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# POLICY BRIEF

Department of Environmental Science, Rhodes University

## **Interaction of multiple stressors**

### **Vulnerability, coping and adaptation within the context of climate change and HIV/AIDS in South Africa:**

Investigating strategies to strengthen livelihoods  
and food security and build resilience

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## **How do social, environmental and economic stressors interact to constrain people's ability to improve their livelihoods and respond to change and what does this mean for policies?**

Government policy development and implementation is often designed to address different sectors of society in isolation, so social, economic and environmental issues are considered as being distinct from one another. Recently it has been acknowledged that 'working in silos' is not conducive for good governance and so efforts have been made for better co-ordination between different government departments and different spheres of government.

Our research findings show the knock on effects of one problem into other areas of people's lives, highlighting why it is vital for policies and programmes to be far better co-ordinated. The different challenges and stresses that people face in their lives interact with one another in complex ways, undermining their capacity to cope with and adapt to future changes, such as those expected under climate change.

### **Study site**

The study took place at both Lesseyton in Lukanji local municipality and Gatyana in Mbashe local municipality, in the Eastern Cape Province, South Africa. The Eastern Cape, with a population of approximately seven million, is the poorest province in South Africa. Two rounds of household survey interviews were carried out in both study sites (i.e. January-February and June-July, 2011) to account for seasonality effects. In the first survey, 340 households were interviewed, but 30 households were not available during the second survey, which left a sample of 310 households for that period.

### **Key findings**

Our research identified several stressors that together undermine livelihood security and adaptive capacity. These include:

- **Climate Change.** Eighty percent of households felt that shifts in the onset of the rains and increased dry spells have impacted them. Problems identified included: access to water, livestock and crop survival, food security, human health and nutrition, increasing expenditures on food and a disincentive for farming.
- **HIV/AIDS.** More than half of households were impacted by HIV/AIDS, with long term influences on household assets and social networks ultimately affecting people's ability to respond to additional stresses. Death of parents was seen to create future problems with orphans in relation to school drop-out and crime, and burdening grandmothers and surrogate households. Social networks and support systems are being stretched through the wide impacts of HIV/AIDS.
- **Social Problems.** Corruption, crime, violence, drug and alcohol dependency were seen to undermine trust, affecting farming and small business development and generally suppressing innovation. Many of these issues were specifically contributing to the vulnerability of women.
- **External Shocks.** Macro-level changes, such as increasing food and petrol prices, are stretching scarce household resources and removing opportunities for investment in areas such as home improvement and agriculture. Many households expressed concern about rising food costs and see this, and the greater need for cash, as making their lives harder.
- **Government.** Poor access to and reliability of government services inhibits local responses and capabilities. This is often exacerbated by the public having limited knowledge regarding government services and processes, such as how to pursue a criminal case after being a victim of crime, how to access social grants or drought relief.
- **Multiple Stressors Interact and Feedback on One Another.** Multiple stressors together were seen to create a sense of being overwhelmed, impacting on psychological well-being and health. This can in turn lead to crime, lack of hope and reduced local agency and action (see mental map).

### **Implications**

- There is a need for coordinated and integrated services across social development and welfare, agricultural extension, environment, policing, health, SASSA and education to better equip rural households to respond to the ongoing shocks and stressors they face.
- This should include close engagement with local people to detect local change, new stressors and possible solutions. This requires more 'on the ground' officials, such as extension officers, to take community concerns upwards into the policy and decision making arena. There also needs to be better co-ordination between such officials from different departments.
- Co-ordinated responses need to be consistently reflected on and updated, to ensure that capacity to deal with shocks and stressors is increased over time. Policies need to be flexible, dynamic and in tune with changes on the ground.

- Increased capacity and on-going co-operation between government agencies and rural communities is vital in ensuring that climate change adaptation occurs on the ground, and for the future well-being of rural livelihoods. Government departments need to ensure service delivery continues whilst locally centred development is also facilitated. This means that partnerships need to be cultivated between government, communities and other stakeholders.

### Supporting evidence:

#### 1. Historical path dependence

Vulnerable households interviewed at both study sites are still subject to the continuing socio-economic consequences of apartheid, particularly in Gatyana where working-age adult males are largely absent from the households. The high percentage of single female headed households found in Gatyana, can be explained by the large out-flow of the adult working population, particularly males, to urban centres, as well as AIDS-related deaths. Women in both sites perceived themselves to be more vulnerable to shocks and stressors than men. The financial constraints resulting from high unemployment, a decreasing trend in farming, an increasing reliance on purchased goods, and consequently a high perception of food insecurity has created a context of vulnerability and weak adaptive capacity amongst households in both sites.

#### 2. Local understanding of vulnerability

Life history interviews and workshops with women, men and the youth demonstrated the interdependence and spiraling impacts of many stressors. Respondents from Lesseyton understood 'vulnerability' to mean being too dependent on someone else, lack of guidance and parental care for the youth, drought which causes livestock death and crop failure, relying on unreliable sources of income such as remittances, and having the main breadwinner in the household die. There were similarities in the understandings of vulnerability between the two sites; in addition to the attributes of vulnerability listed in Lesseyton, participants in Gatyana mentioned climate change, substance abuse, unemployment and poverty, as well as HIV/AIDS and infidelity.

#### 3. Multiple stressors interact and feedback on one another

Some examples include:

- Children are taken out of school due to the inability of their parents to afford further costs associated with schooling and for assistance with household chores. Or children play truancy since they no longer have adequate parental guidance and boundaries due to loss of one or both parents. This can lead to crime and the spread of HIV. One of the biggest concerns emerging from the research was related to the vulnerability of the younger generation.
- Crime was mentioned by the respondents to affect their ability to continue farming activities, which further undermined their asset base and food security.
- Climate-related stressors were seen to increase the need for and reliance on purchased goods and so to increase financial stress. Both sites ranked water stress as a shock that is difficult to recover from. Respondents in Lesseyton felt that climate impacts impeded progress of government development initiatives, such as the building of RDP houses and provision of sanitation. Respondents in Gatyana felt that climate changes exacerbated food insecurity.

Hardest climate-related impacts to recover from	Lesseyton % (n=50)	Willowvale % (n=50)
Water stress	28	34
Prevented development	32	2
Food insecurity	6	24

Table 1. Climate-related impacts ranked as the hardest to recover from in Lesseyton and Willowvale (Source, Clarke 2012)

### BOX 1

Quotes regarding the impacts of crime  
(Source: Clarke, 2012)

*"We got a phone call on a Saturday at about 12 midnight to say Grandma was being attacked by thugs. They stabbed her 4 times. Grandma stayed with a 14 year old girl. They ran away with the girl. We searched for the girl and when we arrived we found the girl dead; they had raped her and broke her neck. We are disappointed in the police in the way the case was handled. They were imprisoned for only two months and were released. In fact the case was dismissed. Justice had failed us."*

*"Crime is rife. I cannot leave my chickens in the fowl run. When it is bed time, I fetch the chickens and they sleep with us in the house"*

*"It was a quiet place when I first arrived here but now things have changed. There was no crime here and no murders"*

- Health related shocks and stressors created different dynamics in the two communities. Households Gatyana had almost double the number of members sick for longer than three months. However, households in Lesseyton reported that having an ill member in the household made it harder to cope with other hardships, since individuals have to sacrifice work in order to look after ill family members (Clarke, 2012).

The mental map from a women's workshop in Lesseyton illustrates the main challenges and causes of vulnerability in their community as well as the interactions between them.

**BOX 2**  
 Quotes relating to the long-term impacts of HIV/AIDS  
 (Source: Clarke, 2012)

*“In the past, the people were healthy and fit and working. Funerals were not an everyday thing as it is the case now. Every weekend there is a funeral, it has become the norm. HIV/AIDS is rife.”*

*“Sickness is worse now. There was no HIV and no asthma.”*

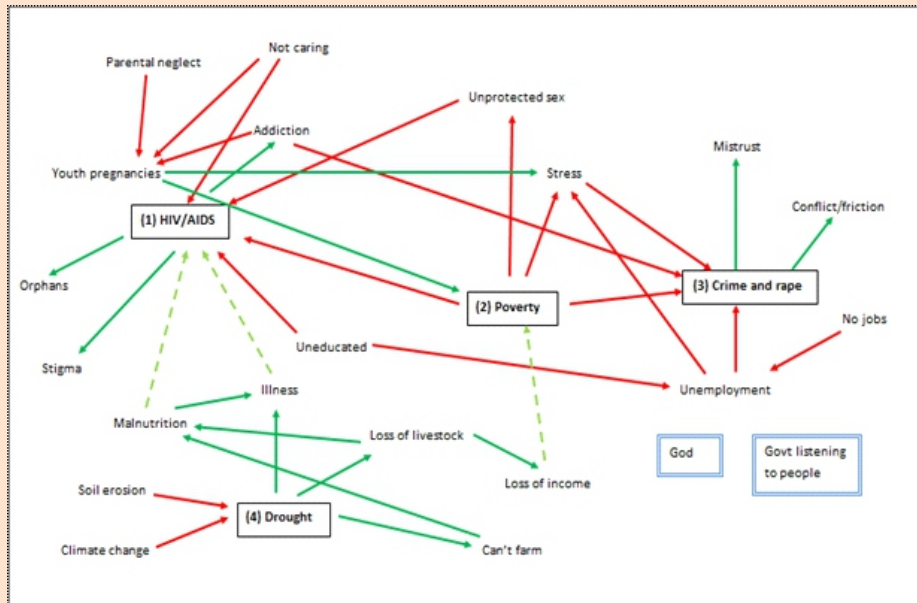


Figure 1: Mental map of stressors and vulnerabilities drawn by women in Lesseyton

### About the project

The findings presented in this policy brief are part of a research partnership between the Department of Environmental Science, Rhodes University and Department of Resource Economics and Environmental Sociology, University of Alberta, Canada. The project is supported by 12 related studies (mainly postgraduate research projects) that have helped to build a very intricate and detailed picture of livelihoods, vulnerability and change in the communal areas of the Eastern Cape, South Africa. The research has been undertaken in two sites in the rural Eastern Cape; Lesseyton outside of Queenstown and Gatyana near Willowvale on the Wild Coast.

### Further reading

<http://opac.seals.ac.za/record=b2374328~S2> (Assessing household assets to understand vulnerability to HIV/Aids and climate change in the Eastern Cape, Leigh Stadler, 2012).

<http://opac.seals.ac.za/record=b2377895~S2> (Responses to the linked stressors of climate change and HIV/AIDS amongst vulnerable rural households in the Eastern Cape, Caryn Clarke, 2012).

[http://www.sv.uio.no/iss/english/research/news-and-events/events/conferences-and-seminars/transformations/proceedings-transformation-in-a-changing-climate\\_interactive.pdf](http://www.sv.uio.no/iss/english/research/news-and-events/events/conferences-and-seminars/transformations/proceedings-transformation-in-a-changing-climate_interactive.pdf) (see p. 136 Transformation and barriers in the context of multiple stressors: Understandings from two rural sites in the Eastern Cape, Prof Sheona Shackleton, 2013)

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