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Resilience in disasters: a case study of an informal settlement in the Western Cape of South Africa

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Abstract:
In South Africa, disasters are a crucial impediment to successful sustainable development in communities. Many communities have insufficient capacity to forecast, check, handle and reduce disaster risk. These communities face a growing range of challenges including economic hardship, technological and social impediments, urbanisation, under-development, wildfire, climate change, flooding, drought, geological hazards and the impact of epidemics such as HIV/AIDS and COVID-19, sometimes termed 'the burden of disease'.

The Western Cape of South Africa is a dynamic province that is disaster-prone, particularly the vulnerable urban communities in and around its environs. Such communities are more vulnerable to wildfire, flooding, drought and other natural and human-made disasters because of poverty and, consequently, poor living conditions such as overcrowding. The inability of these communities to withstand adversities affects the sustainability of initiatives to develop them.

This study aims to understand the mechanisms influencing the resilience level of the communities faced with disaster risk, which is defined as the likelihood of a disaster having a negative impact on community resilience. Therefore, the primary research question raised in this study is: 'What are the underlying mechanisms influencing the resilience of communities faced with disaster risk?'

In this study, disaster risk is viewed as a complex adaptive system. This view challenges simple cause and effect assumptions and recognises that components in a system are connected and interact in ways that cannot be predicted. Fieldwork was conducted in an informal settlement in the Western Cape. The main sources of data were observation notes, document analysis and interviews. The research study was conducted in four cycles of data collection and analysis. Grounded theory principles and system dynamics modelling were used to analyse data.

The nine emergent themes or mechanisms were described as variables influencing the resilience level of the community faced with disaster risk. The answer to the primary research question is described as a theoretical model of community resilience based on a community vulnerable to disaster risk. The theoretical model consists of four reinforcing feedback loops that explains how the development of community resilience in the informal settlement maps on to the relative achievement systems archetype (success of the successful causal loop diagram). Negative reinforcing behaviour explains the lack of community resilience, while positive reinforcing behaviour would indicate the development of community resilience.

While this study has identified that the role of individual resilience is important to developing community resilience in the context of disaster risk (that is, individual resilience has the potential for improving management of the identified community mechanisms), it also provides the explanation for how this development happens and what mechanisms are needed for it to take place.

Reference: XXX
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