AURAN
AFRICAN URBAN RISK ANALYSIS NETWORK

'Mainstreaming disaster risk reduction in the management of urban planning and governance in Africa'

Summary report on the African Urban Risk Analysis Network (AURAN) international workshop held from 7–9 March 2006 in Cape Town, South Africa.
Hosted by the Disaster Mitigation for Sustainable Livelihoods Programme (DiMP), University of Cape Town

Disaster Mitigation for Sustainable Livelihooods Programme, University of Cape Town

International Institute for Environment and Development, London

ProVention Consortium, Geneva

United Nations Development Programme Bureau for Crisis Prevention and Recovery, Nairobi

Contents

Acronyms

AURAN	African Urban Risk Analysis Network
CBO	community-based organisation
CRA	community risk assessment
DiMP	Disaster Mitigation Programme for Sustainable Livelihoods, University of Cape Town
DMTC	Disaster Management Training Centre, University College of Lands and Architectural Studies, University of Dar es Salaam
ENDA-TM	Environnement et Développement du Tiers-Monde [Senegal]
GAMA	Greater Accra Metropolitan Area
GIS	geographical information system
IFRC	International Federation of Red Cross and Red Crescent Societies
IIED	International Institute for Environment and Development
MANDISA	Monitoring, Mapping, and Analysis of Disaster Incidents in South Africa database [a project of DiMP]
NADMO	National Disaster Management Organisation
NGO	non-governmental organisation
RTA	road traffic accident
UNDP-BCPR	United Nations Development Programme Bureau for Crisis Prevention and Recovery

1 Introduction

1.1 Background to AURAN

The African Urban Risk Analysis Network (AURAN) was established with support from the Geneva-based ProVention Consortium[1] and the Nairobi-based United Nations Development Programme Bureau for Crisis Prevention and Recovery (UNDP-BCPR). During Phase I, the network was co-ordinated from London by David Satterthwaite of the International Institute for Environment and Development (IIED).

The main objectives of AURAN are to:

- identify disaster risk accumulation processes linked to urbanisation and structural and non-structural ways to reduce this risk
- locate the understanding of disaster risk in urban areas within the continuum of risk from everyday hazards to disasters and the linkages between them
- identify the main constraints to disaster risk reduction in urban areas
- initiate disaster risk reduction initiatives in six cities and develop tools that can be applied in other cities and vulnerable neighbourhoods to identify and act on disaster risk reduction
- catalyse and support interest in this topic in urban areas all over Africa.

AURAN supports community-based action research, a unique risk accumulation analysis of urban areas, and a network of participating partners working on urban project initiatives in each of the six current research projects (details below). It also supports learning exchange visits. In each location a local partnership of academic institutions, governmental organisations and NGOs has been working to identify city and neighbourhood strategies that can address growing degrees of disaster risk and that together can inform policymaking at broader national and international levels. Through the AURAN project, a virtual network and website[2] has been created to enable disaster risk reduction researchers and practitioners across Africa to share and access common resources and engage in dialogue on critical risk issues concerning urban risk.

An initial meeting with prospective partners was held in January 2003 in Nairobi. A second meeting in April 2004 in Lusaka at which prospective partners presented and consolidated their draft research proposals. This document summarises the proceedings of the third international workshop of AURAN held from 7–9 March 2006 in Cape Town which marked the end of Phase I. It is not a chronological account. Rather, it seeks to consolidate the main points that were made at the meeting without repeating the details of specific projects, since these are described in separate Phase I project reports. The meeting was attended by 35 people from ten countries, including AURAN members and their local partners, funders, international organisations, academics and other interested parties (see appendix for details).

---

[1] A global partnership of governments, international organisations, academic institutions, the private sector and civil society, dedicated to increasing the safety of vulnerable communities and to reducing the impacts of disasters in developing countries. ProVention is hosted by the International Federation of Red Cross and Red Crescent Societies in Geneva.

[2] www.auranafrica.org

1.2 Workshop objectives and programme outline

The objectives of the workshop were expressed as follows:

Day One (Tuesday 7 March):

- For project partners to present their research processes and reflect on successes, challenges and lessons learnt during the period 2003–2006.
- For project partners to reflect on how the AURAN Network has been managed, and how it could be strengthened through supporting Africa's stewardship of the network.
- For project partners to discuss general housekeeping issues, including reporting to funders, transfers of funds and publication of findings.

Day Two (Wednesday 8 March):

- For AURAN members and funders to introduce themselves to a wider audience.
- For AURAN members to present initial findings from the six current research projects.
- For participants to critically reflect on lessons learnt about urban risk accumulation and disaster risk reduction.
- For participants to hear reflections on the three intercity exchanges that took place between AURAN partners.

Day Three (Thursday 9 March):

- For AURAN members and funders to discuss future directions for the AURAN Network.
- For AURAN members to discuss successes, challenges and lessons learnt about reducing disaster risk during the period 2003–2006.
- For the website development team to introduce AURAN members to the website as a tool for institutional networking and knowledge exchange.
- For local municipal partners of AURAN members to report back on their intercity exchange visits.
- For AURAN members to report on their Phase II research initiatives.
- For participants to explore ways of entering into partnerships with other initiatives and accessing other sources of funding.

2   Welcome and opening remarks

Prof Francis Wilson[3] welcomed participants and spoke briefly about different types of disasters including *accidents*; *drought*; *earthquakes*; *epidemics*; *financial disaster* including the loss of a job; *fires* (particularly devastating in shack settlements which people often lose life, limb and all their belongings); *floods* as a result of heavy rain, rising sea levels, tidal waves and windstorms; *nuclear meltdown*; *pollution* which leads to water- and airborne diseases, *shipwreck* including oil spills; *stadium crushes*; *violent crime*; and *war*. He said there are essentially two responses: to take steps to reduce the risk (every dollar spent on mitigation saves $7 in losses); and to improve preparation to better deal with disasters when they occur. South Africa, he said, has been fortunate in being able to defuse not one, but two civil wars in the last 15 years – a potential war with the white right wing, and an armed conflict between supporters of the rival African National Congress and Inkatha Freedom Party. This prevented a potentially huge loss of life, limb and possessions.

Francis said from a macro point of view, a car crash is only a single accident, not a disaster. At the micro level it would be a disaster if a family lost its breadwinner. He said the ability of people to cope with disasters differs dramatically – one person walking into a pothole might get wet feet; another might drown. The focus had to be on the poorest 40% of South Africa's population who risk drowning in the pothole because they simply don't have the resources to cope with disasters.

In conclusion, he said AURAN should consider focusing not only on urban issues, but on the broader rural problems that surrounded them. However, the local-level research such as the work done by the AURAN partners is fundamentally important in efforts to reduce the risk of disasters and to mitigate impact when they occur.

---

[3] Prof Wilson has played leading roles at the Department of Economics, the Southern Africa Labour and Development Research Unit (Saldru), and the Data First Resource Unit, all at the University of Cape Town. He has been visiting professor at Princeton University and is co-author with Mamphela Ramphele of *Uprooting poverty: The South African challenge*.

3   AURAN's Phase 1 findings

3.1   Current projects

The current Phase I research projects of AURAN are as follows:

1.   Mapping the seismic vulnerability of buildings in selected neighbourhoods of Algiers, Algeria (project work led by **Djillali Benouar** of the Built Environment Research Laboratory, University of Bab Ezzouar, Algiers).

2.   Engaging in awareness-raising activities and household surveys on local perceptions of flood risk in several flood-prone districts of Saint Louis, Senegal (project work led by **Khady Diagne** of the NGO Environnement et Développement du Tiers-Monde (ENDA-TM)).

3.   Tracking changing trends in disasters, particularly fire incidents in informal settlements, in Cape Town through the Monitoring, Mapping, and Analysis of Disaster Incidents in South Africa (MANDISA) database (project work done by the Disaster Mitigation for Sustainable Livelihoods Programme (DiMP), University of Cape Town, led by **Leigh Sonn** and **Ailsa Holloway**).

4.   Assessing health risks and risk accumulation processes that contribute to increased risk of large-scale disasters, including cholera epidemics, flooding and large-scale disasters in three settlements in Dar es Salaam, Tanzania (project work led by **Manoris Meshack** of the Disaster Management Training Centre (DMTC), University College of Lands and Architectural Studies, Dar es Salaam).

5.   Developing a disaster risk reduction strategy for the Greater Accra Metropolitan Area in Ghana (project work led by **Jacob Songsore** of the Department of Geography and Resource Development, University of Ghana-Legon).

6.   Researching road traffic accidents in Kisii and Kisumu, western Kenya, in order to develop strategies to avoid them (project work done by **Andre Yitambe** of Kenyatta University, Nairobi).

Presentations on all of these projects were made at the meeting – a brief report on the first day, and a more detailed report on the second. Since detailed reports on all of these projects are due to be submitted soon and will be posted on the AURAN website, this report is limited to summaries of what was said at the meeting.

3.2   Presentation: Overview of the context and AURAN's Phase I response

Outgoing co-ordinator **David Satterthwaite** of IIED provided the background for AURAN as one response to disasters and urban development in Africa.

Urbanisation in Africa

David said there are some 350 million people in Africa. Urbanisation is one important aspect of stronger, wealthier, more diversified economies. There are many myths about the scale and rate of urban growth. The rates and scale of growth are *not* unprecedented as some would have it – much of Africa is not urbanising rapidly. A large and growing proportion of Africa's population live in urban centres, but very few live in

mega-cities,[4] a high proportion live in relatively small urban centres, and tens of millions live in 'large villages' which are really urban centres.[5] Urbanisation, he said, is driven primarily by economic factors. However, the form of each urban centre (and the form of the risks generated for its population) is heavily influenced by social and political factors.

Urban contexts and risk

Urban contexts can create or greatly increase life- and health-threatening risks, David said, as well as risks to livelihoods and asset-bases. But urban contexts also provide opportunities to greatly reduce risk.[6] He identified the following life- and health-threatening factors in urban African contexts:

- A high proportion of the population live in poor quality and overcrowded housing in informal settlements and work in the informal economy, with high fire risks.
- Many informal settlements are on hazardous sites and are at risk from, for example, floods, landslides and earthquakes.
- Risk-levels are increased by the lack of infrastructure and services in many areas (including drainage and emergency services).
- Local governments are ineffective in taking the measures that can reduce risks.
- Much of the population has limited capacity to pay for housing.[7]
- Many urban areas have possibilities of concatenated hazards.

David compared disasters, 'small disasters' and every day risk as follows:

Table 1: Comparing disasters, 'small disasters' and everyday risk in urban areas in Africa

	Disaster	Small disaster	Everyday risks[8]
Frequency	Generally infrequent	Frequent: often seasonal	Every day
Scale	Large, or potentially large: 10 or more killed, 100 or more seriously injured	3–9 persons killed, 10 or more injured	1–2 persons killed, 1–9 injured
Impact on all premature death and serious injury/ illness	Can be catastrophic in specific places and times but low overall	Probably significant and under-estimated	Main cause of premature death and serious injury
Impact for the city	← Very large	*Continuum of risk* Large	→ Small

Locating AURAN's work within the continuum of risk

While much attention is paid to large-scale disasters, David said that AURAN was striving to address the continuum of risk – disasters, small disasters and everyday risks. He further characterised the group as follows:

---

[4] A city of 10 million people or more. The only mega-city in Africa is Cairo. Lagos may be approaching mega-city status, but this is not certain since population statistics for Nigeria are out of date.
[5] Twenty percent of Egypt's population is called 'rural' but is really urban.
[6] The life expectancy in Porto Allegre, Brazil is better than most cities in England. Strong accountability to local populations also reduces risks.
[7] Buying housing with infrastructure and services that reduce risk must be traded off against access to employment (the housing may be a long way from work), being able to afford housing requires having a job.
[8] Everyday risks includes such things as exposure to disease vectors and human waste, both of which play a major role in the spread of preventable disease.

- AURAN is a group of urban specialists extending their 'hazard' radar to include disasters (with some disaster specialists extending their 'hazard' radar to include small disasters and everyday risks).
- Everyone in the network is focusing on risk – and vulnerability – within this continuum of risk.
- Each team is taking on a 'different cut' in terms of risks and 'who is at risk' – although all have an interest in risk for low-income groups.
- Across the network, there is a diverse range of urban contexts in relation to size of urban centre (from big to medium to small).
- The particular interest of AURAN is whether it is possible to identify processes in urban areas through which disaster risk increases; and how this is served by an understanding of 'small disasters' and everyday risks.
- AURAN draws on the experience of La Red in Latin America.

Table 2: Locating the work of AURAN partners within the continuum of risk

Project	Disaster	'Small disaster'	Everyday risks
1. Algiers: earthquake, whole city	■■■■■■		
2. St Louis: floods, city wide and communities	■■■■	■■■■	■■■■
3. Cape Town: fires, city-wide and communities	■■■■	■■■■	■■■■
4. Dar es Salaam: low-income communities; all hazards		■■■	■■■■
5. Accra: all hazards; city-wide and communities	■■■■	■■■■	■■■■
6. Kisumu/Kisii: road accidents			■■■■

Good governance is the main means for reducing risk

David said the main factors which pushed risk in African cities were:

- a lack of democratic structures and effective city governance systems
- a lack of funding for infrastructure and services
- extreme inequalities in the distribution of income, assets and 'voice'
- government programmes that do not support those with limited incomes to find or build better quality homes in neighbourhoods served with infrastructure and services.

However, he said it is necessary to be careful of making generalisations; there are great differences between cities in the scale and nature of risk and in the competence and capacity of local governments in those cities. Urbanisation inevitably produces risk through the concentration of people, industry, motor vehicles and their hazardous wastes. Good governance as the main means by which risk is reduced, since government is the:

- provider of infrastructure and services
- regulator of hazardous activities (industries, transport and so on)
- influencer of land availability (so low-income groups do not need to live on dangerous sites)
- provider of law and order – reducing or increasing risks for low-income groups ('law and order' actions may make things safer, or they may be destructive by, for example, destroying livelihood activities through bulldozing and evictions)
- encourager/supporter of community-responses to work out new ways of reducing risk.

Well-governed cities are – for low-income groups – 'unrisky'. Urban governments should be in the risk-reduction business across the whole continuum of risk. All urban disasters and small disasters can be seen as a result of inadequate urban governance.

David identified a number of factors which could reduce risk:

- Democratic structures and effective governance systems to protect 'the public interest' and individual civil and political rights.
- Funding for infrastructure and services – which usually depends on a successful economy – capitalising on economies of scale and proximity.
- Individual/ household wealth which allows individual/ household choices of less risky homes-neighbourhoods and livelihoods. (People buy their way out of risk.)
- Government programmes that support those with limited incomes/ those most at risk to find or build better-quality homes in neighbourhoods served with infrastructure and services. For example, the local government-community partnerships developed by the national federations of the urban poor/homeless and local governments in 14 African countries, including South Africa, Namibia, Zimbabwe, Kenya and Malawi. Good governance in Africa is working in partnership with low-income groups.

The importance of locally-driven analysis

David said AURAN aims to root an understanding of disaster risks into an understanding of urban development because the scale and nature of urban change varies so much from place to place and usually within any one place over time. This needs locally-driven analyses to understand the political economy of risk – how risks are constructed and amplified and by what – and by whom (by their actions or omissions), and who within urban areas are most at risk (and who is not). There has to be a recognition of the multiple dimensions of urban poverty and how this can create or exacerbate risk, he said, and the complexity of processes that underlie poverty in each location must be understood. There is a mixture of common elements and elements that are shaped by very particular local contexts and circumstances: land markets, the economic changes that influence income distribution, the competence-capacity-accountability of government institutions, the capacity and willingness of community organisations to act, the geo-physical context and so on.

Reducing risk depends on local actions – local teams building on local analyses, interacting with key stakeholders, and encouraging action across disciplinary and institutional boundaries. AURAN research fits in well with this, David said, because it aims to create locally-owned processes of risk identification and risk reduction.

Hindrances and helps to self-motivated risk-reduction

Given that there are so many weak, ineffective or predatory local governments in developing countries, David said, the ability of low-income groups to individually and collectively reduce their own risk is hugely important. This will also help to improve the quality of government systems. What local government permits low-income groups to do on the margins can help their efforts, especially in regard to the access to land for housing in sites that are not risky and well-located with respect to services and income-earning opportunities. For example, in Windhoek, Namibia, the local government allowed low-income groups to build on smaller sites. This lowered the cost of building, so people could afford to reduce their risk by building better dwellings.

Climate change

Africa is facing some of the largest risks of adverse impacts of global climate change (extreme weather events, changing rainfall patterns and so on). It has one of the highest proportions of its

population at risk from sea-level rise than any other continent. This is exacerbated by very weak local government capacity to adapt. David said it is therefore vital for AURAN to build an understanding of the risks that climate change will bring.

Balancing risk reduction with measures that are not 'anti-poor'

The 'big issue', in David's view, is finding the most appropriate trade-offs between risk reduction and measures that are not 'anti-poor'. Certain international organisations have made well-intentioned recommendations for implementing higher building and planning standards as a way of reducing risk. Paradoxically this has *increased* risk in some places because, instead of engaging with low-income communities to devise appropriate interventions, authorities have bulldozed shanty towns on the grounds that they did not meet building standards. These actions have stripped low-income families of shelter and destroyed their livelihoods. Banning water vendors in some places on the grounds that their water is unsafe and expensive is another example of a well-intentioned intervention which has failed to take local realities into account. This has forced people to find other sources of supply which might be less safe and more expensive. David said there is a need to develop risk reduction strategies in partnership with low-income groups and their community organisations.

Moving towards Phase II

Building on AURAN's comparative advantages
David said AURAN needed to build on two comparative advantages it had built up over Phase I:

1. *AURAN is unusual in that members are working in across the entire risk continuum and are looking at the interlinkages between different types of risk.* David said most preventable mortality in Africa was not due to exposure to large risks, but to small everyday risks such as premature death caused by preventable disease. AURAN's focus on risk accumulation in urban areas has helped members to achieve a better understanding of how small risks and every disasters contribute to a larger overall risk. He said AURAN is part of a movement that is trying to shift the focus on from isolated disaster events to the larger context of *accumulated risk*.

2. *AURAN locates its broad understanding of risk within an understanding of local context.* David said this understanding had been achieved by AURAN through dealing with local activists acting through local institutions which have a good understanding of the local context. This is important for reasons mentioned above.

Making research findings useful
David said that, for the research findings of the Phase I projects to be useful, they should:

- *Be located within some of the big issues* – what the risk accumulation processes in that specific location are.
- *Be located within what action is possible in that specific local environment.* Effective democratic urban governance should be around reducing risks, especially for the poorest. To have an impact on the decision makers, it would be better to list specific ways of reducing risk which could be applied in that specific urban environment than to have a long list of abstract recommendations.
- *Explicitly list the tools and methods that have been used*, especially the tools and methods that have worked and why they have been useful.

- *Explicitly document the interactions between AURAN partners and government*, so that cross-cutting lessons about influencing authority can be learnt. For example, one useful way to get local government to listen to research findings may be to invite them to lunch.
- *Explicitly refer to community engagement*. This was an area of great richness in the AURAN projects, David said. Engagement with low-income communities is be a crucial way of determining whether the work that AURAN does is relevant.

Suggested focus areas for Phase II

David suggested that during Phase II, AURAN should focus on the following:

- identifying disaster risk accumulation processes linked to urbanisation and ways to reduce these that are not anti-poor
- locating the understanding of disaster risk in urban areas within the continuum of risk from everyday hazards to disasters and the linkages between them
- identifying the main constraints to disaster risk reduction in urban areas
- initiating disaster risk reduction initiatives in each city and developing set of tools that can be applied in other cities and in vulnerable neighbourhoods for identifying and acting on disaster risk reduction (including the identification of indicators of risk accumulation processes that may warn of potential disasters)
- generating greater interest in this topic around Africa.

3.3 Presentation: Mapping the seismic vulnerability of selected neighbourhoods in Algiers

Djillali Benouar of the Built Environment Research Laboratory, University of Bab Ezzouar, Algiers, said his project had three avenues of inquiry: *pure scientific inquiry* to develop a statistical index of vulnerability, *lobbying* the government, and *positively influencing human behaviour* through 'soft' sciences like sociology. The project objectives are:

- to evaluate the seismic vulnerability of the city of Algiers
- to identify vulnerability factors
- to develop risk reduction initiatives with local authorities and others
- to develop measures that can be implemented to reduce vulnerability.

The district of Bab El Oued had been chosen for the study. A theoretically representative type of building for the area was chosen and the ability of buildings to resist earthquake damage was tested. From the resulting data, statistical functions of vulnerability were calculated – plotting the acceleration of an earthquake against the kind of damage it could be expected to cause to a 'typical' building.

These functions of vulnerability were tested against damage actually caused by an earthquake in 1989 in Tipaza in which 35 people died, 700 were injured, and 50 000 were made homeless. Engineers who had inspected the damage to buildings after the event were asked to fill in a questionnaire. The research team then correlated the observed level of damage sustained in the Tipaza earthquake with its vulnerability index.

Djillali said his team was also interested in doing awareness-raising and in positively influencing the way people behaved after a seismic event had taken place. The state statistics agency had collected information on how people had behaved after the last major earthquake in 2003, using a

questionnaire based on a Japanese post-seismic questionnaire. He said the team wanted the information to be analysed by a social scientist, but this had not yet been done.

Djillali said the work of his unit would make it possible to assess the seismic risk for an earthquake with certain characteristics. It was intended to assist all levels of government to reduce seismic risk by implementing adequate preventive measures and reducing the vulnerability of buildings.

Questions and comments

Responding to a question on *the role of civil society*, Djillali said that there was no tradition of NGOs in Algeria; that all matters had to be dealt with through official channels. Civil society institutions were limited to charitable societies which dealt with issues such as needy children and the handicapped.

On the subject of *enforcement of the seismic code*, Djilalli said the Algerian government has imposed higher rigidity standards for new buildings, but government would have to ensure that builders actually adhered to the specifications of a design. Officials, contractors and insurance company employees may not adhere to or enforce the code. But even if a building complied 100% with the code, it might still be damaged. The code aims to prevent pancake collapse in multi-storey buildings. Algeria had been a socialist state until 1980 and all construction up to that time was undertaken by government in accordance with the seismic code (which had been introduced in the 1970s). After 1980 private ownership of land became possible and people started to build their own houses. However, the seismic code was not always enforced. There was no substitute for good construction. The 2003 earthquake took place on a Wednesday evening at a time when many men and old women had gone to the mosque. The mosque did not collapse because it was properly built, voluntarily, at no cost, but many other buildings collapsed. During the Asian tsunami of 2004, the only building on Banda Aceh island that did not collapse was the mosque.

Responding to a question about the *cost of making a building seismically safe*, Djillali said it costs 10–25% more to make a building more earthquake resistant, but no building is completely safe. Modern buildings in Japan and the US have been destroyed in earthquakes. Even 'intelligent' buildings that are actively damped by a satellites before a seismic wave arrives have failed when a big enough seismic event has taken place. By contrast, the Algiers casbah was built in the 1600s, centuries before steel reinforcing was invented, and those buildings are still standing.

With regard to *seismic retrofitting* to make buildings safer, Djillali said many buildings in Algiers have walls that are not connected to one another. Simply joining the walls together with steel bars and strengthening the foundations are inexpensive and effective ways of reducing the risk of collapse. According to the vulnerability assessment that his team had done, some 70% of buildings in Algiers would be 80% destroyed if a severe earthquake were to take place. Major priorities for attention were hospitals and schools but, while there had been some improvements to hospitals, no retrofitting has been done in schools. More than 200 schools were destroyed in the 2002 earthquake, but no earthquake in Algeria has ever killed a schoolchild because these events have occurred on weekends or at night. The government, he said, is reluctant to spend money on retrofitting. Instead it is spending the large revenues it gets from oil exports on replacing existing buildings with high-rise apartments. In one earthquake 40km away from Algiers, 700 people died, 680 of them in one building that had been constructed in the 1950s. This raised questions about the wisdom of building multi-storey residential buildings. He said because the government does not want to spend money on retrofitting, it has implicitly accepted a certain level of risk with regard to people and buildings (2 000 people died in the 2003 earthquake), and it will have spend more on rehabilitation after an earthquake occurs.

Djillali responded to criticism that the government's response to seismic hazard was taking the form of an in-city engineering/ awareness-raising solution rather than *long-term futures-based strategic*

planning at a level broader than the city, especially given the fact that the government had lots of oil revenue to spend. He said that government's national land use plan for the period 2005–2025 planned to build two new cities on the plateau away from the extreme seismicity of the coastal region, and that government was also working on moving industries away from the coast.

In response to a discussion on Day Three on **successes and challenges** of the project, Djillali said his group had found a way to use all the official earthquake data that had been accumulated since 1980. The team had learned how to deal with local authorities, how to be patient, and how to develop its language to be able to communicate with a larger group of people. It was important to ensure that people understood that the research results were uncertain, that they relate to probability, but that being able to run earthquake scenarios of injuries, deaths and damage provided tools for the administration to decide whether to restore or demolish buildings. The team's analysis of the data gave authorities the information to design a strategy for the next 50 years in respect of urban planning, education and economic support. The challenges included finding more ways of using the data that had been generated (the team had more data than it needed), and being able to access data that would enable analysing the vulnerability of such things as telecommunications.

Response to the presentation on Algiers

Christopher Hartnady of Umvoto Africa in Cape Town complimented Djilalli on his work, and said the technical tools he had described for assessing vulnerability – the characteristics of building materials and building harmonics – are very useful for reducing earthquake risk. He said his organisation worked on disaster reduction risk in South Africa and Africa more broadly.

Earthquake risk in Africa

Christopher said that there was a low awareness of earthquake risk in South Africa, even though Cape Town had an earthquake in 1809 and there had been another about 135km from the city in 1969. Scenario planning based on the 1809 earthquake suggested that a one in 300–500 year earthquake event in Cape Town would cause 20 000–25 000 deaths and significant property losses. His organisation was working with the provincial government to mitigate risk and do disaster management planning.

Speaking of seismic risk in other parts of Africa, he said an earthquake measuring 6.8 on the Richter scale struck Lake Tanganyika in 2005. The rates of seismic movement in Algiers are in the order of 5–6mm per year, and the rates of motion near Dar es Salaam are 2–3mm per year. The historical record shows long recurrence periods between large seismic events, but a large earthquake will definitely happen. In February 2006, two people were killed in an earthquake in Beira, Mozambique.

Christopher said community action was a key factor in ensuring that authorities respond to earthquake threat. Politicians and property developers had tried to silence one Princeton academic who warned about the earthquake hazard in California. However, because school buildings collapsed in the Long Beach earthquake of 1933, concerned mothers were able to push politicians to enact legislation for safer construction and the earthquake code was put in place. The best way to educate the adult population about earthquake risk, he said, is through educating their children.

The AfrEDI project

Christopher provided a brief introduction to the African Centre for Early Warning and Disaster Reduction in the Indian Ocean (AfrEDI). This non-profit organisation promotes the principles of the Hyogo Framework for Action (2005-2015) with a focus on tsunamis, tropical cyclones,

earthquakes, and floods in a specific region of the Western Indian Ocean and the adjacent African mainland.

## Other comments on earthquake risk

Ben Brown, Regional Co-ordinator of Ghana's National Disaster Management Organisation (NADMO) said Accra had a large earthquake in 1939. The city is situated close to two seismic faults, and almost all the essential services are close to the fault lines.

Mark Pelling said schools and hospitals should be prioritised for seismic retrofitting.

Terry Cannon said companies and workers in the construction industry must realise their duty to build properly does not stop at the gate of the church or mosque.

Djillali Benouar said that risk reduction responses should be prioritised according to the likelihood of the risk. Although there had been earthquakes in various parts of Africa, the likelihood was low in most parts of the continent, and authorities should respond to more pressing hazards.

3.4 Presentation: Reducing flooding risk in Saint Louis, Senegal
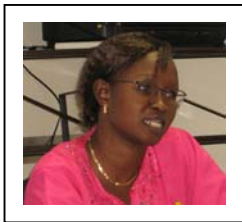
Khady Diagne of ENDA-TM said her organisation has been working on improving the living conditions of people living in slums in Saint Louis, a city of 200 000 inhabitants about 280km away from Dakar. In 1999, an integrated waste management programme known as PADE Saint Louis (Processus d'Amélioration Durable de l'Environnement Saint Louis)[9] had largely contributed to stabilising the sedimentation of river beds in the area. The problems at hand had been beyond the capacity of a single municipal institution to manage. ENDA-TM had assisted in bringing stakeholders together to develop an integrated and comprehensive approach to the problem. Regular and systematic dialogue and exchange had made the process sustainable and created conditions for success.

Under the AURAN project initiated in 2004, her organisation has worked with communities to develop tools that people can use to mitigate flood risk. A meeting with the steering committee is planned in the near future to validate these tools. ENDA-TM is also engaged in awareness-raising activities in various districts, including exhibitions, educational visits to schools, and drama, as a way of persuading communities to actively engage in reducing the risk posed by floods. She said the local population has been very supportive and has taken up many flood risk reduction activities. They are also working on better management of waste and waste water to combat unsanitary conditions and reduce the risks these pose to the health of slumdwellers. Municipalities and the central government are also supportive. This is unusual, Khady said, because in Senegal governmental stakeholders do not usually support the activities of NGOs.

Khady said should not be living in flood-prone areas in Saint Louis, but they do. The region used to be quite dry, so people settled there. Ten years later, there has been a lot of regular rain, and the area is no longer safe. Women and children are most affected. Families are forced to move into school buildings after a flood, and no economic activity is possible. People are prone to a lot of skin-related problems and malaria. After the last floods the hospital confirmed that mortality had increased as a result of malaria and diarrhoea. When the floods subside, people go back to where they were living before, year after year, because they don't have anywhere else to go. Local government admits a share of responsibility because it allowed people to settle on low-lying land.

---

[9] 'Sustainable Environment Management Process'.

She said there have recently also been floods in Dakar. Exposure to flood risk has been caused by government allowing people to settle in low-lying areas of the city. People were then moved into tents to escape the flood. Once the water subsided, government told people to move back, but said they would have to pay to get their lands back. The challenge is to deal with people moving into unsafe areas because these are well located and therefore facilitated their ability to generate a livelihood.

Khady said ENDA-TM has helped to draw up a funding proposal to develop guidelines for dealing with natural disasters in six Francophone African countries which had been circulated to donor organisations. She said she hoped her organisation could help to form a solid network between French-speaking countries in Africa.

In a discussion on Day Three about **success and challenges** of the project, Khady said a good buy-in had been achieved with all stakeholders. Decisions have to be made together and discussion must take place from the outset and throughout the process. It is not always self-evident, but participation is critical to success. A second success was the behaviour change and policy change that ENDA-TM had managed to secure through its activities. ENDA-TM's challenges included finding ways of using the GIS [geographical information system] information made available to it by the University of Dakar in further mitigating flood risk.

Response to the Senegal presentation
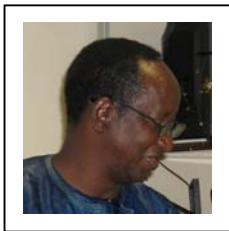
Sekou Traore of the Association pour la Rehabilitation de l'Environnement au Mali (AREM) said his organisation aims to improve living conditions in Mali, one of the poorest countries in Africa, and one that faces a high level of disaster risk. He said Senegal and Mali face the same kinds of natural hazards, including flooding, drought and locusts. Dakar and Bamako have the same problems with regard to urbanisation and development – including health problems, unsanitary conditions, water pollution and, to a lesser extent, air pollution. Water pollution is a major problem in Mali, Sekou said, because pesticides used in agriculture end up in the water.

AREM has been active in a village 50km from Bamako where there is a high mortality rate. His organisation has worked to establish 'wise man' committees (which also include young people and women) to tackle a number of issues including flooding, hygiene and health management, resource mobilisation and advocacy. After an action plan was put together by the committees, the people worked together with villages in Canada to put up equipment to combat flooding. No flooding had taken place since then. Sekou said AREM's advocacy training had helped the committees to work with the local government authorities to put together an action plan to deal with water and sanitation problems. Young people have also been making mud bricks (instead of buying them) to strengthen fragile buildings. He said his organisation would like to become a member of AURAN.

Other comments on the Senegal presentation and flood risk more generally

David Satterthwaite said an organisation like ENDA-TM was not doing 'proper' academic research but, with a budget of only $45 000, it is *changing the way governance is done* for 200 000 people in Saint Louis, thereby reducing the risk for vulnerable people. ENDA-TM assumed that unless local government took action, nothing would change. It facilitated this change by building a long-term detailed consultation process between local people and local government officials.

Jacob Songsore said Senegal has a history of cyclical advance and retreat along the same flood basin. He said a long-term strategic shift was needed which combines controlling settlement with measures to find safer areas for people to settle and gradually move them over long period, perhaps 20 years.

Menoris Meshack of DMTC spoke about the importance of *local capacity to adapt* by referring to two flood-prone valleys in Tanzania. In one, the people have adapted to flooding by building on stilts, so they experience a flood as a blessing for the land. In the other, people have not adapted their building methods, so they experience a flood as a disaster.

David Satterthwaite spoke about *local capacity to adapt* by referring to the situation in one developing country where people have adapted to the annual floods by having iron beds that do not float away, high shelves on which they can store their goods safely, and arrangements with families on higher slopes to look after their children when the floods come. Although government has insisted they move to safer ground, people have refused, because 40% of their annual income comes from government compensation for flooding. It was necessary to enable government to see how floods could be a disaster for vulnerable people and have no effect on others.

3.5 Presentation: The MANDISA database, with a focus on fires in informal settlements in Cape Town

Ailsa Holloway and **Leigh Sonn** of DiMP spoke about the MANDISA database. MANDISA database records small and large disaster events such as fires and floods in Greater Cape Town. The current emphasis of MANDISA is on recording fire events in informal settlements where there has been damage to a structure, based on official fire services records. The project aims to systematically characterise the determinants and consequences of informal fire risk in Cape Town in order to inform *better informal fire risk management*. It also aims to strategically communicate its risk research outcomes to inform *transversal mainstreaming of risk reduction*.

The presenters said in the period 1990–2004 about 41 000 informal dwellings had been destroyed or damaged and about 164 000 people lost their household assets and their homes. The data indicate that fire events are concentrated in informal settlements, and these seem to be on the increase. There is a cyclical trend in informal fire events – once a large-scale event has taken place, people are more careful for a time, but then the number of incidents increases again. An analysis of informal fire occurrence and fire severity in five at-risk areas of Cape Town shows the risk varies from place to place. In one informal settlement, a clear link can be seen between increasing population density and fire risk. In another area the fire data show an accumulation of fire risk, and this is an early warning of increasing household livelihood stress.

DiMP's presenters reported on two ways in which MANDISA had impacted on government action. Data about economic loss from informal fires had provided South Africa's National Treasury with good reason to fund the National Disaster Management Framework. Mapped evidence of significant fire loss in the Cape Town metropolitan area had resulted in risk management being made an explicit priority in the Strategic Infrastructure Plan for the Western Cape provincial government.

The presenters said a major challenge in mainstreaming risk reduction is to bridge the gap between strategic risk reduction sectors/ disciplines and fire fighting/ emergency responders. Strategic risk reducing disciplines have *strong analytic capability*, but limited disaster risk content knowledge (economics and planning). Disaster management and fire fighting disciplines have *strong fire risk knowledge*, but limited analytic/ strategic risk communication capability. A second challenge is to overcome the obstacles in interdisciplinary risk reduction planning and resource allocation.

DiMP contributes more broadly to risk reduction by training young professionals with interdisciplinary communication skills, risk assessment and monitoring capabilities. It runs a formal graduate programme in disaster risk science at the University of Cape Town, as well as professional

workshops in disaster risk reduction. DiMP also does applied disaster risk research (for example, investigating the link between climate change and fire risk and investigating the relevance of actuarial science).

In a later discussion on Day Three about on the **successes and challenges** of the project, **Leigh Sonn** said the challenges for MANDISA had been the collection and capturing of data due to the institutional constraints facing the official structures with which DiMP had been working. There had been irregularities in how data is stored and captured, and there was a lack of spatial referencing of incidents. There was a mismatch between available population data and the way fire incident information had been captured which made correlating incident information with population density and rates of densification very difficult. Another problem had to do with just what constitutes an 'informal' area. In Langa, for example, there are many shacks in the backyards of houses, so the area is a mixture of formal and informal. Two years ago, officials were reluctant to share information with DiMP, but there had been a political change and institutional restructuring in the municipality, so the situation had changed. Good relationships had been built with the city's fire services; so much so that DiMP was able to provide risk reduction input into the services training programme. The data had informed various levels of policy. Students have been able to use the information and the product of their research projects has been fed back into communities.

Questions and comments on MANDISA

Bruno Haghebaert of ProVention Consortium asked whether DiMP intended to go beyond a largely quantitative analysis to look more analytically at whether particular groups were more vulnerable (for example, old people); and the causal factors of fires, for example, whether there is a relationship between the incidence of fire and population density, alcoholism, times of the year and types of weather. **Leigh Sonn** replied that two student projects at DiMP were investigating whether there is a link between population density and fire incidence.

Helen Macgregor of DiMP said her experience in a related field – participatory community risk assessment (CRA) – showed there is great potential to take the research and research outputs of MANDISA and use them to inform real risk reduction activities on the ground. MANDISA provided preliminary quantitative information for its CRAs about fire trends over time. The process of doing CRAs, in turn, had provided more *qualitative* information about fires. For example, community members had linked an increased incidence of fires to an increased level of electrification, and had said the increase in the number of shebeens [taverns] had meant more people are drinking, which also increased the risk of fire. She said DiMP had to develop creative ways to make academic information accessible to communities. For example, many people struggled to understand fire trends as they were represented on a graph, but were able to paste pictures and information about specific fire on a timeline – a different way of indicating a trend. CRAs were intended to build community capacity to respond to risk on one hand, and to ensure the development of an enabling institutional environment on the other. CRAs identified drivers of risk and vulnerability and developed recommendations for risk reduction which DiMP would provide to the Cape Town city council in a technical report. Community-level risk reduction was also provided by a network of volunteer community risk monitors, some of whom had been trained in educating their communities in risk reduction, some of whom had been trained in response, such as advanced first aid, and some of whom acted as eyes and ears on the ground to monitor the delivery of basic services in terms of how this drives environmental health risk and fire risk. The Cape Town project co-ordination committee brought together a whole range of departments which seldom dealt directly with one another, including housing, waste, disaster management, fire and emergency services and environmental health. There was an emerging understanding in the council of the multidimensional

and interlinked nature of risks, and of the need to develop an enabling institutional environment in which communities could contribute to reducing the risks they face.

3.6 Presentation: Community initiatives in managing urbanisation and risk accumulation processes: Lessons from Dar es Salaam, Tanzania

Manoris Meshack of DMTC said his project had two aims: to mainstream awareness of risk accumulation processes so that the urban planning and policy framework could reduce risk; and to improve the capacity development of local communities and urban councils to develop and implement risk reduction management plans. It intended to do this by doing action research on the relationships between unplanned urbanisation and risk accumulation, and by supporting the initiatives of Dar es Salaam city authorities, NGOs, CBOs and residents to identify risk and act to reduce that risk. Three case study areas had been selected to collectively cover the endemic risks in Tanzania in order to ensure that the research had wider applicability.

The areas chosen were all in Dar es Salaam – Vingunguti settlement in Ilala municipality, Chang'ombe Toroli settlement in Temeke municipality, and Masasani Bonde la Mpunga settlement in Kinondoni municipality. Msasani is a wetland next to the sea which is prone to flooding and health risks associated with stagnant water. The draining of certain pockets of this land for housing the rich has exacerbated these problems for the poor. Vingunguti has a very high housing density and its pit latrines overflow into water wells because of the high water table. There is a dumpsite in the area and there are endemic communicable diseases such as cholera every year. In Chang'ombe Toroli industrial activities such as woodworking create a fire hazard, air pollution and this causes respiratory disease.

Monoris said partnerships have been developed with communities and urban councils and contact persons have been trained. Risks have been identified and available data collected from primary and secondary sources. Draft spatially-identified settlement risk profile reports have been written and submitted to stakeholders for comment on what the development priorities should be. He said that there is a lack of data for the risk profile of the study areas. Another problem is that certain communities expect that this process will immediately result in the implementation of improvement projects.

In a discussion on Day 3 about the **successes and challenges** of the project, Monoris said the project had managed to establish contact with groups in the city and community and this had resulted in the initiation of some development activities. One year previously, he said, one of the study areas was mentioned in a World Bank report, and the city authorities are now intervening there. A second success is agreement on the main risks, and how the activities of the different actors in the development process of the settlements have contributed to that risk.

The challenges were: 1) *The lack of quantifiable data*. The study team had to develop much of the data itself, or further develop some of the data that was available. 2) *Politicisation of the development process*. It was very difficult to identify common problems that, if they were solved, would help everyone. The process of bringing groups together is often accompanied by tension, and one group may block a good idea, simply because it does not want another group to be able to claim the credit. 3) *Managing high expectations*. During a process like this, people are inclined to think 'local government has seen our problem, the university has seen our problem, we have always had to reduce our expectations, but now something must be done!' It is necessary to ensure that people know that all parties must make a contribution to solving shared problems.

3.7 Presentation: Developing an environmental health watch and disaster monitoring system for the Greater Accra Metropolitan Area (GAMA), Ghana[10]

Jacob Songsore of the University of Ghana-Legon said the primary objective of this study is to apply a set of proxy indicators and a GIS database for environmental health and disaster monitoring and management in order to:

1. Monitor progress in environmental health management and surveillance of notifiable communicable diseases.
2. Provide updates of human settlement and environmental health situation and thus serve as an early warning system and enhance disaster-preparedness.
3. Investigate the community perception of everyday hazards and disaster risks and compare this with scientists' perception of risks.
4. Help planners incorporate trends in these conditions into the strategic planning of the metropolis.
5. Help make decisions on priorities for improvement in health and disaster preparedness and human settlement conditions in GAMA.
6. Fill the gaps in knowledge about intra-urban health and disaster burdens on a continuing basis.

The research team comprises experts from various disciplines, including land use, hydrology, geology and public health. Hazards include communicable diseases related to poor environmental conditions, flood risk and earthquake risk. (Accra is located in a seismically active zone.) Jacob said because the *perception* of communities of everyday risk is not necessarily the same as the risks identified by experts, the knowledge base has been skewed in favour of those who are most at risk by means of an iterative participatory process. His research investigated perceptions of risk at household level, and did gender disaggregation to reveal differences *within* households. A rapid assessment had been done at a city-wide level, and a community self-assessment completed in one low-income community, namely Nima. NGOs and CBOs working in at-risk communities drew the attention of the research team to a number of issues that they had missed initially; issues which communities did not feel they could mention in formal forums where the assemblyman (elected official) was present. Community workshops had been held to capture responses to preliminary research findings. The information has been captured in GIS format and mapped in preparation for the formal writing up of the research results. When this report has been finalised, Jacob said, it will feed into the policy process and practical action towards disaster mitigation and the creation of a healthy environment in GAMA.

In a discussion on Day Three about **success and challenges** of the project, Jacob said the research team had in the past been inclined to do research and engage the stakeholders at the end. This time round the team had succeeded in engaging the stakeholders at the outset around the research questions and the validity of what the team was trying to do, thereby largely achieving consensus in the larger group that the project makes sense. The results of the first survey would soon be out and people could expect to see concrete results that are directly applicable to them, generating a wider interest in policy, practice and research. The challenges included building internal community

---

[10] Jacob was reporting on work he has done with John S Nabila, Yvon Yangyuoru, Eric Amuah, EK Bosque-Hamilton, Paulina E Amponsah and Osman Alhassan.

capacity to drive this process. He said the team wants communities to be able to develop their own monitoring systems based on their own priorities. The Accra municipality is building a city-wide GIS system which other information could be mapped onto to reduce risk and provide good material for further research. The research team had come across organisations with ideas who want to solve problems and had found simple appropriate ways of addressing concerns, but these lacked funding. Another challenge was to ensure the research could be sustained over a period of time so that the trends can be monitored. Jacob said although his team had learnt much about engaging communities, this did not mean that they are the best people to do this. Help with engagement could be sought from NGOs and community-based organisations.

Response to the GAMA presentation

Ben Brown of the National Disaster Management Organisation said the GAMA project would generate information that is useful for disaster management Ghana as a whole. NADMO works with government agencies responsible for meteorology, hydrology, geology, agriculture, information, police, the defence force and health. He said his organisation has come to realise that it is not possible to prevent disasters, that they must be managed when they come. It is not possible to immediately move people living in parts of Accra that are subject to annual flooding, but an early warning system of community watches assisted by telecommunications infrastructure could assist people to move to higher ground in time. A major storm water drain had been built to mitigate flooding in the city. The last earthquake in Accra had taken place in 1939, and it is expected that another one will occur at some time in the future. NADMO is working with communities on how to respond to earthquakes – for example, moving into safer places like the corners of buildings where there are pillars, sheltering under tables, and having escape routes which can be found even when there is a power failure.

Ben said the current structure of NADMO is geared towards preparing for major disasters, but the work of Jacob's team had raised awareness of how important it is for disaster management structures to also respond to *everyday* risks. Ben said most risk management workshops focus on major natural and human-made disasters, but this one was useful to look at the smaller factors that contribute to a risk accumulation which are actually more likely to cause problems. For example, people throw their garbage into the drains alongside the Odore River in Accra. This blocks the drains, contributing to the risk of flooding when it rains. There is a need, he said, to change the behaviour of individual citizens by making them aware of the consequences of throwing rubbish into the drains. But the authorities have a critical role to play too. If they do not remove the garbage, the temptation will remain for people to put it in the drain rather than keep it in the home until it can be removed. In some locations, there is a destructive cycle in which street cleaners move rubbish into the drain so that the streets are clean, and drain cleaners put the rubbish back on the road so that the drains are clean. The authorities do not take responsibility for taking the rubbish away from the site.

Questions and comments about the GAMA presentation

Ken Westgate of UNDP-BCPR said Africa is littered with well-meaning attempts at early warning systems but that these are mostly one-sided and aimed at generating data. He asked whether the information generated by this system is actually useful for problem-solving and reducing disaster risk in Accra.

Jacob Songsore said the GAMA project has, for this very reason, been designed to engage with various stakeholders, including communities and officials responsible for disaster management,

environmental health, planning and city management. This project, he said, marks the first time that there has been engagement with communities in Ghana about these issues. **Ben Brown** said that the GAMA project has involved the very communities it is going to affect, and that these are linked up to local government structures via district assemblies. If the project succeeds in achieving collaboration on that level, he said, it will be possible to create a system that can both be implemented by the authorities and be useful to people on the ground.

3.8 Presentation: Action learning from road traffic accidents for urban disaster avoidance and mitigation in western Kenya

Andre Yitambe of Kenyatta University in Nairobi said that research indicates that road traffic accidents (RTAs) are one of the top causes of death and disease in the world. Per passenger kilometre, a traveller is 30 times more likely to die in Kenya than in Europe. By 2010 RTAs are expected to become the number one killer in Africa. Although many Kenyans are resigned to accepting accidents as a part of life, most are avoidable.

Andre said his research explores the causal factors of accidents involving *mathathus* (minibus taxis) in Kisii and Kisumu, two cities in western Kenya, in order to: 1) understand what mechanisms, structures and systems are needed to reduce RTAs; 2) identify gaps in the Road Traffic Act; and 3) create an action learning network of professionals interested in reducing RTAs in western Kenya.

Primary data came from focus group discussions and questionnaires, and secondary data was drawn from medical records from two hospitals. The research revealed that the main causes of accidents in the two cities are: 1) human behaviour, 2) mechanical problems and 3) environmental factors such as slippery roads, landslides and poor visibility. Andre said that he did not investigate other possible causes of accidents such as cognitive factors (for example, drivers who say such things as 'I know the road so well I can drive without looking').

Andre's recommendations included: implementing educational and awareness-raising programmes; enforcing the road traffic rules; providing an avenue for community participation in enforcement; devising a multi-stakeholder national safety policy; and improving the design and maintenance of roads. He said it was not surprising that there is a high correlation between the number of RTAs and a wide variety of costs such as hospital costs, the costs to the economy, and the social costs for families who have to look after accident victims.

During a discussion on Day Three about **successes and challenges**, Andre said he had managed to add value through research, and the result was quite good. The challenges included ensuring a change of attitude among the stakeholders and ensuring implementation of the road traffic policy.

Comments and questions on the Kenya presentation

Responding to a question about whether *alcohol or drugs* were a cause of RTAs, **Andre** said many *mathathu* drivers drive from morning to evening without food, chewing *qat* to keep themselves awake. Another factor was the pressure on drivers to *earn an income*. They must pay a certain amount to use the vehicle for the day, and only once they have made enough money to cover the rental are they able to earn an income. Tougher traffic regulations had been introduced to reduce speed and make travelling by road safer, but the lack of enforcement meant these were not effective. This approach had been tried in Uganda, South Africa and other African countries, but the lack of enforcement was a problem.

Ben Brown spoke about the need for *driver education.* When asked about the meaning of the road sign with a cow on it, one driver in Ghana who had been on the job for 16 years he said it meant

'restaurant ahead' rather than 'cattle crossing'. All drivers in Ghana are required to pass a written examination, he said.

3.9 Presentation: The AURAN website

Helen Macgregor introduced the AURAN website which had been developed by DiMP in association with a private website development company. The objective of the site is to provide a tool to enable networking amongst partners and create a platform for up-to-date information on urban disaster risk in Africa. It has a public part (accessible to anyone), a private part (for AURAN members which contains confidential or sensitive information which can only be accessed through user names and passwords), and a content management system (CMS) (where members can create, edit and publish the public and private content of the site, accessed through user names and passwords). The site has been designed to minimise the expense and time involved in administering a website and keeping it up to date. It can be regularly updated and co-managed by all the AURAN users, with one person designated as the administrator. This also means that all the AURAN partners are co-responsible for the development and management of the site. If members do not make a regular contribution, the website will remain fairly static.

The CMS is template-based, which means that users are guided to provide specific content for each of the pages. For example, in the 'research initiatives' part, users are advised to keep the content limited to a maximum of 500 words with two pictures. Once the content has been added, unless they have been given permission to edit or publish the content it will remain in the CMS. The website recently went live at www.auranafrica.org. The major task now, Helen said, is for members to begin populating the site with content about their activities.

Comments about the website

Khady Diagne said, given that the website is in English, she would like money to be available for translation from French, especially as there is a possibility of six more French-speaking members.

3.10 Reports on exchange visits

Dar es Salaam-Cape Town

Mawethu Pemba of the Cape Town City Council spoke about the exchange visit that he and Mangaliso Mati had undertaken to Dar es Salaam at the invitation of DiMP. The purpose of the visit had been to learn first hand about the conditions in that city and how the authorities manage their challenges. He visited the informal settlements of Vingunguti in Ilala municipality, Chang'ombe Toroli in Temeke municipality, and Masasani Bonde la Mpunga in Kinondoni municipality.

Mawethu said people simply find a piece of land and built on it in an unplanned way. However, unlike in Cape Town where buildings in informal settlement are made of corrugated iron, wood and plastic, these buildings are made of cement bricks. Many of these dwellings are unplastered, and have mosquito nets in the window openings instead of glass. The high water table means there is a high flood risk and water tends to stand in pools and in the drainage channels that residents have had to dig for themselves. One upmarket housing development in Msasani is built on ground which has been raised above the water table, but this has exacerbated the problems experienced in the informal settlement there. The high water table in Vingunguti means that when it

rains the waste in the pit latrines comes back up to the surface. He said he was surprised that, in spite of the poor living conditions in Toroli, high quality furniture is manufactured there.

He said in Cape Town, the main hazard in informal settlements is fire, fanned by high winds in summer and the use of paraffin stoves. In Dar es Salaam, the main problem seemed to be the lack of drainage. During floods, residents there put their furniture up on hooks until the water has receded. Cape Town residents expected free water, free houses and free electricity; by contrast, in Dar es Salaam, people paid for the removal of solid waste and connections to the water supply in spite of high unemployment.

Mlenge Mgendi of DMTC reported on his visit to Cape Town's informal settlements of Langa/Joe Slovo, Philippi, Gugulethu and Khayelitsha. He said informal settlements in South Africa were very different to those in Tanzania, as were the level of service provision. The type of building materials used in South Africa are deliberately chosen to make it easy to move. Mlenge said the municipality and provincial government have demonstrated a commitment to improving the living conditions of disadvantaged people. The local authority is directly involved in waste collection, water supply, sanitation and provision of housing to systematically replace shack settlements. He found the incremental upgrading of informal settlements to be impressive, and said the official machinery works well, unlike his experience of other African countries. The services the city provided to informal settlements were better than services provided in many formally planned urban areas in sub-Saharan Africa. The challenges he saw for government were job creation, ways to share the cost of providing and maintaining services, reducing vandalism and wastage of resources, and ensuring the people appreciate the efforts of government.

Bamako

Khady Diagne said the objective of her visit was to collect information on floods in Mali. She visited Sanankoroba village, 50km from Bamako, and her host was Sekou Traore. Khady said she had seen first hand how the community had grappled with its problems related to flooding and the risk of malaria from standing pools of water. A participatory development committee had been established by the Bincadi ['Mutual Understanding'] local association. The youth of the community had built drains for waste water and sanitation, using bricks that they had made. A pilot housing scheme had been established with the Bamako district council. She had met with the mayor and found out about how the community and the authorities had co-operated with one another. Moves are afoot to set up a co-ordinating mechanism at district level. She had also visited the Civil Protection Board to find out about its role in cases of natural disaster.

Comment

David Satterthwaite said exchange visits are very important for sharing tools, methods and precedents. Another benefit is the way it has the potential to bring in new members.

4   Other inputs during the meeting

4.1   A conceptual framework (Terry Cannon)

Terry Cannon of the University of Greenwich and the Natural Resources Institute in London questioned the urban focus of AURAN, saying it was important to consider what urban risks are increased through rural problems. Urbanisation, he said, is driven by the collapse of rural livelihoods, driven in part by climate change and state inadequacy in managing urban services. This is exacerbated by external pressure for neo-liberal policies and privatisation. Because the urban population is entirely dependent on formal and informal cash income, generating income is the top priority. However, the opportunity to convert income into self-protection is very limited, so people are highly dependent on social protection and therefore on governance.

Terry said for all these reasons, natural hazards may not be at the top of people's priorities. Daily life – the pursuit of livelihoods – takes precedence above all. Changing people's perception of risk and their behaviour is crucial but difficult. Any attempt to reduce disaster vulnerability requires first strengthening people's livelihoods. He provided a framework within which AURAN might locate its work, and a number of key hindrances (Figure 1).
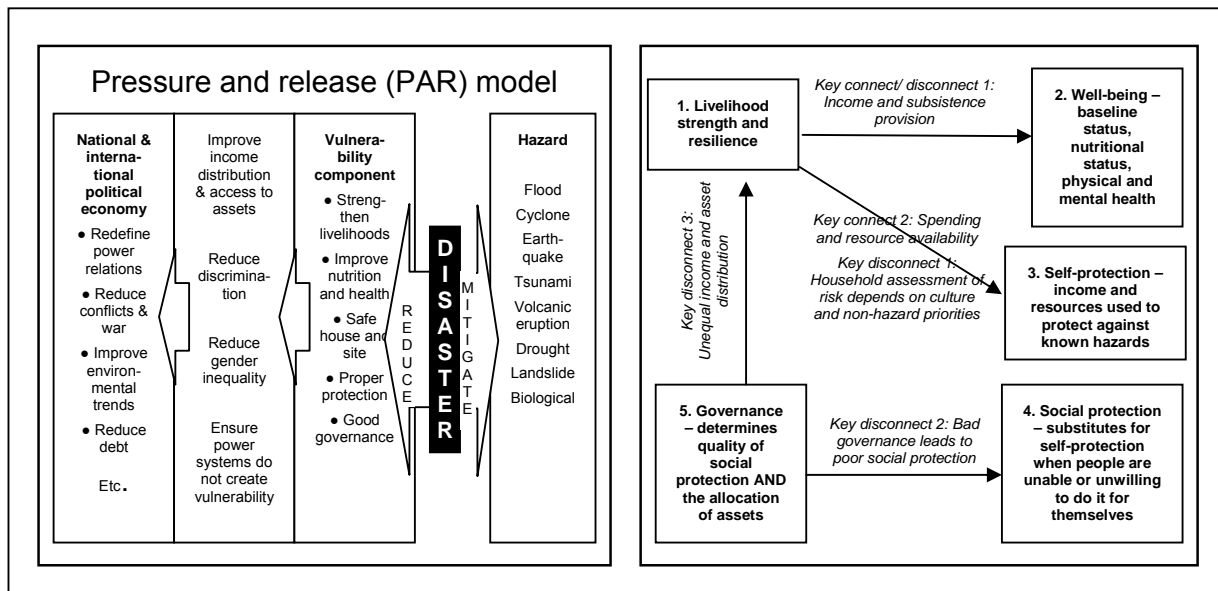
Figure 1: One risk reduction framework and the related disconnects

Comment on the framework

David Satterthwaite said he agreed broadly with the framework that Terry had offered, except that the critical discourse is not around social protection, because there is none in Africa. He said the need was to engage with communities to build the social capital necessary to build their resilience. **Terry** replied that building civil society groups is part of social protection and there is a need to provide safety for self-organisation. People working in fair trade partnerships had received death threats and some 10 000 workers had been killed by government agents in South America.

4.2 Global climate change and urban vulnerability (Sari Kovats)

Sari Kovats of the London School of Hygiene and Tropical Medicine and the Intergovernmental Panel on Climate Change (IPCC) said one of her roles on the panel is to review the literature on the health impacts of disasters in Africa and report back to the panel. She said there is a big gap in information on disaster risk at city level which AURAN could help fill, particularly given that Africa is acknowledged to more vulnerable to climate change than any other continent.

AURAN members whose countries qualify to draw up a National Adaptation Programme of Action (NAPA) under the UN Framework Convention on Climate Change should ensure that disaster risk reduction is included in the NAPA for their countries. This would provide a mandate and access to funding for specific adaptation work to be done. The AURAN studies might be able to contribute information on aspects of climate change in urban environments such as health impacts and the groups who are particularly at risk, namely children and old people. In its climate change assessments, the IPCC is particularly interested in how inequality affects vulnerability, and the thresholds at which a whole community suddenly becomes unviable because of, for example, snow melt, coastal floods, river floods or a lack of water. Informal settlements are often sited in vulnerable areas. If this risk is increased by rising temperature, adaptation funding might be available for moving people to safer areas. AURAN members might be able to gain access to adaptation funding by, for example, combining reduced emissions with reducing the risk of road traffic accidents.

David Satterthwaite said climate change specialists are so keen to engage with city-level studies because it enables them to see the local effects of changing weather. Even if there were to be no more emissions, climate change would still be inevitable. The question is: How will cities cope with risks brought about by climate change in the long term?

4.3 Comments on the meeting (Mark Pelling)

Mark Pelling of the Department of Geography, Kings College, London said there was an ongoing debate about whether AURAN should continue remain *focused only on urban issues*. He said the important issue is that we live in urbanising societies that have economic, social and environmental consequences. If critical infrastructure is not present, or if it is damaged during a disaster, a small hazard can become a big hazard. A particularly acute issue in urban areas is *security of tenure*. Building resilience and coping ability requires people to have a sense of belonging in a place – it must be clear who lives where and who uses what space in the city. Various AURAN studies have revealed complex issues of governance and social networks. Groups like slumdwellers that may in the past have been thought to be 'counter-development' are now regarded as having innovative solutions to urban problems.

Mark said the top three vulnerability factors that had emerged are livelihoods, macro- and micro-economic systems, and the physical form of the city. Not much had been said about the vulnerability of important *intangible aspects* of the city such places for political discussion, innovation, intellectual freedom and cultural exchange. Another intangible aspect was security from terror and conflicts. He identified Millennium Development Goal 7 (to improve the lives of 100 million slumdwellers by 2020) as an important opportunity to make disaster risk reduction a high global priority.

5   Other issues raised in discussion

Upgrading informal settlements

James Morrisey of DiMP said the term 'informal settlement' implied that these settlements were transitory, that they were not really a part of the city. As soon as upgrading activities such as the provision of services were undertaken, they could no longer be described as informal. It was not possible to have risk-free informal settlements, and any interventions to reduce risk had to be done in such a way that they did not undermine the livelihoods of residents. In-situ upgrading in Cape Town took the form of providing water, sanitation, electrification and some stormwater drainage. Privatisation of services and poor partnerships increased risk, and this was compounded by incompetent and corrupt leaders who sold structures in unsafe areas.

The tension between family obligation and ensuring a safe density

Helen Macgregor of DiMP said one factor increasing risk was when people felt obliged to provide space for family members within settlements that were already densely-populated, exacerbating the risk of fire and diminishing the ability of emergency services to gain access to such areas. Current South African law allows authorities to remove dwellings without a court order if this is done within 24 hours of construction. Keeping housing densities safe and access routes clear required monitors to immediately bring new construction to the attention of the authorities. Local government should provide disincentives for high-risk behaviour.

Changing the risk profile

David Satterthwaite said that, while helping low-income groups to adapt to risk is an important part of risk reduction, it is important to consider whether efforts to help them are also helping *to change the risk profile*. Experience had shown that even developmental states and NGOs had failed to deliver. Organised federations of the urban poor in many locations had done their own hazard mapping in two weeks at between $1/10^{th}$ and $1/20^{th}$ of the cost of professional engagement.

The poor as active partners rather than recipients of government largesse

Joel Bolnick of the Community Organisation Resource Centre in Cape Town said that top-down government decisions often increased risk. For example, local government attempts in Cairo to 'reduce health risk' by privatising and rationalising waste collection has put 40 000 families at risk; the upgrading of railroads in Kenya for better public transport has deprived thousands of families of land where they live. Programmes inspired by international actors to improve tenure had dispossessed tenants of the land where they live. These programmes are rooted in government seeing poor people as beneficiaries of their largesse, rather than partners with whom livelihood strategies, tenure issues and basic needs should be discussed. The poor are often seen to be people at risk, but we need to be aware that they have agency and are able to take action to reduce their own risk.

Mark Pelling said the roles of different actors can be very ambiguous. In Latin America there are case studies of political activists undermining the development of the poor instead of supporting it, and cases of druglords entering into supportive partnerships with the poor when we might expect the opposite.

Jacob Songsore stressed the importance of human agency and activism. He said so much has changed as a result of alliances pressuring the international financial institutions from below.

Grassroots organisations working at local, city, national, global level had put pressure on the greedy.

Reintegrating disaster risk management into every urban management

Ken Westgate said his organisation and others had advocated for disaster risk management to be treated as a separate discipline because they wanted it to be taken seriously, but this had been a mistake. Treating disaster risk reduction as a separate discipline has meant that it has become an entirely event-driven activity in which the frame of reference is the last major disaster. He said no attempt is being made to understand the last major disaster in its historical context. There was an urgent need for disaster management to be reintegrated into everyday urban management so that all activities are managed in a way that minimises risk accumulation.

What is an acceptable level of risk?

Djillali Benouar said in his view all disasters are human-made, not acts of God like people used to believe. It all comes down to what level of risk governments are prepared to accept. Non-acceptable risk had to be managed. Acceptable risk is a different thing that depends on the culture, economy and politics of a particular place. For example, he said, there are societies that expect that ten people will die every year in floods.

6 Potential partnerships

Maya Schaerer of ProVention spoke on behalf of Katalin Demeter of the World Bank Institute (WBI) about its Comprehensive Disaster Risk Management Learning Program. The programme draws on a wide range of international resources and its objective is to promote proactive disaster management practices, raise awareness and advance the analytical skills and professional knowledge in specific areas of disaster risk management. Its learning products include training programmes at global, regional and country-specific level, and it provides web-based distance learning in English, Spanish and French. It also is engaged in consensus building and awareness raising, as well as knowledge exchange through its website, publications, case studies and toolkit. The pilot online course in 2004 trained 115 people in 33 countries. WBI is interested in running this programme at an African university and is open to collaboration and developing the theme.

Ailsa Holloway said the *Periperi U* network aims to build capacity in institutions in Africa for training, teaching, research and policy advocacy in disaster risk reduction and vulnerability reduction. Its activities include teaching, learning, short course training and advocacy. Partner institutions include DiMP and Wits University in South Africa, DMTC in Tanzania, and Bahir Dar University in Ethiopia. New partner institutions are being added. The Bill and Melinda Gates Foundation supports a number of NGOs through its ECB [Emergency Capacity Building] programme. The UK Department for International Development (DFID) Vulnerability and Hunger Programme aims to expand existing capacity across the Southern African Development Community region and up to Tanzania with a strong lens on social protection.

Anthony Spalton of the IFRC in Geneva gave a brief overview of some of the organisation's areas of focus. He said there are 183 affiliated Red Cross and Red Crescent societies in IFRC and it hosts the ProVention Consortium. IFRC is running a three-year programme on disaster reduction funded by DFID and is also working on vulnerability in southern Africa. Anthony said IFRC does not have an explicitly urban focus – it works more on urban risk in developed countries and more on rural risk in developing countries. The Algerian Red Crescent Society is active in earthquake risk reduction, and societies in Turkey and Bangladesh are active in earthquake preparedness. IFRC has taken a global lead on shelter and is concentrating on promoting 'building back better' in the wake of the Asian Tsunami and the Pakistan earthquake. In China last year there was a symposium on urban disaster preparedness and another recent meeting was held in the Netherlands on climate change and adaptation in Asia and Africa. The IFRC World Disasters Report had a whole chapter on urbanisation in 2004. IFRC also works in non-formal and formal education – there are 13 school programmes in Latin America and 11 in urban contexts. Anthony said there is scope for the IFRC to more closely involved with AURAN, given its experience with vulnerability, capacity assessment and risk analysis.

Davide Zappa of the Southern African IFRC office said his organisation develops research capacity on risk reduction, and has a significant number of relevant documents on its website.

Djillali Benouar said the US-based Earthquake Megacities Initiative (EMI) has done a lot of work around the world around disaster prevention, including vulnerability assessment, earthquake scenarios and retrofitting. However, this NGO only works on megacities – cities of over 10 million people.

Hossein Sarem-Kalali of UNDP said EMI works in 18 cities across the world, but not in Africa, even though Cairo and Lagos are megacities. He said EMI is very interested in having a presence in Africa, and it has risk assessment tools and capacity building modules available on its website.

Mark Pelling said the UN Habitat Global Human Settlement Report has issued a call for information on key policy areas for urban development in poorer countries. The theme of its 2007 report is urban security – security and tenure; crime and violence; and triggers for natural or industrial/technological disasters. He said he is responsible for co-ordinating the disaster part, and that a small budget is available for good-quality case studies on good practice in risk reduction and response.

7   Reviewing Phase I

Bruno Haghebaert led a discussion to review learnt from Phase I of AURAN, including reflecting on IIED's co-ordination and technical advice; what worked and what did not work; why so few exchange visits took place; the delayed launch of the AURAN website; and the submission of Phase I research reports, some of which had been delayed.

He said other topics for discussion included:

- *Knowledge management and information sharing* – what AURAN partners will do with their research findings within their own countries and more broadly. Is the website a nice-to-have, he asked, or is it key to AURAN's work? Would it have been useful for it to have been completed before now? [The website is in a testing phase.]

- *The language issue within AURAN* – the network communicates in English, even though African countries make use of other official languages such as French, Portuguese and Arabic.

- *Regionalisation*: Is there an argument for regional networks instead of an Africa-wide one?

- *Developing and strengthening the network*: AURAN should be seen as the initiative which aims to develop a framework with a common agenda and framework for risk reduction in Africa, but this is not yet the case. What measures could AURAN take to be more effective in the future? How could new partners be added to the network? How could AURAN ensure its views are represented at international forums?

- *Exploring future funding opportunities*.

- *How to do advocacy and awareness-raising aimed at decision makers* in the various contexts of AURAN members.

- *Capacity building* within the network.

- *Exchange visits***:** To explore why there had been only been two exchange visits since the last AURAN meeting, even though funding was available for more.

- *African stewardship of the network***:** Bruno said the network had been led by Northern partners, and it may be time for the African partners to take over stewardship of AURAN completely during Phase II. David Satterthwaite had indicated that he is no longer able to take the same amount of responsibility for managing AURAN as he had done up to now.

Bruno identified a few patterns which had emerged during discussions on the successes and failures of AURAN projects so far. **Challenges** were: 1) Data availability and concerns about data quality. 2) The challenge to influence official policy. 3) The sustainability of the intervention and investment in research. **Successes** were: 1) Dialogue with communities and stakeholders, providing a good basis for further work at the community level. 2) In some cases, moving towards operationalising the results of the Phase I research.

Discussion points

The development of the network

David Satterthwaite said being part of a network helps to develop tools and methods for working with other actors and civil society. During Phase I, partners had focused on researching their own environments. Now the network would be start to be able to share experience around tools and methods.

Ken Westgate said region-wide networks in Africa are few and far between, so it is not surprising that AURAN is on a learning curve. The UN International Strategy for Disaster Reduction (ISDR) had established a drought risk and development network and it was clear that networks take time to mature. AURAN could not expect to run before it could walk.

Bruno Haghebaert said a lot of money had already been invested in AURAN and, while it was accepted that any network might take 10–20 years to develop, there was a possibility that funding would dry up before that point was reached.

Helen Macgregor said that managing a network is not easy because it relies on only three tools – meetings every few years, the website, and exchange visits. She said AURAN should learn from the experience of other networks, including the African drought risk and development network, and the eastern and southern Africa rainwater harvesting network. The withdrawal of AURAN's Zambian partner at a crucial stage had made it very difficult to keep the network functioning well.

Should AURAN focus on disaster risk or urban development planning?

Helen Macgregor said it was not yet clear whether the shared conceptual framework should be located within disaster risk as a special area of expertise, or within urban development planning, informing the way that planning is done.

Jacob Songsore said AURAN was trying to straddle the middle ground between disaster risk and urban development planning. It was not possible to separate these focus areas – they are interlinked and multidisciplinary.

Knowledge management/ website

Helen Macgregor said that now that AURAN's research results had started to come in, the network could start to generate outputs. The network should establish a database to facilitate information-sharing on an Africa-wide and global basis. The website will make the knowledge accessible to anyone in the world.

Exchange visits

Monoris Meshack said it would have been premature to do exchange visits before partners knew what was going on in their own countries. Another question was whether AURAN partners go on exchange visits themselves, or whether they should choose a partner who is key to the success of the work, for example, someone from city government or someone from an organisation like the Red Cross.

Jacob Songsore said partners were under pressure to produce the report, there was no point in going elsewhere until they had information to share.

David Satterthwaite said AURAN is a 20-year project. The current meeting was only the third time the network had met. Exchanges become useful at the point when people move beyond doing what they do well. He said that seeing an approach work in other situations encourages you to do it yourself.

Bruno Haghebaert said many of the partners have been active for 20 years, so exchanges would not only be useful for the AURAN partners themselves, they could also benefit other actors working in urban development planning.

Helen Macgregor said DiMP had sent two members of the Cape Town administration on an exchange visit as a strategic choice – to build capacity and support DiMP's approach of encouraging urban development planners to engage with issues of disaster risk reduction. This served two purposes – building the capacity of partners, and building their willingness to share data and work with DiMP.

AURAN and the World Urban Forum

Ken Westgate said AURAN should attend the World Urban Forum to be held from 19–23 June 2006 in Vancouver. Jacob Songsore and Khady Diagne replied that they would be attending this conference.

The language of the network

David Satterthwaite said there was an urgent need to address the lack of translation facilities to allow AURAN partners who do not speak English to fully express themselves in meetings.

Sources of funding

Ken Westgate said that, in order to qualify for UNDP funding, an organisation must have been through a rigorous screening process and approved. IIED had been approved, but none of the six AURAN partners had yet been screened. If overall oversight of AURAN was not held by IIED, the implication was that there would be a hiatus before further funds could be released. He said UNDP would like to see a bridge built between research and practice in the form of a toolkit of how the work of AURAN is useful to reduce the risk of urban populations in Africa. UNDP would also like its logo on all publications. Ken said that UNDP could not commit itself to contributing funding towards Phase II at this stage.

Sari Kovats said the adoption of global conventions on climate change has meant that money to support work around adaptation to climate change would soon become available from funders like the Global Environment Facility, the UK Department for International Development (DFID) and the Canadian International Development Agency (CIDA). Because there is not much awareness yet about the broad impact of climate change in urban areas, much of the money was likely to go straight into rural projects, particularly agricultural ones. She said this is a good time for AURAN with its focus on urban vulnerability to help to define the funding agenda on adaptation. A joint DFID/CIDA call for projects was likely to be issued in April 2006.

David Sattertwaite said IIED has an extremely well-funded climate change programme that is interested in cities and adaptation. One of the key recommendations of the next Intergovernmental Panel on Climate Change report would be for support for local studies of how cities will adapt to climate change. AURAN's work is very well located to qualify for funding, he said, because its risk reduction framework can easily accommodate risks associated with climate change. Many African nations have the highest proportion of their urban population at risk from sea level change and coastal instability.

Jacob Songsore said there is already research on how seasonal variability affects morbidity and mortality patterns – for example, disease vectors receive a boost in the wet season. He said climate variability and the extreme events it tends to be associated with would complicate the picture of seasonal variability.

Practical arrangements

Participants agreed that the time for African stewardship of the network had come. Current co-ordinator **David Satterthwaite** was fully in support of this sentiment. The tasks of managing the network were broadly described by participants as follows:

1. **Project management** including ensuring that partners adhere to deadlines and funding requirements (and possibly including some of the other functions in this list).
2. **Fundraising and marketing**.
3. **Conference and workshop** organisation.

4. **Publication** of findings
5. **Driving the intellectual agenda and championing** of AURAN by generating cross-study literature.
6. **Financial** management.
7. **Website** management.

A clear problem with moving the co-ordination role from IIED is that IIED is currently the only organisation involved in AURAN which has been approved to receive UNDP funds. It was suggested that IIED be asked whether it would be willing to continue to play the *financial management role* until such time as one of the AURAN partners was able to take it over. However, it is not clear whether UNDP rules allow this and IIED did not express a view on whether it would be willing to consider this.

The group was divided on whether AURAN should remain *a single network*, or whether *regional groupings* should be established. On the one hand, regional groupings would deal with the language issue in AURAN (the fact that it operates only in English); in fact Khady Diagne had already written a proposal for risk reduction in a number of French-speaking west African countries. On the other hand, it might be better to consolidate one network, and establish regional groupings later.

Responding to a request for DiMP to take responsibility for *website administration*, Helen Macgregor pointed out that the website was designed to be co-managed by the entire network as a vital tool in making the network function well.

There was agreement that the capacity to drive the *intellectual agenda* of AURAN existed already, and that an African partner *should* be playing this role. Bruno Haghebaert indicated that, from a funder's point of view, this role should ideally be played by some partner operating from within an established university environment. While the idea of dividing tasks was appealing, it was very challenging to hold a network together if the responsibilities for different functions were dispersed. Phase I would have to have a clear end, and roles and responsibilities would have to be clearly defined for Phase II.

There was lengthy but inconclusive discussion about whether it would be possible or wise for different partners to play different roles. It was suggested that DiMP or DMTC could play the co-ordination role; alternatively, that they could share the role. DiMP would be an expensive choice because the University of Cape Town takes 40% of the money that the unit raises, meaning it has to charge high rates to remain viable.

In a separate discussion between AURAN members, ProVention and UNDP, agreement was reached that DiMP would take over the secretariat and be responsible for Phase II work and DMTC would be responsible for the website.

8   A draft agenda for Phase II

Bruno Haghebaert said Phase II should move towards operationalising the research that had been done in Phase I. His draft agenda topics for Phase II was as follows:

- Development and implementation of practical urban risk reduction activities in collaboration with local actors.
- Advocacy and awareness-raising activities.
- Mainstreaming urban risk reduction initiatives into urban management policy and processes.
- Providing technical advisory services to local government and NGOs.
- Awareness-raising activities and campaigns aimed at decision makers, local organisations and communities.
- Knowledge sharing activities.
- Production of practical urban risk reduction assessment tools and methodologies (possibly with a research component).
- Identification and dissemination of good urban risk reduction practice.
- Capacity building and training activities.
- Developing training modules, curricula and educational programmes on urban risk reduction.

Khady Diagne said she had drafted a proposal for a project entitled 'Governance programme on preparedness measures to reduce population vulnerability to natural disasters in urban settings in West Africa and Central Africa'. The countries are Mali, Cameroon, Benin, Togo, Cote d'Ivoire and Senegal, with Senegal as the co-ordinator. This project is intended to inform the local and national authorities and NGOs, as well as international organisations about the relationship between urbanisation, environmental change and risk accumulation related to natural disasters and linked to development. Partners that have already been identified included community-based organisations and local communities who are involved in behaviour change. Each country will identify its own natural hazards, arrange meetings, work with media and disseminate its work in a number of ways.

Jacob Songsore said he would like to work with Ghana's disaster management organisations at national and regional level on one practical project based on issues arising from the Phase I research. A public health report would be published soon, written by a team with over two decades of experience, and he hoped this would enable policy-makers to better understand the risk implications of their planning actions. In order to further mainstreaming, Jacob said he would give lectures at the school of public health and at metropolitan level. Awareness-raising could be done through workshops and pamphlets.

Andre Yitambe said because the lack of computerised information in hospitals hampered research into RTAs, he would make contact with the national road and disaster management authorities to seek funding for a pilot programme to computerise information in Kisumu and Kisii hospitals. There is a clear need for advocacy in order to change the behaviour of people, he said, so he would want to make use of specialist communication services. Other possibilities were: holding safety workshops with cyclists, sharing information with other research institutions, providing assistance for the implementation of the road traffic policy, and developing community participation into road safety policy. Capacity building activities included teaching a Masters course in disaster management, and teaching short courses about RTAs for professionals working in the ministry of transport. There was a need for curriculum development. Interventions that would help cyclists

would be creating a fund for victims of accidents and using microfinance to support informal insurance through the association of cyclists.

Leigh Sonn said DiMP would like to find ways of providing practitioners in the City of Cape Town with better access to MANDISA to better inform their planning.

On the subject of engaging authorities, **Helen Macgregor** said DiMP was six months into a pilot project to strengthen partnerships between local government and communities. One of the ways in which this has been done is through the development of tools and guidelines for CRA, incorporating unique African examples of good practice, as well as examples of how *not* to do it. The NGO Development Action Group is one of DiMP's key partners in this programme and guidelines for community disaster risk management are imminent. DiMP has been able to secure funding from the Development Bank of Southern Africa to train volunteer community risk monitors to assess risk and provide feedback to relevant municipal departments on such matters as stormwater conditions and settlement density. These volunteers will also be engaged in awareness-raising and training. DiMP will ensure that it provides the monitors with updated information that will complement what they are doing on the ground. It is envisaged that each group of volunteers will use a freight container as an office and have a series of maps and other supportive tools to help them monitor and map risk.

David Satterthwaite said in many informal settlements in the world there are no professionally-managed processes and no connection with the actual processes that shape the development of the city. For that reason, people see little reason to engage. He said to engage with low-income communities is to engage with planning, even if it is outside the law or formal planning processes.

Appendix: Participants

		7 Mar	8 Mar	9 Mar
Djillali Benouar	University of Bab Ezzouar (USTHB), Algiers dbenouar@yahoo.com	✓	✓	✓
Joel Bolnick	Community Organisation Resource Centre, Cape Town bolnick@courc.co.za		✓	
Ben Brown	Regional Co-ordinator, National Disaster Management Organisation (NADMO), Ghana nadmo@africaonline.com.gh	✓	✓	✓
Terry Cannon	University of Greenwich; Natural Resources Institute, London t.g.cannon@gre.ac.uk	✓	✓	✓
Gift Chatora	International Federation of Red Cross and Red Crescent Societies (IFRC) Southern Africa Regional Delegation, Harare gift.chatora@ifrc.org	✓	✓	✓
Khady Diagne	Environnement et Développement du Tiers-Monde (ENDA-TM), Dakar rup@enda.sn	✓	✓	✓
Bruno Haghebaert	ProVention Consortium Secretariat, Geneva bruno.haghebert@ifrc.org	✓	✓	✓
Christopher Hartnady	Umvoto Africa, Cape Town chris@umvoto.com		✓	✓
Stephen Heyns	Workshop rapporteur stephen.heyns@iafrica.com	✓	✓	✓
Ailsa Holloway	Disaster Mitigation for Sustainable Livelihoods Programme, University of Cape Town (DiMP) holloway@enviro.uct.ac.za		✓	
Aaron Hobongwana	Development Action Group (DAG), Cape Town dag@dag.org.za		✓	✓
Sari Kovats	London School of Hygiene and Tropical Medicine; Intergovernmental Panel on Climate Change sari.kovats@lshtm.ac.uk	✓	✓	✓
Helen Macgregor	DiMP, Cape Town helenmac@enviro.uct.ac.za	✓	✓	✓
Mangaliso Mati	Programme Management, City of Cape Town		✓	
Manoris Meshack	Disaster Management Training Centre (DMTC), University College of Lands and Architectural Studies, University of Dar es Salaam meshack@uclas.ac.tz	✓	✓	✓
Mlenge Fanuel Mgendi	DMTC, Dar es Salaam mlenge@uclas.ac.tz or mlenge@yahoo.com		✓	✓
James Morrissey	DiMP, Cape Town morissey@science.uct.ac.za		✓	✓
Lyndal Pottier	DiMP, Cape Town pottierl@science.uct.ac.za	✓	✓	✓
Mark Pelling	Department of Geography, Kings College London mark.pelling@kcl.ac.uk		✓	✓
Mawethu Pemba	Programme Management, City of Cape Town		✓	
Hossein Sarem-Kalali	United Nations Development Programme Bureau for Crisis Prevention and Recovery (UNDP-BCPR), Geneva hossein.kalali@undp.org	✓	✓	✓
David Satterthwaite	AURAN Co-ordinator; International Institute for Environment and Development (IIED), London david.satterthwaite@iied.org	✓	✓	✓
Maya Schaerer	ProVention Consortium, Geneva maya.shaerer@ifrc.org	✓	✓	✓
Leigh Sonn	DiMP, Cape Town sonn@enviro.uct.ac.za	✓	✓	✓
Jacob Songsore	Department of Geography and Resource Development, University of Ghana-Legon, Accra songsore@ug.edu.gh	✓	✓	✓

Antony Spalton	IFRC, Geneva anthony.spalton@ifrc.org	✓	✓	✓
Sekou Tidiani Traoré	ONG AREM (Association pour la Réhabilitation de l'Environnement au Mali), Bamako ong_arem@yahoo.fr or tidianisekou@yahoo.fr	✓	✓	✓
Ken Westgate	UNDP-BCPR, Nairobi Kenneth.westgate@undp.org	✓	✓	✓
Andre Yitambe	Kenyatta University, Nairobi andreyita2000@yahoo.com	✓	✓	✓
Davide Zappa	IFRC Southern Africa Regional Delegation, Harare divide.zappa@ifrc.org	✓	✓	✓