



## Understanding everyday and disaster risks in Karonga Town, Malawi

The inhabitants of Karonga Town in Malawi are at risk from major disasters, such as flooding, earthquakes and droughts. They are also at risk from everyday hazards – whose impacts are too small to be classified as a disaster. These include poor quality water and sanitation (and diarrhoeal diseases and cholera), malaria, traffic accidents, drowning, animal attacks, and politically linked violence. This research has sought to identify the full spectrum of risks facing the inhabitants of Karonga, and these have been identified by Karonga residents as resulting in premature death or injury and/or affecting their livelihoods and assets. Full knowledge of the risks – their nature, scale, and physical location – highlights where risk reduction is needed and possible – for large disasters, for small disasters, and for everyday hazards.

Karonga is a small city in northern Malawi, located on the shores of Lake Malawi. It had 41,000 inhabitants in 2008 and is projected to have nearly 63,000 in 2018.

The research on Karonga collected data on the range and nature of risks – drawing on a household survey, an assessment of water quality, selected informants, official reports, and a review of hospital records – and the findings are summarised in Table 1. The table also includes notes on occurrence, frequency, and gives examples of risks. The research cannot claim to record all risks and their impacts (for instance on premature death, injury, and asset loss); in particular there is no vital registration system recording causes of death. But what is clear is the range of risks – some being disasters that meet international criteria for being classified as such,<sup>1</sup> many being ‘small’ disasters that do not meet these criteria, and many being what can be termed everyday risks, such as those related to inadequate provision for water and sanitation, traffic accidents and fuels used for cooking and lighting. Regarding small disasters, between 2009 and 2016, Karonga experienced

floods annually and sometimes more than once a year. In December 2009, a large disaster in the form of four earthquakes of magnitudes 5.4 to 6.0 on the Richter scale was experienced within a span of two weeks. These killed four people, damaged or destroyed over 1,800 homes, and caused damage to infrastructure and many public buildings.

Table 1 highlights two key issues: the fact that everyday risks may be causing more premature deaths than disasters (including small disasters); and that the cumulative impact of ‘small’ disasters is larger than major disasters. On the first of these, records from Karonga District Hospital show 67 tuberculosis (TB) related deaths and 32 respiratory disease related deaths (probably mostly infant and young children) in 2014. Of course, these are very different in character to disaster deaths as they are not caused by a specific physical hazard and event (as in a flood) and, unlike most disasters, they do not include damage to property. But it could be argued that risks of premature death from TB and from acute respiratory infections were much higher than risks associated with flooding.

### Policy Pointers

- Much of Africa’s urban population is in small urban centres, but it is neglected mainly owing to its lack of political and economic influence.
- Urban areas need local governments that understand and address the most serious life-, health- and livelihood-threatening risks that the population faces, but the data on this are usually lacking, especially for small urban centres.
- Risks in Karonga include floods and earthquakes, unsafe sanitation, dirty fuels, and poor quality of drinking water. Risks are higher for low-income households and are worsened by the limited capacity of the local government to fulfil its responsibilities for risk reduction.
- Knowledge of the full spectrum of risks and of who is most at risk, is needed to inform urban planning, policy, and capacity building. Such knowledge also highlights where risk reduction is needed and possible – for large disasters, for small disasters and for everyday hazards.
- In Malawi, the failure of decentralisation and the national government’s neglect of (small) urban areas (including building their governance structures and capacities) is what underpin the lack of attention to reducing everyday risks and disaster risks.

**Table 1: Nature, scale and frequency of risks in Karonga Town**

Type of risk	Category	Nature of the risk event	
		Occurrence and frequency	Examples
Flooding	Small disaster	Flooding has been occurring every rainy season from 2009 to 2016	Karonga District Council reports that 50 households, the whole central town and settlements along the Rukuru River were flooded in 2010; on 6 December 2016 the whole town centre was flooded and 14 houses collapsed
Earthquakes	Large disaster	These occur frequently; 4 in December 2009 alone	Entire town affected in 2009; 775 houses collapsed, 1,154 houses developed cracks, many public buildings, businesses and services damaged or destroyed
Droughts/ food insecurity	Small disaster	Drought and food security problems in 2012 and 2014	Drying of crops, death of livestock and 9 and 13 reported deaths in 2012 and 2014 respectively due to malnutrition/hunger
Road/traffic accidents	Everyday risk/hazard	These reported to be occurring on daily basis	Karonga District Hospital reported 5 car accidents in 2016, leaving 5 people dead and 10 injured
Politically linked violence	Small disaster	This has occurred periodically, usually during food distribution exercises and political campaigns	Household respondents reported 12 people were injured in the run-up to the 2014 national elections and some houses were burnt
Gender/ sexual related violence	Everyday risk/hazard	Reported to be a daily event.	Respondents reported 10 injuries due to gender-based violence
Drowning in river/lakes	Small disaster	Mainly occurring in the rainy season	Respondents said boats often capsized, with several undocumented fatalities
Crocodile/snake/ animal attacks	Small disaster	These attacks happen each year, especially in the rainy season	Community members indicated that several people were killed or injured along the lakeshore – no specific events reported
Strong winds	Small disaster	Happening each year, especially in the rainy season	Community members indicated that scores of house roofs blown off – no specific event reported
Polluted/ poor water quality	Everyday risk/hazard	Polluted/poor water quality issues reported as taking place daily, but more serious during rainy season	Hospital records indicated 4 deaths due to cholera in 2016
Fish deaths	Small disaster	Reported to be a seasonal event, especially during temperature inversions and mixing of waters due to currents in Lake Malawi	Respondents reported widespread unexplained death of fish species in Lake Malawi in 2006, 2011 and 2014
Diseases/illness	Everyday risk/hazard	Daily	Karonga District Hospital reported 30 TB-related deaths in 2012, 67 TB-related deaths in 2014, and 13 and 32 deaths from respiratory infections in 2012 and 2014, respectively

Flooding would represent a greater risk of damage to property and assets and perhaps secondary health impacts (such as a cholera outbreak). Table 1 also points to other causes of premature death (including traffic accidents, drought, drowning, crocodile attacks, cholera) and injury (politically linked violence, gender-based violence), with some of these occurring each year.

One important issue raised by the household interviews and the discussions with key informants is that residents do not see preventable diseases as risks, so they report on how often a household member has diarrhoea, cholera, and malaria/fever. However 56 per cent of households interviewed consider floods as the most serious hazard in Karonga, with the majority living in flood-prone areas along the river where flooding is annual. Although the physical risk is high, the fact that most housing vulnerable to flooding is owner-occupied suggests that ease of access to land takes precedence over the risk of damage. And the economic advantages to living in such areas outweigh the perceived risks of flooding.

### Key determinants of health

While it is difficult to get precise data on health outcomes at the scale of the whole city, it is easier to collect data on key determinants of health such as the quality of housing or provision for water and sanitation. The household survey included questions about the quality of housing (permanent, semi-permanent, temporary) and household income so the differences across these for key health determinants can be assessed.

For water, only 17 per cent of households had water piped into their homes and many relied on sources off-site (see Figure 1). Residents in better quality housing and with higher incomes had higher proportions with better quality water provision. Most households in permanent housing and in the high-income category had piped water either inside house or on the plot; only a minority of those in traditional housing or with low-incomes have these preferred options.

The water quality analysis found that in 56 per cent of samples, faecal coliform levels exceeded the WHO

drinking water quality specification and were not fit for domestic purposes without treatment. Diseases associated with inadequate provision for water and sanitation (diarrhoeal diseases and cholera) were reported by households as among the most common that they suffered. Six cholera related deaths were recorded in 2016, the main cause being drinking unsafe water from the lake.

For sanitation, most households had pit latrines; only 13 per cent used flush toilets connected to septic tanks, 4 per cent used neighbours' pit latrines, and 4 per cent did not have toilets (see Figure 2). Higher income households and those in permanent housing had the highest proportion of flush toilets connected to septic tanks. Generally, the quality of provision for sanitation is worse for those in traditional and semi-permanent housing, many of whom are low income earners.

Other sanitary factors impacting groundwater and surface water sources include pit latrines located less than 100 metres away from shallow wells, boreholes or rivers.

**Energy:** 95 per cent of respondents relied on firewood or charcoal for cooking. 62 per cent lacked electricity. So for lighting, battery torches, solar lamps, and cell phones were used by 44 per cent of households; 38 per cent used electricity for lighting. Only a few respondents used electricity for cooking.

### The social and spatial distribution of risk

The discussions of provision for water and sanitation and of fuel use above highlight how, in general, a higher proportion of those with relatively high incomes and those living in permanent housing enjoy better quality provision for water (including water piped into homes) and sanitation (including flush toilets connected to septic tanks).

There are also spatial differences in exposure to risk. Although all of Karonga is exposed to many risks, these risks are most prevalent in three specific areas: the informal settlements, the areas along the river, and the town centre. Informal settlements are mainly on customary land and most of the houses there are largely of poor quality.

Informal settlements have the largest proportion of the population. Most grew in the flood plain along the river, the lakeshore, and in flood-control drainage channels. Their inhabitants face the highest risks because of a combination of factors including less secure tenure, lack of or blocked drainage, and denial of state infrastructure and service provision because they are informal. Many of these challenges are associated with urban development policy and practice that condemn the poor to occupy areas prone to hazards, such as floods.

The town centre is at risk from annual flooding mainly because the two main roads (one to Chitipa and the other to Mzuzu) act as dams. Furthermore, flood control channels constructed to channel flood water

Figure 1: Drinking water source for Karonga households

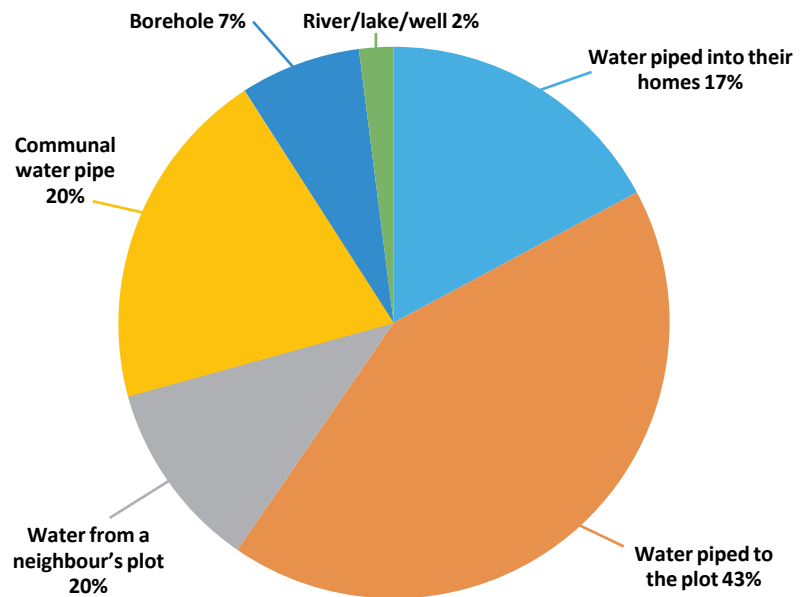
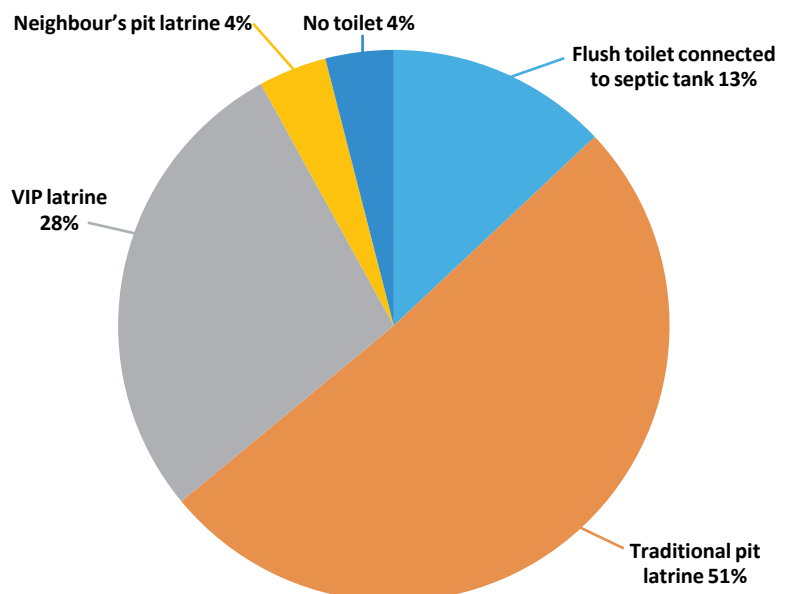


Figure 2: Provision for sanitation for Karonga households



out of the town became ineffective because of lack of maintenance. Partly a result of absent or weak local government, there is also evidence of a lack of knowledge of the scale of risks to which inhabitants expose themselves when settling in areas which are attractive because of ease of accessing land and fertile soil.

Karonga has become a significant city in Malawi – but without the local governance needed to guide and support urban development. The local governance structure, the town council, was dissolved in 2009. This left the rapidly growing urban settlement under a weak, ill-suited rural council lacking in transparency and unable to cope with the complex nature of Karonga urban life. This obviously limits the capacity

to respond to risks, including the need to coordinate the efforts of different stakeholders. Not surprisingly there is mistrust of local government from communities not only during relief distribution after disasters, but also with regard to the effective use of financial resources.

For example, 52 per cent of respondents felt that Karonga local council was not effective in responding to risks. This was seen as the result of a number of problems, including inadequate funding, customary land tenure practices in which chiefs wield more authority than the local council, and lack of data for making informed decisions.

### Conclusions

Urban areas need local governments that can understand and address the most serious risks facing their population. This case study of Karonga shows the broad spectrum of life-, health- and livelihood-threatening risks that the town's population faces. These include everyday risks and disaster risks at a range of scales. Risks range from floods and earthquakes, to unsafe sanitation, dirty fuels and poor drinking water quality. Risks are higher for low-income households and are worsened by the limited capacity of the local government to fulfil its responsibilities for risk reduction.

Knowledge of the nature, scale, and location of risks can create the basis for capacity building at both community and local government level. Getting a more complete picture for any urban centre of the full spectrum of risks and knowing who is most at risk are key underpinnings for more effective action. This knowledge also highlights where risk reduction is needed and possible – for large disasters, for small disasters and for everyday hazards.

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This brief is based on the paper: Mtafu Manda and Elijah Wanda (2017), Understanding the nature and scale of risks in Karonga Town, Malawi. *Environment and Urbanization* Vol. 29, No. 1 <http://journals.sagepub.com/home/eau>

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Urban ARK is funded by the Economic and Social Research Council (ESRC) and the UK Department for International Development (DFID) Humanitarian Innovation and Evidence Programme.

The views expressed do not necessarily reflect those of the donors.

### Notes

1. In the most widely used global database on disasters, CRED, a disaster has to have 10 or more deaths, 100 or more affected or a declaration of a state of emergency or call for international assistance. So many 'small' disasters listed in Table 1 would not be classified as disasters.