

Review Article

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Community-Based Disaster Risk Reduction Approaches Key in Reducing Vulnerability and Enhancing Resilience

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ABSTRACT

The Community-Based Disaster Risk Reduction (CBDRR) approach has been on the spotlight due to the significant reduction in development assistance and community programming financing, which often took a proactive role in community disaster risk reduction response in at risk communities. CBDRR is a top-down emergency response approach in DRR which is participatory in nature to address the local needs of vulnerable communities. CBDRR as an approach is not resource intensive hence its effectiveness in resource constrained settings. The review article explores the background and what constitutes CBDRR in Southern African context with particular focus on Zimbabwe. The article also outlines case studies on the effectiveness of CBDRR in various contexts. In the context of localisation and empowering local communities CBDRR approaches create a sense of ownership, builds local capacity, local ownership, strengthen local livelihoods, uses local resources and local knowledge, collaboration amongst stakeholders and ensures sustainability beyond aid/ development assistance frameworks. However, this approach is not without challenges. Sometimes low-resourced communities do not intentionally take action to reduce their exposure to environmental risks/ lack the capacity to effectively respond. Lack of technological advancement for more complex disasters beyond indigenous knowledge systems. The article outlines how sustainability of CBDRR requires integration with government systems to by-pass challenges and strengthen collaborative partnerships.

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Background of the Community-Based Disaster Risk Reduction (CBDRR) Model

According to CBDRR is an approach to Disaster Risk Reduction (DRR) that emphasizes the involvement of local communities in identifying, assessing and mitigating risks associated with natural hazards [1]. added that this approach recognises that communities are often the first responders to disasters and possess invaluable knowledge about local vulnerabilities, resources and coping mechanisms. This is a process of DRR that places significant emphasis on community participation, primarily because communities themselves are directly affected by disasters. CBDRR also requires the collaboration of institutions and organisations in sectors such as health, agriculture, education, finance and infrastructure development.

CBDRR involves activities, measures, projects and programs to reduce disaster risks which are designed and implemented by people living in at risk communities with the goal of building safe, livable, disaster resilient and developed communities. It is a process of disaster risk management in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks to reduce their vulnerabilities and enhance their capacities. This means people are at the heart of decision making and implementation of disaster risk reduction activities. The involvement of the most vulnerable is paramount and the support of the less vulnerable is necessary.

Since the community cannot reduce disaster risks and address vulnerable conditions on its own, the support of local and national government, NGOs, academics, scientists, technology experts, the private sector [1].

In CBDRR, a community is understood as people living in one geographical area, in proximity, and who share common interests, values, services and problems. They may be exposed to similar disasters and perform similar socio-economic activities to ensure their livelihood. Furthermore, a community can be a group of people affected by a disaster who can also assist each other to mitigate hazards and reduce vulnerability within their locality.

Effectiveness of CBDRM Approaches

Top-down emergency response approaches in disaster risk reduction alone have failed to address the local needs of vulnerable communities [2]. Previously emphasis was on relief and emergency supplies for disaster victims. People affected by disasters were regarded as being vulnerable and passive victims or recipients of aid and not as potential resources for development, capable of sustaining their own livelihood. Evidence shows that most top-down disaster risk management and response programs have failed to address the specific local needs of vulnerable communities [2,3].

Case Study CBDRM Success Stories

Promoting community participation particularly among those who live in disaster prone areas and the vulnerable members must be prioritized so that they can adapt and cope with disaster risks. Following the failure of government-based Disaster Risk Reduction (DRR) initiatives designed to address the needs of

people and communities, Community-Based Disaster Risk Reduction (CBDRR) initiatives started to receive recognition at both the national and local levels of governments in Southern Africa and particularly Zambia and Zimbabwe.



Figure 1: Image Shows One Such Garden in Rural Binga, Zimbabwe

Nutritional Gardens for Food Security and Livelihoods: In Zimbabwe an example of successful CBDRM approach is the Community Nutritional Gardens commonly referred to in rural areas as ‘Mushandirapamwe’ in Shona the local language or ‘Working in Unity’ in English. These gardens perennially provide household nutritional vegetables and even generate surplus for sale.

Burial Societies as Insurance: Another example from Zimbabwean communities is the ‘Burial Societies’ concept which has become a popular community level funeral plan or insurance in times of unexpected disasters. Community members contribute a monthly subscription into their local money reserve for use in times of bereavement for one of their members.

The evolution of CBDRR began with Community-Based Disaster Management (CBDM), which gradually evolved into CBDRM and then into CBDRR [4]. Sendai Framework for Disaster Risk Reduction, which is an international framework promotes CBDRR. It has four priorities and the third priority ‘Investing in disaster risk reduction for resilience’ clearly supports CBDRR.

CBDRM as a Form of Empowerment

Community based development approaches are a fundamental form of empowerment of the local community and a compelling strategy for enforcing the transmission of ideas and claims from the bottom up to the top. The social capital theory, which is ‘about the value of social networks, bonding similar people and bridging between diverse people, with norms of reciprocity’ [5] is an appropriate theory that underpins CBDRR because they are both concerned with encouraging the involvement of local people in identifying and solving issues in their communities. Multiple actors are involved in the community-based disaster risk reduction and management process. Basically, two broad categories are involved: the insiders and the outsiders (Torrente et al., 2008). Insiders refer to those individuals, organisations and stakeholders who are located within the community while outsiders are those located outside of the community. Both groups of actors however aim at reducing community vulnerability and enhance its capacities for disaster risk management.

Essential features of CBDRR

The essential features of CBDRR which also serve as overall targets to work for and parameters or indicators to keep track of in CBDRR according to [1] are:

- **Participatory process and content:** All community members, including all vulnerable groups should be involved at all stages of the CBDRR process.
- **Responsive:** Measures taken should be based on the needs of the community, what they feel they need and what they need urgently. Priorities should be based on the requirements specified by the community. The emphasis is on the community having ownership of the process.
- **Integrated:** Pre-, during-, and post-disaster measures are planned and implemented by the community. The community has linkages with other communities, organisations and government units, agencies at all levels especially for vulnerabilities that the community needs assistance to address.
- **Proactive:** The emphasis should be on pre-disaster measures i.e. prevention, mitigation and preparedness.
- **Comprehensive:** CBDRR should include structural and non-structural preparedness and mitigation measures. Structural measures are hard, physical such as construction. Non-structural measures are health, literacy, public awareness, education and training, livelihoods, community organising, advocacy, reforestation, and environmental protection. CBDRR measures should address short, medium and long-term vulnerabilities.
- **Multi-Sectoral and Multi-Disciplinary:** All stakeholders in the community should be able to participate. Both local, indigenous knowledge, science and technology and support from outsiders should be made use of. The concerns of all stakeholders including the most vulnerable should be addressed.
- **Empowering:** Through applying CBDRR measures peoples’ capacity and options should be increased. Examples of how the above can be realised include: more access to and control of resources and basic social services, more meaningful participation in decision-making that directly affects them, more control over their natural and physical environment, improved confidence.
- **Developmental:** Contributes to addressing and reducing the complex relation of conditions, factors and processes of vulnerabilities present in society, including poverty, social inequity and environmental resources depletion and degradation.

Create a Sense of Ownership

At risk communities have the capacity, knowledge and skills of understanding daily hazards they are exposed to, but it is the influence and support from outside the community that make them less willing to apply their local coping strategies to address disasters and hazards they are exposed to. Local communities have internal social and economic structures that help them sustain their livelihood.

Building Local Capacity

Disaster risk reduction initiatives should therefore concentrate on building the capacity of the local community. The community-based approach is an ongoing process aimed at reducing vulnerability to natural hazards across all levels of society and socioeconomic sectors. Its effectiveness depends on the need to recognise the cardinal role of the community in economic planning and policy making. The approach supports the inclusion of local knowledge and mitigation strategies to reduce vulnerability.

Collaboration Amongst Different Stakeholders: Grassroots strategies should be linked with appropriate top - down strategies and local government interventions. The community at-risk is actively involved in the planning and decision-making process about DRR. Pelling (2007) further suggests that both communities and local authorities (government) need capacity building and resources to manage and reduce exposure to disaster risk.

Strengthen local livelihoods

As direct participatory actions taken by the at-risk communities aimed at applying local knowledge and experiences to analyse their own coping capacities. It involves mobilisation of local resources to develop tools and strategies for DRR and to find possible lasting solutions for building resilience in communities. Community based disaster risk reduction transforms a community by making it safer and more resilient (Pelling, 2007).

Participating in Learning Activities in the Community

Through a community based participatory approach, community members learn how to analyse their vulnerable conditions and find ways of reducing disaster risks affecting them using intimate local knowledge and they recognise pre-existing local structures, capacities and institutions.

Sustainability

Theoretically, CBDRM approach is a more sustainable approach in managing disaster risks. It recognises that the community at-risk has the best knowledge and understands their vulnerability better than outsiders. The exposure and susceptibility of a community depends on several factors such as environmental, social, cultural, economic and historical factors. In accordance with the theoretical framework, disaster management agencies and institutions lack comprehensive governance and legal frameworks and usually apply the top-down approaches of emergency responses. These result in failure to set clear disaster risk reduction targets for communities-at risk to reduce their exposure and vulnerability. Effectively, disaster risks in informal settlements can be reduced by working with the local people to identify their vulnerability and capacities and to develop and implement a disaster risk management action plan which will support them in them to progress towards sustainable living.

Challenges of the CBDRM Approach

The UNHABITAT (2007) report confirms the assertion that the poor do not intentionally take action to reduce their exposure to environmental risks. This is because they are consumed in their immediate demands for survival amidst high levels of poverty. A vulnerable community has no capacity to use local resources or get adequate support outside their locality to manage disaster risks.

The poor in urban areas are exposed to disaster risks due to factors such as increasing levels of unemployment and lower wages, higher prices of basic goods, subsequent limited food security and residing in densely populated locations with poorly built houses on land that places them at risk (UNDP, 2013; UNISDR, 2004,). As much as CBDRM strategies can be effective, these factors are in most cases beyond a community's capacity to address them especially in urban areas/ cities. Social ties and a sense of community in urban settings is very low for members to organise themselves into a functional community.

Technological Advancement, Anticipatory Actions and Early Warning Systems

Lack of technological advancement at community level might make it difficult to predict impending disasters such as cyclones, floods, earthquakes, heatwaves. Accurate early warning systems have improved with the use of satellite imaging, GIS Mapping, cloud forecasting, seismic sensors and Artificial Intelligence (AI). This can only be complemented at national, regional and international levels. Indigenous knowledge systems used to assist communities to predict and plan for disasters but due to climatic changes and weather variability, this might prove to be challenging.

Unpredictability and Varied Nature of Disasters

Vulnerability is not only a natural phenomenon of lacking capacity, but also a result of an entire range of constantly changing biophysical, social, economic, cultural, political and even psychological factors that shape people's lives and create the environment in which they live. Disasters lately have become hybrid in nature and unpredictable beyond community capacities to respond. For example, the COVID-19 pandemic, January disease for livestock in Zimbabwe, Cholera/ Ebola outbreaks in Congo among others. Communities become susceptible to disaster risks because they lack the ability to use available skills and resources to manage disaster risks, they are exposed to. Coping capacities therefore contribute to the reduction of disaster risks and building resilience through active participation of the affected community [4].

Limited Resources and Capacity due to Chronic Poverty

While involving communities in disaster risk reduction efforts is essential, many communities, particularly those in low-income regions, lack the resources, technical expertise and capacity to implement effective risk reduction measures. In such cases, relying solely on community-based approaches may not be sufficient to address complex and widespread risks. The resources and the skills that people possess might not allow them to have more control over shaping their own future and coping with disaster risks. Coping capacity has to do with what a community possesses locally, as well as the potential for external support. Promoting community participation - particularly among those who live in disaster prone areas and the vulnerable members - must be prioritised so that they can adapt and cope with disaster risks locally.

Attitudinal or Motivational Vulnerability

Attitudinal or motivational vulnerability refers to the community's lack of confidence to adopt DRR interventions as noted by Pelling, (2007). This is the most common cause of continuous vulnerability and exposure of communities settled on marginal land or informal settlements. They usually lack confidence to sustain themselves and find lasting solutions to their problems. Despite interventions that may be in place such as evacuation to safer land, people will usually return to the risk homeland.

Inequities and Marginalization

CBDRM initiatives may unintentionally reinforce existing inequalities within communities. Vulnerable groups, such as women, children, the elderly, the differently abled and marginalized populations, may have limited voice and participation in decision-making processes, leading to their needs being overlooked. Additionally, power dynamics within communities can influence the distribution of resources and decision-making processes, further marginalizing certain groups.



Figure 2: Image Shows One of the Community Halls that was Constructed as a Result of the CAMPFIRE Project in Hwange, Northern Zimbabwe

Lack of Integration with Government Systems

CBDRR initiatives often operate independently from government disaster management systems, leading to fragmented efforts and duplication of resources. Without effective coordination and integration with national and local government agencies, community-based initiatives may struggle to achieve meaningful impact at scale. This can be seen through Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) project which was a community-based natural resource management program. The programme was more functional when the government was involved, when the community took charge of the programme most initiatives failed.

Limited Scope and Focus

Community-based approaches tend to prioritize immediate and visible risks, such as natural disasters, while overlooking underlying vulnerabilities related to poverty, social inequality and environmental degradation. Addressing these root causes requires a more comprehensive and multi-sectoral approach that goes beyond traditional disaster risk reduction strategies. For example, the initiatives of community gardens in Zimbabwe's rural areas called 'Mushandirapamwe' or Working in Unity. These are nutrition gardens that farm vegetables. While these are successful enterprises in the short term, in times of long-term droughts, they will not sustain or feed a whole community. Another example is the burial societies concept. This is a community-based funeral assistance programme but when there is a mass disaster that requires more funding/ financing, the community struggles to cope on its own.

Cultural and Social Factors: Cultural norms, beliefs and social structures within communities can influence the effectiveness of CBDRR initiatives. In some cases, traditional knowledge and practices may complement modern risk reduction measures, while in others, they may hinder progress or perpetuate harmful behaviors. There is a need for development agencies to explore partnerships between the local government, private sector, NGOs and community groups to upgrade indigenous knowledge systems from the current state of undocumented subjective practices to a respected body of applicable and useful knowledge.

Alternative Recommendations on CMBDRR

Linking with Appropriate Top - Down Strategies

Grassroots strategies should be linked with appropriate top-down strategies and local government interventions. This ensures the sustainability of the approach that is adopted by the community and enables access to outside knowledge and skills that may assist in vulnerability reduction. Successful DRR activities create resilient communities whilst ensuring vulnerability is not increased through developmental efforts or other externally initiated activity (UNDP, 2004; UNISDR, 2004; DFID, 2005). This is possible only if the community at-risk actively participate in the DRR interventions.

Collaboration and Building Partnerships

Despite attempts to move away from the top- down approaches of development planning, participatory approaches faces a lot of challenges. One major challenge is scaling-up, given that DRR-related community knowledge is mostly scattered, fragmented and often not well-documented [4]. There is a need for development agencies to explore partnerships between the local government, private sector, NGOs and community groups to upgrade indigenous knowledge systems from the current state of undocumented subjective practices to a respected body of applicable and useful knowledge.

Conclusion

Overall, while community-based disaster risk reduction approaches have significant potential to enhance resilience and empower communities, addressing the mentioned challenges is crucial to ensuring their effectiveness and sustainability in the long run. CBDRR approaches have shown considerable effectiveness, challenges such as resource constraints, institutional barriers, and socio-political complexities can hinder their implementation and scalability. Nonetheless, the participatory and community-centered nature of these approaches makes them indispensable in building resilience and reducing vulnerability to disasters in diverse contexts. This requires a holistic approach that integrates community-led initiatives with broader institutional frameworks, policies and resources for disaster risk reduction and sustainable development [6-11].

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