

Climate change, urban flooding and the rights of the urban poor in Africa

Key findings from six African cities



Gideon Mendel

“Our houses are built in low areas. We have no place to take shelter when the flood starts. The house owners do not help us to drain out water from our houses. People use buckets to remove water themselves. Though water has just gone, the real disaster has just begun. That is diseases.”

– Residents of Mafalala in Maputo, Mozambique

Climate change puts African slum dwellers at increased risk

The right to adequate housing and ‘continuous improvement of living conditions’ was recognised more than three decades ago by the governments that ratified the International Covenant on Economic, Social and Cultural Rights. Six years ago, at the UN Millennium Summit, world leaders set a specific target for realising that right, by pledging to achieve ‘a significant improvement in the lives of at least 100 million slum dwellers’ by 2020. However, in Africa – the world’s fastest urbanising region – climate change is already threatening that goal, putting the continent’s already strained urban cities under additional stress.

‘Environmental refugees’ from climate-related droughts and floods are already swelling the tide of rural-to-urban migration across Africa, and the trend is expected to intensify as drought increases its grip over large swathes of the continent. By 2030, the majority of Africa’s population will live in urban areas. Unfortunately, however, global warming is also bringing chronic flooding to the cities, which can be just as disastrous for poor urbanites as droughts are for farmers. Urban floods spread disease, interrupt schooling, and destroy houses, assets and income.

In first-hand interviews with slum dwellers in six African cities, one of the major problems ActionAid uncovered is that there are few, if any, collective mechanisms either for reducing flood risks, or for managing floods once they do happen. Instead, poor people are left to fend for themselves with whatever individual coping strategies they can muster. As one resident of Mabatini in Nairobi pointed out, this represents an enormous lost opportunity: *“We are not included in decision-making processes If we were, we could form residents’ associations to improve our own welfare and response to emergencies. We can partner with City Corporation of Nairobi to plant trees along the riverbank, dig canals, trenches and drainage next to our houses.”*

Introduction

Climate change will increase the vulnerability of the urban poor throughout Africa. Already many are forced to live in hazardous places, building their homes and growing their food on floodplains in towns and cities. Others construct their shelters on steep, unstable hillsides, or along the foreshore on former mangrove swamps or tidal flats. Already vulnerable to destructive floods, damaging landslides or storm surges, climate change is making the situation of the urban poor worse.

Flood hazards are natural phenomena, but damage and losses from floods are the consequence of human action. Urbanisation aggravates flooding by restricting where flood waters can go, covering large parts of the ground with roofs, roads and pavements, obstructing sections of natural channels and building drains that ensure that water moves to rivers faster than it did under natural conditions. As more people crowd into cities, so the effects intensify. As a result, even quite moderate storms produce high flows in rivers because there are more hard surfaces and drains.

ActionAid carried out participatory vulnerability analysis (PVA)¹ with people living in vulnerable areas of six capital cities (listed below) where climate change impact is most predicted. Policy analysis was also carried out as a part

1. PVA is a tool developed by ActionAid over the past five years. It is a systematic process that involves communities and other stakeholders in an in-depth examination of their vulnerability and at the same time empowers or motivates them to take up appropriate action. The overall aim of PVA is to link disaster-preparedness and response to long-term development. The message at the heart of PVA is that communities know their situation best and so any analysis should be built on their knowledge of local conditions.

of PVA to understand whether there is a gap between what urban poor people experience as climate change impact and what exists in policy terms. An international desk study was also done to understand urban flooding and climate change in 10 cities (including these six).

Sub-region	Cities and country
East Africa	Nairobi, Kenya, Kampala, Uganda
West Africa	Lagos, Nigeria, Accra, Ghana, Free Town, Sierra Leone
Southern Africa	Maputo, Mozambique

Climate change and flooding

Climate change is making weather less predictable, rains more uncertain and heavy storm rainfalls more likely. The unpredictability of rainfall is shown both by observations, such as the large fluctuations in the levels of Lake Victoria in Africa since 1980, and by the experiences of long-term urban slum residents, who report much more frequent storms producing floods since 1990. Heavy thunderstorm rains appear to have increased in frequency. Urban areas may help to increase thunderstorm activity because their built-up surfaces

attain higher temperatures than surrounding areas and create a local air circulation that produces an 'urban heat island'. Dust particles caught up in that circulation act as nuclei on which moisture in clouds condenses, forming rain droplets that eventually may develop into the large rain drops of a major thunderstorm.

Climate change also works in an indirect way to aggravate urban flooding. Droughts and floods in rural areas, such as the African Sahel droughts and major floods in Mozambique, have forced many rural people to migrate to towns and cities, adding large new populations to existing slum communities. These rural refugees further add to the urban activities that increase the flow of rainwater to rivers and thus the intensity of local flooding.

Types of flooding in urban areas

Within urban areas, four major types of flooding can be recognised:

- **Localised flooding** occurs many times a year in slum areas because there are few drains, most of the ground is highly compacted and pathways between dwellings become streams after heavy rain. Such drains and culverts are often blocked by waste and debris.
- **Small streams in urban areas** rise quickly after heavy rain, but often pass through small culverts under roads. Although adequate when designed, changes in the urban area and in storm intensity now produce higher flows that exceed capacity. Channels may also have so much debris in them that they are effectively smaller than they were two decades ago.
- **Major rivers** flowing through urban areas are affected by land use changes and engineering works upstream. Dams can trap sediment, causing rivers to erode their banks downstream. Dam operation may lead to high flows when stored water is released suddenly. Often, urban growth has expanded over some of the floodplain, making parts of the city below flood level and reducing the area into which floods can naturally overflow. Levees have been raised artificially, but with the risk that they may be breached and cause devastating urban flooding.

“Earlier days, water used to come with low power, now it comes with heavy force that sometimes brings fishes from the sea to our rooms.”
– Isatu Fofanah, Kroo Bay, Freetown, Sierra Leone.

“When the rain started coming, the water from the drainages met with high tides and this increased the level of water into our house.”
– Fatu Turay, Kroo Bay, Freetown, Sierra Leone.

- In lowland and coastal cities, **wet season flooding** may affect some areas for two or more months, because rain and river water combine to raise the levels of water in swamps that would have naturally been inundated at certain times of the year. Dumping of waste beneath dwellings in these areas tends to help raise levels further. Storm waves can also bring flooding to such areas.

Poor people's experiences of flooding in African cities

All four types of flooding affect the urban poor particularly severely. In Kampala, Uganda, construction of unregulated shelters by poor people in slum areas has reduced infiltration of rainfall, increasing runoff to 6 times that which would occur in natural terrain. Some of the increase is probably due to climate change, but some is also the direct result of land cover change.



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In Block 40 B of the Luis Cabral slum neighbourhood of Maputo, Mozambique, residents argue that flooding has worsened since 1980, pointing out that the 2000 floods completely destroyed the area. A single one-day rain event can cause floods that persist for three days. If the rains persist from three days to one week, the water depth rises to one metre and it may take a month to disappear.

Residents of the low-lying coastal slum settlement of Iwaya/Makoko in Lagos, Nigeria, also explain that the climate is changing and flooding is becoming more frequent. Here, homes are built on stilts above swamps that are natural flood basins. But increasing peak flows, combined with higher spring tides, are affecting more homes more often. Local people are concerned about property damage and the effects on child health in an area with totally inadequate sanitation. Floodwaters can carry all sorts of organic waste into people's homes.

Flooding is a major problem in all informal settlements in Nairobi. In the Maili Saba slum, next to the river, flooding is a normal occurrence. Houses are built of weak, inadequate building materials. Migration has led to more houses being built close to rivers, meaning greater disruption when floods occur. To many residents, the El Niño associated floods were particularly severe. Many local residents link increased flooding to both local activities and climate change. Many long-term inhabitants of slums like Mabatini in Mathare agree that floods now occur in places they did not two decades ago. *"Flooding has become so unpredictable these days. The people in the radio say we'll have heavy rains and no rains come at all or they say there will be no rain and it rains heavily. We therefore depend on God."* Similar reports come from other African cities, whether inland or coastal. For the residents, floods are getting worse and climate change is contributing to this situation.

Poor people's current adaptation to flooding in African cities

In Lagos, both slum dwellers and local government believe the constant clearance of the drainage channel running through Iwaya/Makoko would prevent the pooling of water from other parts of the city. Standard drainage facilities along major streets within Iwaya/Makoko would help to solve the flood problem. Slum dwellers have also suggested using sand to raise the entire area to a higher level. *"There has not been assistance from anyone. Neighbours cannot assist because everybody is poor and vulnerable. I am planning to quit this place because it is horrible living here. Government should sand fill this place."* Rotimi Zacheaus, 50.

In the slums of Nairobi, responses to flooding include: bailing water out of houses to prevent damage to belongings; placing children initially on tables and later removing them to nearby unaffected dwellings; digging trenches around

houses before and during floods; constructing temporary dykes or trenches to divert water away from the house; securing structures with waterproof recycled materials; relocating to the highest parts of the dwelling that residents think are secure; or using sandbags to prevent the ingress of water.



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“When the rain and the floods come, women and children suffer. You can be locked up for up to two days with the flood. Sometimes we take our children out from the room to the rooftop. Then people bring boats to evacuate others.”

In the Alajo community in Accra, Ghana, people dealt with the June and July 2006 floods in a variety of ways such as using blocks, stones and furniture to create high places on which to put their most critical valuables during floods; putting goods on top of wardrobes and in the small spaces between ceilings and roofs; sharing such high places with others who have no similar 'safe' sites; or temporarily moving away from the area to stay with friends and family.

Similar strategies were adopted by individuals in slums in Kampala, Uganda. In addition, some residents undertook collective work to open up drainage channels, others temporarily moved to lodges and public places like mosques and churches until the water level receded or constructed barriers to water entry at the doorsteps. Some also made outlets at the rear of their houses so any water entering their homes flowed out quickly. Essentially these are all individual coping strategies. Sometimes people share protective storage or accommodation on higher ground. Spontaneous community action to unblock drainage channels is relatively rare. No coordinated action for emergency shelter or rapid response to flooding appears to exist in these cities.

In some places it is not possible to build on poor people's limited capacity due to various legal, social or political barriers. Residents of Korr Bay, Freetown, Sierra Leone, said: *“We like government to support us with more schools and learning materials; more drugs and nurses in the health centre so that it can operate throughout the day and night during normal time as well as flooding time.”* Poor people's participation in the planning process is key to having development that would help them adapt to climate change.

Official responses to flooding in African cities

Most African governments have national disaster and emergency policies, some, such as Uganda, have special ministries with responsibility for disaster preparedness and response. The overall objective of disaster preparedness and management in Uganda is to save lives and livelihoods, reduce Uganda's vulnerability to likely disasters – in cooperation with local communities, NGOs, local and international donor organisations – and enhance the country's ability to contain or minimise the social and economic effects of disasters. In particular, the Uganda strategy aims at mitigating the impact of hazards in order to avoid disasters. This implies good land use planning and avoiding the placing of dwellings in hazardous locations.

The Ghana National Disaster Management Organization (NADMO) has to coordinate emergency and disaster response, and general national disaster preparedness. NADMO has established disaster management committees at the national, regional and district levels and plans to coordinate the activities of all collaborating agencies. However, although these structures are in place, they are said not to be operating effectively. Disaster reduction or vulnerability reduction is not a priority in Accra city planning. If the local authority had the resources to enforce building regulations, flooding could be greatly reduced.

In Mozambique a new Master Plan for Prevention and Mitigation of Natural Disasters was approved in March 2006, as part of the 2005–2009 poverty reduction strategy. However it addresses issues at a national level, and does not give special attention to urban areas. Notably the policy includes both the development of flood warning systems and the recognition of effective disaster management as a key component of both poverty reduction and achieving the Millennium Development Goals.

The overall situation in most African countries is that at the national level disaster management planning is established, but the ability to implement plans is weak. At regional and local levels, there may be structures in place, but there are insufficient resources, both human and financial, to carry out effective disaster mitigation, especially for the poorest communities. Local government's inability to insist that building regulations and local development plans are followed makes the prevention of building in flood hazard zones difficult. There are efforts to incorporate the Hyogo Framework for Action in the planning but many key officials involved in the planning and providing services to the vulnerable are not aware of this agreement that their governments signed up to in the World Conference on Disaster Reduction in 2005.

Responsibilities for action on the four types of urban flooding

The principle of local, regional or national action at the appropriate scale applies to managing urban flooding.

Applying this principle of management as close to communities as possible, the management of localised flooding due to inadequate drainage should be undertaken by local communities themselves. This is where local voluntary groups, assisted by national or international NGOs and with support from both local government and national disaster reduction organisations, could be highly effective. Local communities are stakeholders in the good drainage and rapid water removal from their own areas. They would benefit from their own actions in improving and maintaining drainage channels, preventing the blocking of waterways and culverts by waste, the installation of roof rainwater collection tanks for their own use, and avoidance of construction on drainage lines. They could also organise local shelter for the people in their communities who are most affected by flooding.

Local authorities are best placed to cope with flooding from small streams whose catchment areas lie almost entirely within the built-up area. They administer the regulations and by-laws concerned with land use planning and should be involved in local disaster management. They should develop a contingency plan of the critical services such as health, water, food and sanitation so that those services can be sustained even in prolonged flood. Poor people's participation is a must. However, most African local authorities lack the human resources and financial power to carry out such responsibilities effectively. They may be able to form partnerships with NGOs, but they should be supported by national governments and regional agencies to map flood risk areas, maintain urban stream channels, control building in flood channels and on floodplains and provide emergency assistance.

Where towns and cities get flooded by major rivers overtopping their banks, flood protection has to be seen in the context of the entire river basin, which may include more than one state. Where a river basin lies within a single nation



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state, integrated river basin management principles should be applied by an agency cutting across ministries concerned with both rural and urban interests to ensure that activities in upstream areas do not worsen the flood situation for towns and cities downstream. For large, international rivers, river basin commissions are required to manage the water resources of the entire basin for the benefit of all communities in the different nations occupying the basin. Such management would include measures to

mitigate flooding. Individual urban authorities may campaign for, or act to build, extra flood protection embankments. However such works only serve to direct the floodwaters elsewhere. The natural floodplain should be retained to hold floodwaters and should not be built upon.

Cities faced with coastal flooding from the sea, or by a combination of high tides and high river flows from inland, have to integrate both river basin and coastal zone management, ensuring that the natural wetlands can continue to function as flood storage areas as far as possible. Where settlements already exist, filling of those areas to prevent flooding may be desirable, but the implications for adjacent areas need to be considered. Social factors may lead people to move on to other nearby wetlands.

The need for special assistance to manage the impacts of climate change

Four years before the Millennium Summit, the Istanbul Declaration on Human Settlements developed another vision for people living in urban areas: “To improve the quality of life within human settlements, we must combat the deterioration of conditions that in most cases, particularly in developing countries, has reached crisis proportions. To this end, we must address comprehensively, inter alia, unsustainable consumption and production patterns, particularly in industrialized countries.....and increased vulnerability to disasters.”

Today, the achievement of the Istanbul vision is threatened by the increasing trend of disasters, particularly floods. Flooding has enormous effects on the poor people in African cities. It affects people’s health through waterborne diseases, damage to food, it destroys income and causes further deterioration of sanitation, increased exposure to disease and temporary reduction of access to health care facilities. Many schools are closed during flood periods and children have their education interrupted. Some people may not be able to get to work for long periods and suffer loss of income and possible losses of jobs. Flooding thus greatly aggravates poverty. The worsening of the flood situation as a consequence of climate change thus increases poverty. The case for special assistance to help the poor adapt to climate change is thus clear.

Special assistance is needed to tackle the four types of flooding described above, to help local communities manage their own environments to reduce flood impacts; to help local governments manage flooding on local totally urban streams; to help national and international river basin agencies manage flooding on major rivers; and to help coastal towns and cities deal with encroachment on the wetlands that should be places for the natural storage of floodwaters.

Flooding is one of the major factors that prevents Africa’s growing population of city dwellers from escaping poverty, and stands in the way of the UN 2020 goal of achieving ‘significant improvement’ in the lives of urban slum-dwellers. To ignore the role climate change plays in urban poverty is to deny disadvantaged urban people their chance at a better life. Both climate change and the local causes of flooding need to be tackled.

Priority actions include:

- Making sure the growing human challenge of urban flooding is addressed in all national and international development policies, planning and actions by governments, UN systems, IFIs and NGOs.
- Investing in proper and safe infrastructure, such as drainage, as locally appropriate.
- Ensuring that poor people participate in all decision-making processes equally with experts in flood reduction policies.
- All possible measures should be taken to ensure that poor people’s right to adequate and disaster-safe housing is realised and their tenure is secured.
- Making sure that critical services such as health, water and sanitation are disaster prepared, which means they are able to provide adequate services during floods.
- Implementing the Hyogo Framework of Action, agreed at the World Conference on Disaster Reduction in 2005, at all levels of urban planning and service delivery.



ActionAid International is a unique partnership working with poor and excluded people to eradicate poverty and injustice.

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