Communities, climate change and the district health system

Climate change is inevitable – how can we adapt to these changes?

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Climate change is increasingly recognised as affecting the planet we live on, fundamentally changing weather patterns, with an accompanying increase in 'natural' disasters such as tropical storms, floods, wild fires and droughts. Climate change will threaten water and food supplies, disrupt physical infrastructure and increase mortality.[1] The prediction is that in the next four decades southern Africa will become warmer, especially over the inland plateau, and drier, especially over the western half.[2] It is important to realise that the way we live, and the places where our towns, cities, farms, dams and other infrastructure are, were all created around the more or less stable climate that has prevailed in the last century or two. It is not possible to uproot all of this to move to places where the climate might be similar in the near future. Even so, large-scale migration and conflict have also been predicted because of diminishing natural resources, and displacement because of environmental degradation.[3,4] Events in the Horn of Africa (Somalia and Ethiopia) are a case in point. For most communities in South Africa, however, adaptation to a changing climate will be required.

Concern about the cost of energy and climate change has led to the National Climate Change Response Green Paper that emphasises the need to decrease carbon footprints and improve efforts to increase resilience at a personal and health system level[5] (also see articles by Reynolds and Mash in this issue).[6,7]

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The questions to be answered in this article are: What can we do now in districts or neighbourhoods to decrease the impact of these changes and to better adapt to them? Is it possible that the changes we need to make in the way we live and work can help us to cope with other fundamental global crises?

Ways to minimise the effect of disasters

The effect of any disaster depends on the nature of the hazard and the vulnerability of the population. Mitigation of climate change focuses on reducing the hazard – in this case the increase of ambient temperature and the effects it will have on our lives through the changes it will bring to our climate. The UN Intergovernmental Panel on Climate Change concluded that most of the observed increase in global average temperature since the 1950s is very probably due to the observed increase in anthropogenic greenhouse gas concentrations.[8] Some sceptics still believe that it is unclear whether human behaviour is the cause of increased surface temperature. The ambient temperature is rising and we will have to adapt to the change whether we are the cause of it, or not.

Adaptation focuses on reducing the vulnerability of the population by decreasing susceptibility and increasing resilience or ability to cope with change. The vulnerability of a population could depend on the following: population density,

level of economic development, food availability, income level and distribution, quality and availability of public health care, education, local environmental conditions and the pre-existing health status of the population.[9] Socio-economic systems moderate or amplify the impact of climate change and have a marked effect on the ability of communities to adapt.

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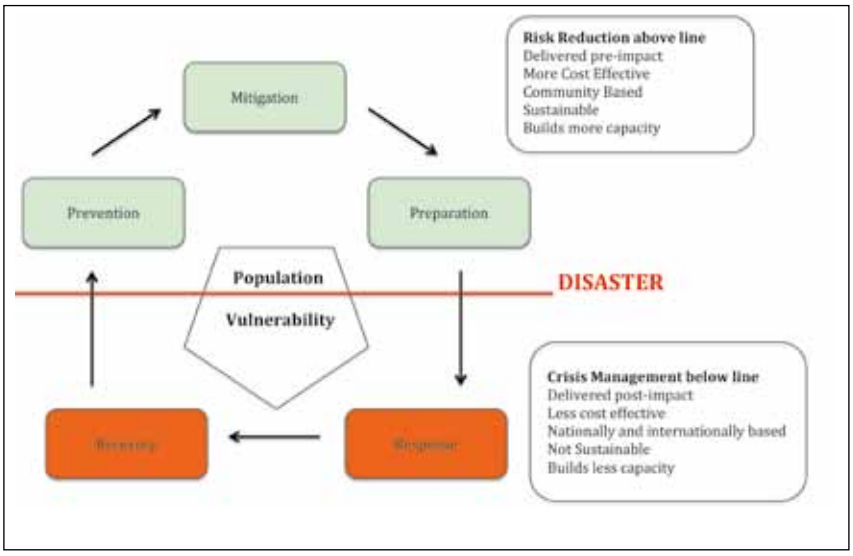

Fig. 1. A disaster risk management cycle.

The approach to disasters in general, such as earthquakes or flooding, has shifted to a more systematic and comprehensive risk management process involving prevention, mitigation and preparation (Fig. 1). Risk reduction measures are delivered pre-impact, tend to be community based, less expensive and more sustainable. On the other hand, crisis management responses tend to be expensive, depend on outside intervention and therefore are often extremely limited.[10] The success of post-disaster actions is also to a large extent determined by pre-disaster planning, awareness and readiness within local government and civil society organisations. In this way, community action and partnerships with local government are central, not just to minimising risk, but also to responding to impact and shaping recovery in ways that can strengthen local livelihoods and quality of life.[6] In line with the primary healthcare approach, risk management and adaption that reduce the impact of climate change should be integrated into development policy and practice with full participation of communities, businesses and local government and so help build resilience of communities and families.[7]

In Fig.1 risk reduction measures are contrasted with crisis management.[10] Ideally we want to function in the area above the horizontal disaster line. In this case the disaster line might represent extreme weather events on a background of changing climate patterns.

The health system is in the middle of it all

This article outlines what doctors and other health professionals can do within a district health system in South Africa to facilitate community mitigation and adaption to climate change. Our district health service is based on the primary healthcare approach, which promotes ongoing improvement in the health of the population served, encourages partnership between communities and the service providers in the area, and monitors trends in the burden of disease.[7]

To do this, the district health team needs to engage people from health and other sectors, private and public, as well as formal and informal community structures, to discuss and respond to key issues that affect the health of all people in the district, with a special focus on vulnerable groups who will be most affected. Health professionals have a key role in raising awareness of the scientific evidence linking climate change to human activities and encouraging others, both in the private and public sector, to strengthen mitigation and adaption efforts and at the same time to improve health and health equity at district level.[11]

Communities that are involved realise the problem, take responsibility and become part of the solution.

These are complex issues, so the process should start with a dialogue of interested parties, even though most communities may not see climate change as a priority. Much of the call for lifestyle changes to mitigate the impact of climate change is directed at people from higher socio-

economic groups – and correctly so – as they not only have more ability to adapt their behaviour, but also contribute far more to greenhouse gas emissions. Attention to adaptation and resilience of communities should, however, focus more on lower socio-economic groups that are more vulnerable. Involving appropriate representatives of such communities in the design, implementation and monitoring of interventions should aim to improve overall family and household resilience to cope with change. Improving resilience of communities can harness community commitment to more directly felt needs and priorities such as food security, water supply, and social support, all of which will also improve adaptation to climate change. In the longer term such interaction should also build support for development that is more sustainable and that follows a low carbon emission pathway.

A participatory approach that involves both critical reflection and planning leads to a greater understanding of the issues and more appropriate local action.[12] This can be envisaged as a participatory action research (PAR) project (whether it is done as a project or actually written up as research) and should ensure community participation. This also allows the researcher or project manager and the rest of the team a better sense of the situation and possibilities in the community. It is a generic approach that could be used to tackle a range of problems faced by a community (Fig. 2).[12,13]

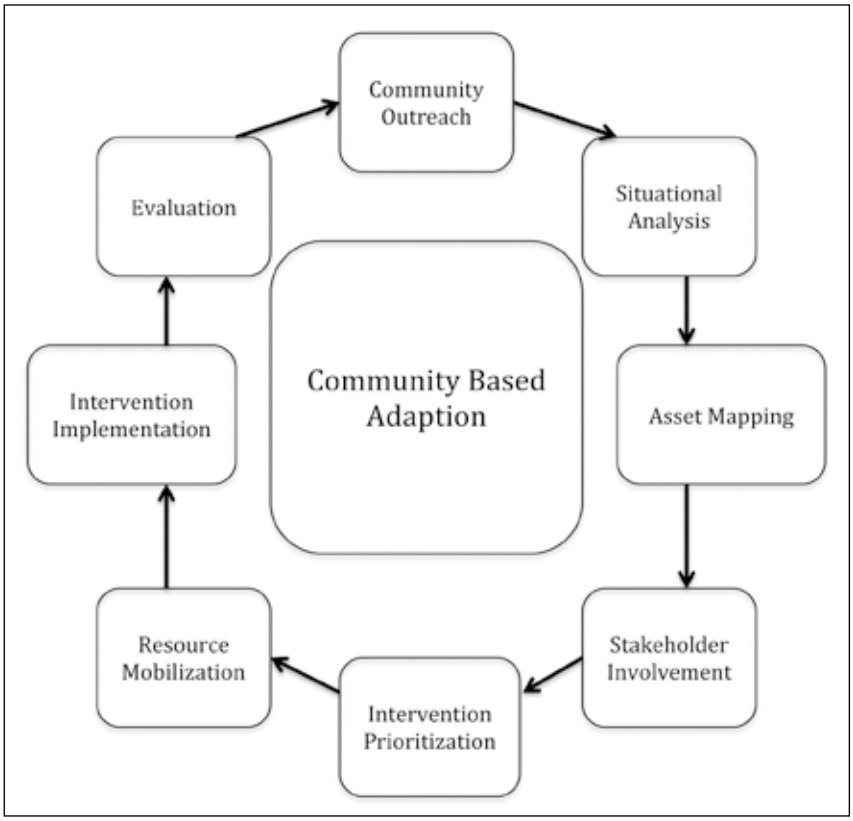

Fig. 2. The eight steps of a participatory action research cycle (adapted from Ebi and Semenza, 2008[13]).

The eight steps of a participatory action research cycle are as follows:

1. **Community outreach.** Initiate a discussion and raise awareness about the problem in a community forum. Identify community boundaries, participants or participatory organisations and set up a team to take the process forward.
2. **Situational analysis.** Describe the community needs, constraints, challenges and obstacles that decrease adaptability and identify possible future problems and risks. A situational analysis should also assess factors that could influence vulnerability. These will include, e.g. demographics, education, land use, and water supply. Producing a participatory community risk assessment may be a good first to raise awareness and mobilise resources. Storylines are a way of sketching different scenarios and endings to improve community engagement on shorter- and longer-term risks and interventions.
3. **Asset mapping.** This will include natural resources, social capital within the general community as well as local opinion and community leaders. Social capital is a term used to describe the potential within the relationships of a community to solve problems together. Structural social capital is contained within networks between individuals and organisations in a community, while cognitive social capital develops as a result of common ideas, beliefs and attitudes. Social capital can be increased by synergistically linking quite different individuals and institutions and different levels of the societal hierarchy together to achieve a common goal.[14] Because of the complexity and wide impact of climate

change, mitigation and adaptation solutions will be most effective in a community with full utilisation of their capacity and social capital. Assets would include organisations such as faith-based organisations, colleges, governmental agencies, local agencies and non-government organisations (NGOs).

4. **Stakeholder involvement.** This combines social capital from different sectors, allowing a broader exploration of options and more comprehensive solutions. An important outcome would be to facilitate social networks and personal connections between individuals and organisations within the neighbourhood.
5. **Intervention prioritisation.** All stakeholders should be involved in transparently prioritising interventions and developing an explicit intervention plan.
6. **Resource mobilisation.** After the highest priority interventions have been identified a detailed intervention plan should be created and widely published. Resources –human, organisational and financial – will have to be mobilised in preparation plan implementation.
7. **Intervention implementation.** Utilising all the stakeholder and social capital identified and empowered in the planning process to work together in implementing the plans.
8. **Evaluation, reflection, revision.** Monitor and evaluate the outcomes and impact and continuously give feedback to everyone involved. It is then important to continue with this cyclical process of action and reflection to move forward.[13]

How do we create an environment that helps people to make healthy lifestyle choices?

The Community Orientated Primary Care (COPC) approach, which aims at strengthening capacity to deal with other important health issues within a community, is a long-term PAR process.[15]

Starting with a problem of common concern, such as food security, a group of families affected and the primary healthcare team could be part of a task group. COPC aims to improve links and relationships between community members and the formal health service, and provide an opportunity for dialogue, action and review. Capacity and confidence are built in a community and ultimately positive health outcomes are achieved. It is likely that climate change *per se* will not be a priority for most vulnerable communities; however, much of what needs to be done to improve the health of families and communities, such as vegetable gardens and local markets, crèches, cycle tracks, safer parks, more opportunities for physical exercise, better public transport, improved sanitation, taps and toilets inside homes, hot water from solar panels, recycling, ensuring immunisation coverage, oral rehydration, early recognition of health problems and support to complete treatment, will also build resilience to cope better with climate change. The process can help a significant proportion of people living in the area to see themselves as part of a wider community with links to a primary healthcare team and local government.

The Health Promoting Schools (HPS) approach is a creative way to work with a school and the wider school community and is a particularly pertinent strategy for enhancing health, resilience and future sustainable development.[16]

The generic processes described above will enable communities to prepare for climate change and other health issues. These issues are often inter-related, and 'thinking about climate change' needs to be part of all these discussions even if the focus is elsewhere, e.g. on non-communicable diseases or food security. In the same way that 'health in all policies' is promoted we should also consider climate change and sustainability in all policies. This means including climate matters in health policy.

Conclusion

The challenge of responding adequately to climate change at community level is daunting. It does seem that significant and uncomfortable change is inevitable. However, some consideration of the literature shows that there are ways to decrease the size of the impact by seriously rethinking our energy use, especially in affluent communities, and by helping to build resilience, especially in more vulnerable communities. The impending disaster could either be ignored and wreak havoc when it happens, or we could take preventive and preparatory action now to reduce future impact. It is also clear that working together with all sections of society synergistically is essential. In some ways it is encouraging that quite a few of the actions that need to happen to improve the health of communities, families and individuals are also needed to decrease the causes and effects of greenhouse gases. We need to take up the challenge. While we continue to treat people who are ill and injured with care and competence, we should also shift the focus of healthcare from curative services to include community-orientated prevention and building resilience. There is an opportunity to use this common crisis of climate change to work towards the partnerships needed – not just to deal with challenges of climate change, but to be able to live and work in a fairer and more interdependent manner.

References available at www.cmej.org.za

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- Climate change is a complex problem that will have a broad range of effects on communities.
- A focus on risk reduction and preparation in anticipation of future disasters is more helpful than acute crisis management.
- Poorer communities are more vulnerable to the effects of climate change and should focus on improving resilience and strategies for adaptation.
- The district health system can contribute through community-orientated primary care to improving the resilience of communities.
- Primary healthcare is supportive of a population-based, preventive, participatory approach that engages healthcare providers and community members in action and reflection.