDD RPP). Apart from policy documents prepared and promulgated by the Climate Change Division of the Ministry of Environment, various allied departments and ministries have

drafted and implemented policies, Acts, and regulations associated with climate change issues – both mitigation and adaptation. Climate change will have an impact on several themes. The most important themes are:

- Tourism: Increased temperature has threatened our mountains-less snowfall and rapid melting of snow (no snow- no mountain-less tourist)
- Drinking water: Shifting of natural water source and deepening of groundwater level
- Livelihood: Increased numbers and intensity of climate-induced disasters are troubling the livelihood.
- Agriculture: Irregular rainfall patterns (less rainfall, heavy rainfall, shifting of the monsoon season, drought etc.) is affecting the agriculture sector

Together with different stakeholders, the Environmentally Friendly Local Governance (EFLG) was formed as a response to mitigate climate change impacts. The following stakeholders are involved:

- International Coordination: The program was supported by some of the development partners.
- Inclusive Activities: The activities are inclusive of water resource, forest and fertile soil preservation & management and sustainable use of them
- Co-Financing: On top of central government grants, local bodies are contributing to the program from their internal fund
- Partnership: Community-level organizations, consumers, users are held responsible to implement the program
- Local Ownership: The municipalities are setting their priorities and implementing them
- Green Movement: Various activities are implemented that support green movement

Financial and human resources to meet these goals and implement these policies

On a local level, the Municipality is working closely with Kathmandu University, Department of Engineering and South Asian Institute for Advanced Studies (SIAS). The trial phase of the case study is partially financed by the municipality and part of it is by SIAS. SIAS is regularly monitoring the water recharge ponds and its impact on agriculture and water table improvement. Also, the Water Forum is regularly organized to discuss various issues of water resource management. Dhulikhel is inviting all the agencies involved in drinking water sector for Water Convention and the municipality is also organizing stakeholder meetings. The Environment Management Committee of Municipal Board is coordinating and monitoring the issues. Furthermore, the Municipality is formulating the guideline for groundwater management by individual and business entity.

Lessons learned

Key lessons learned in Kirtipur:

- Climate change is affecting rainfall patterns
- Rainfall pattern is affecting ground water recharging
- Inadequate ground recharge is affecting agriculture and supply of drinking water
- Water recharge ponds could bring life on the barren land and to the people largely depending on the land
- The first line beneficiaries will be the marginalized people
- The ground water recharge is an useful strategy
- It should come on investment priority of every government: Central, Provincial and Local
- Regional cooperation could be more effective on implementing such initiatives
- International cooperation is required to fulfill the investment gap

3.7 Nepal, Kirtipur

Demographic overview

Nepal is a landlocked country in South Asia and it is located mainly in the Himalayas but also includes parts of the Indo-Gangetic Plain. With an estimated population of 26.5 million, it is 48th largest country by population and 93th largest country by area. The population growth rate is 4.78%. It borders China in the north and India in the south, east, and west while Bangladesh is located within only 27 km of its southeastern tip and Bhutan is separated from it by the Indian state of Sikkim. Nepal has a total area of 147,181 km². The GDP per capita is \$837.

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While agriculture and industry are contracting, the contribution by the service sector is increasing. Agriculture employs 76% of the workforce, services 18% and manufacturing and craft-based industry 6%. Agricultural produce, mostly grown in the Terai region bordering India, includes tea, rice, corn, wheat, sugarcane, root crops, milk, and water buffalo meat. Industry mainly involves the processing of agricultural produce, including jute, sugarcane, tobacco, and grain. Its workforce of about 10 million suffers from a severe shortage of skilled labor.

The focus area is Kirtipur, an ancient city in Nepal. It is in the Kathmandu Valley 5 km south-west of the city of Kathmandu. It is one of the five municipalities in the valley, the others being Kathmandu, Lalitpur, Bhaktapur and Madhyapur Thimi. Kirtipur has 67,171 inhabitants. It is one of the most famous and religious places to visit.

Planning challenges in the coming years

The problems of today, such as drought, forest fires, and flooding, will only be magnified by climate change. In Nepal, changes in monsoon patterns will greatly exacerbate the situation of the unacceptable presence of poverty and inequalities of opportunities in the country. While many Nepalese people are coping autonomously with current stresses, the state must design and implement effective strategies to adapt to climate change impact to achieve economic and social progress. Adapting to long and short-term climate-related problems need creative engagement among government, market actors and the civic movement. Kirtipur is facing the following challenges:

- Rapid & haphazard urbanization
 - Increase in emission sources
 - Increased abstraction or natural resources (water, forests, etc.)
- Depletion of water sources
 - Groundwater & surface water
- Climate related disasters
 - Foods & landslides
- Institutional weakness
 - Municipality does not have expertise on climate change or resources to deal with climate change adaptation/mitigation
 - As all climate change related programmes are to be coordinated by Ministry of Forestry and Environment but coordination is weak

Current policies and goals to address the issues of climate change in the next 1-10 years

With aid from donor agencies and bilateral organizations, Nepal has successfully prepared a Climate Change Policy, National Adaptation Programme of Actions (NAPA), Local Adaptation Plan of Action (LAPA), and REDD Readiness Preparedness Proposal (REDD RPP). Apart from policy documents prepared and promulgated by the Climate Change Division of the Ministry of Environment, various allied departments and ministries have

drafted and implemented policies, Acts, and regulations associated with climate change issues – both mitigation and adaptation. The following actors are addressing climate change in the current policies and goals:

- Kirtipur Municipality
 - Responsible for overall planning and management of municipality's natural resources and of providing urban basic services
 - Mobilize and manage funds to develop & manage Kirtipur
 - Mobilize local communities for sustainable urban development
- Provincial Government – Province 3
 - coordinate efforts among different local governments
- Federal Government – Mainly Ministry of Forests & Environment
 - Formulate overall policies and regulations related to climate change
 - Coordinate among various sectors
 - Mobilize finance from international sources
- Community based organizations and community forest user groups / NGO's
 - Mobilize local communities and support local initiatives

Thereby, Nepal is working on the restoration of traditional water sources in Kirtipur, 9 stone spouts, 2 Jaron (pedestrian water conduit), 8 traditional wells, 9 natural springs, and 10 traditional ponds. The Municipality is working on protection of the traditional water sources from encroachment and reviving them. This project is seen as a Community based clean-up campaign.

Also, Sustainable management of watersheds in Sim, Dudhpokhari, and Rautebhir Watershed is another important adaptation measure to reduce impacts of climate change on natural resources and people. The total area of these three parts is 101.85 ha, including 375 households. The area has steep slopes (43% of the area has steep slopes (30-60%) and 35.5% very steep slopes (>60%). The land use is divided in: cultivation (42.13%); bush (42.85%); forest (14.03%). Community Forest User Groups are active in this area. Sim, Dudhpokhari, and Rautebhir Watershed Management Plan are prepared in partnership with the Department of Soil Conservation. This partnership analyzed the status of the watershed in terms of five major elements – water, forest, soil, people & livestock. The overall goal was to contribute to livelihood & wellbeing of people through sustainable watershed management. The plan has the following major components:

- Natural hazard prevention/management – landslide, gully, river bank protection
- Land productivity conservation – on & off farm conservation, degraded land rehabilitation
- Water conservation – water source protection
- Green infrastructure – slope stabilization, groundwater recharge
- Community mobilization & development

Financial and human resources to meet these goals and implement these policies

Currently, all climate change related activities in Kirtipur are being financed by the municipality from its regular budget. However, the municipality has limited resources and many priority sectors in which investment is required. Kirtipur needs technical and financial support from the central government as well as other national and international partners to increase investment activities in this sector. Also, there is a need to identify innovative financing measures which can be adopted by the municipality. Kirtipur municipality selected the following needed future improvements:

- Raise awareness on climate change related issues
- Enhance the capacity of municipal staff and local people to deal with climate change related matters
- Integrate climate change mitigation and adaptation measures into integrated municipal plans for sustainable urban development
- Coordinate with the Ministry of Forestry and Environment and other government sectors to implement integrated projects for watershed management and integrated water resource management
- Design & implement nature-based water management systems
- Engage communities in the management of natural resources and urban development

Lessons learned

Key lessons learned in Kirtipur:

- As climate change impacts are already being felt, there is an urgent need to plan and implement adaptation and mitigation measures in the urban sector
- Because of limited resources, there is need for partnerships and support
- As water is the main area where climate change impacts will be felt, Kirtipur municipality has started protecting its watersheds and reviving traditional water systems

3.9 Mozambique, Maputo

Demographic overview

Mozambique is a country in Southeast Africa bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Swaziland (Eswatini) and South Africa to the southwest. It is separated from the Comoros, Mayotte, and Madagascar by the Mozambique Channel to the east. The capital and largest city are Maputo. Also, 7 of 11 major cities are along the coast. Mozambique is over 801,590 km² with an estimated population of 28 million inhabitants. 30% of the population is living in urban areas, 60% of the population lives along the coast and 70% of the population lives in slums. More than 55% of people living below the poverty line.

Mozambique is endowed with rich and extensive natural resources. The country's economy is based largely on agriculture, but the industry is growing, mainly food and beverages, chemical manufacturing and aluminum and petroleum production. The tourism sector is also expanding. The country had a GDP of 3.7% in 2017, GDP per capita 382 USD 2016.

The focus area, the city of Pemba is the capital city of Cabo Delgado Province, covered by Indian ocean along 30 km on a direct line. The city consists of the largest bay in Africa and the 3th in the world. The municipality of Pemba covers 194 km², and the city has 201,846 inhabitants, with a growth rate of 8.7%. 30% of the city is not urbanized (including slums), 20% is in process of urbanization and 30% of the land is urbanized.

Mozambique is a multi-party democracy under the 1990 constitution, including an executive, judiciary, and legislative branches. The executive branch comprises a President, Prime Minister, and Council of Ministers. There are 53 municipalities - 23 cities and 30 villages. The local governments autonomous regarding state power without prejudice to national interests and the State participation and with own representative parts. Local governments also attributions transferred gradually in accordance with the financial capacity to carry out the tasks assigned to it. Currently, there is a constitutional amendment for decentralization ongoing.

Planning challenges in the coming years

Mozambique's coastal cities serve as economic hubs and primary drivers of the country's development. Due to lack of infrastructure, city planning and geographic location, combined with sea level rise, frequent flooding and projected changes in extreme weather events, Mozambique's coastal cities are among the most vulnerable in Africa to climate change. By the 2040's, Mozambique's coast could lose up to 4,850 km² of land and almost 1 million people could be forced to migrate inland. USAID is working with national and local governments, local institutions and leaders, and communities to incorporate climate change into city planning and undertake adaptive measures from the national to community level. Pemba is facing the following challenges:

- The city is located below sea level, which makes the city vulnerable for flooding caused by heavily rain, marine flood and tide
- Landslides and land degradation increased by deforestation
- Zoning schemes, land use, sanitation, water supply and waste management
- High population density in vulnerable areas and informal settlements
- Infrastructures design and management
- Civic education and law enforcement
- Sea water intrusion
- Strong wind and cyclones

Current policies and goals to address the issues of climate change in the next 1-10 years

The Government of Mozambique is making strides to enhance its climate change response framework. The Ministry for Coordination of Environment Affairs (MICOA) developed a national climate change strategy, which is named: Final Report: Climate Change Health, Agriculture and Disaster Analysis in Mozambique. This report shows a roadmap for the development of the country by 2025. The overarching objective of Governance in Mozambique is the fight against poverty. A key component to reducing poverty is the development of human capital. Human health is a key component of the human and social capital because the component of health comprises the physical, psychological, spiritual and social wellbeing. The impacts of climate change are also identified in this report.

Besides the Final Report: Climate Change Health, Agriculture and Disaster Analysis in Mozambique, different actors are also involved to help the country to adapt to the changing climate. The most important actors are:

- Civil society organizations, Religious leaders and Communitarian leaders for sensitization
- Universities - supporting researches, integrating CC subjects on curriculums and community training
- Government – technical support for elaboration of urban plans, dissemination of constructive methods and fund raising
- International Cooperation Partners - providing funds and technical assistance
- ANAMM – coordinating experience exchanging with other municipalities and the Compact of the Coastal cities of Mozambique (CCCM)

Financial and human resources to meet these goals and implement these policies

Currently, the financing of climate change mitigation and adaption is done by the local governments. Municipalities heavily rely on project financing by partners like USAID, Global Environmental Facilities, and European Union. These projects also provide technical assistance and knowledge exchange. The financial resources of the country itself are a limited number and have limited capacities in issues related to climate change. If there are resources available, they are also made available for nature-based ecosystem management. 31% of the planned budget is own revenue, 61% of the planned budget is coming from governmental transfers, and 8% is funded by donations.

Lessons learned

Key Lessons Learned in Pemba:

- Given that climate change is a cross-cutting phenomenon, ideas and actions should receive the attention of all sectors;
- Monitoring and evaluation of the plans should be a constant task to improve the quality of the implemented interventions and attract more internal and external funding;
- Ensure ownership, not only by service providers, but especially by beneficiaries;
- It is not enough to draw up strategic plans. It is necessary to make them operational by transforming them into operational activities;
- A realistic cost analysis is required to implement the activities;
- Commitment to climate issues should focus on changing attitudes and behaviors;
- Environmental education in younger individuals has proved to be quite fruitful, so the municipality will strengthen its links with academies and schools.

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