

Community Resilience to Disasters in the South East Administrative District of Botswana: Theories and Perspectives

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ABSTRACT

This study seeks to motivate individuals/or communities to reduce disaster related risks by adopting an approach based on the crisis, stress, social constructivism and resilience theories and the ecological model that provides analytical lens for hazards and risks and related behaviours. The study covers three communities: Ramotswa, Otse, and Mogobane in the South East Administrative district of Botswana. It adopts a concurrent mixed research paradigm to theoretically assess the perception of hazard, risks, and disaster in the three communities studied. The sample consists of a total of 3567 respondents for the quantitative and 120 participants for the qualitative phase respectively. The 3567 constituted 94 % of the target 10 percent of the total population from each of the communities represented in the study. In terms of gender representation, males constituted 40% while females were 60% and were the majority in all age groups. The quantitative phase was meant to establish the extent of the problem and its scope, and to describes prevalent resilience characteristics. The crisis, stress, social constructivism and resilience theories and the ecological perspective provide the analytical lens for the interpretation of data. A key result from the study shows that communities are vulnerable and are constantly under disaster threat. Although there are district disaster management committee, they are only active during emergency response and fail to address the pre and post disaster activities. As such, communities, families, and individuals lack fundamental knowledge, skills, and techniques that would enhance their resilience to disasters. After reflecting on issues that make individuals/or communities vulnerable, the participants, key informants, focus groups, and respondents propose radical disaster resilient measures and a shift from reactive to proactive measures to disasters.

Keywords: *Community resilience, disasters, vulnerability, theories*

INTRODUCTION

Community resilience is the basis for recovery, reconstruction, and adaptation to disaster shocks and most rooted accurate analysis of environmental threats. As such, theories, models, and perspectives are essential in the analysis and better comprehension of disasters and the related behaviour within the social

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environment. The choice of appropriate and relevant theory and/or perspective to diagnose situational crises and their effects on people and the environment is important. Community resilience in disaster risk management is an intriguing subject but a dire need for communities in Africa. Communities living in changing climatic conditions can no longer relegate it to the peripheral approaches lacking thoughtfulness. Community resilience should not be treated as a matter of chance but a necessity for communities, households, and individuals' survival. Therefore, this article presents the theoretical perspectives, their interconnectedness, and applicability to the study on community resilience to disasters in Botswana.

A disaster event is a situational crisis that may befall communities and individual unaware any time. As such, crisis theory postulates that disasters (as crisis) create stress or increase the stress levels for communities and individuals affected and the survivors while the resilience theory demands that the affected and survivors should make necessary adjustments to cushion the demands associated with crisis and thus reducing the stress level. The individual, family, and community can make appropriate adjustment when they have socially constructed necessary disaster knowledge through interactions and negotiations (social constructivism) guided within the ecological setting. These will enable the individual, the family and/or community to appraise the energy, adaptations, coping, and interdependence prevailing in the social environment to adopt safe and speedy recovery behaviours. This study covers three communities of Ramotswa, Otse, and Mogobane in the South East Administrative District of Botswana. The objectives are:

- i. To interrogate community perception of hazards, vulnerability, and disaster risks in the South East District;
- ii. determine community preparedness systems, measures and disaster risk reduction strategies;
- iii. identify community related disaster policies, legislation, and programmes in the district;
- iv. determine hazards and risks that are prevalent and pose high risk for communities in the South East District;
- v. identify areas of high disaster risks and vulnerabilities in the three communities of the South East District;
- vi. identify the role of social workers in enhancing community resilience to disasters; and
- vii. design a draft community based disaster strategy for adoption by the South East District disaster committee.

Resilience theories are integral to disaster risk management approaches at all intervention levels because they provide the basis for contextualizing the behaviour of people in the event of a crisis. Therefore, this work intends to motivate individuals/or communities to act towards reducing disaster risks by adopting a disaster resilience approach based on the crisis, stress, social constructivism, and

resilience theories and the ecological model. These provide an analytical lens for assessing behaviours, hazards as well as risks and relate them to resilient communities in the South East District.

METHOD

The study on community resilience in Botswana was conducted in the South East district and it drew from the crisis, stress, ecological perspective, social constructivism, and resilience theories to explain how individuals, families, and communities, withstand and deal with disaster and/or traumatic events. It theoretically explored the factors motivating communities, household, and individuals to prepare for response, prevent, and recover from disaster.

The study adopts a concurrent mixed research paradigm to theoretically assess the perception of hazard, risks, and disaster in the three communities studied. The sample consisted of a total of 3567 respondents for the quantitative and 120 participants for the qualitative phase respectively. It was drawn from people who are residents of the three communities in the South East Administrative district (Ramotswa, Otse and Mogobane). The 3567 constituted 94 % of the target 10 percent of the total population from each of the communities represented in the study. In terms of gender representation, males constituted 40% while females were 60% and were the majority in all age groups. The quantitative phase was meant to establish the extent of the problem and its scope, and to describe prevalent resilience characteristics. The crisis, stress, social constructivism and resilience theories and the ecological perspective provided the analytical lens for the interpretation of data.

RESULTS AND DISCUSSION

Relevance and Appropriateness of Theories and Perspectives: Theories and perspectives are essential in the analysis and better comprehension of disasters and related behaviour in communities. As such, the choice of appropriate and relevant theory and/or perspective by professionals to diagnose situational crises and their effects on people and the environment is important (Maripe, 2014). Relevant theory/theories and/perspectives explains critical factors and assumptions of a disaster occurrence in an environment. This ascertains the applicability of the theory/theories and or perspectives to the specific disaster context. This process enabled the researcher to subject the theories to problem identification and generating specific interventions. It enhanced the researcher's knowledge of theories that best suits the geo-social context. Theoretical appropriateness to the cultural context, data interpretation, and related behaviour enabled the researcher to generate themes and concepts representing the subjects being studied (Kirst-Ashman, 2010). This makes the endorsement of the theory and perspective by communities in the design of interventions leading to resilience very relevant.

Crisis Theory: Crises are classified into the situational and developmental. Situational/accidental crises (which are the focus of this study) are physical illness and injury, unexpected or untimely deaths, crime, natural and man-made disasters, and situational crises of modern life (Kirst-Ashman, 2010). According to Browne (2007), life crises are classified as accidental (environmental: changes precipitated by external factors) and developmental (precipitated by internal change). He further alludes that the experiences and symptoms are identical in the two types. A disaster occurrence as a situational or accidental crisis is an intersection between a natural hazard and the vulnerability of an individual, family and/or community that leads to a disruption of normal life. It is equally applicable to disasters that results from biological, chemical, technological, and conflict related hazards. Disasters that result from natural or man-made hazards are characterized by massive damage to property (houses), infrastructure (roads, structures, and water supply, telecommunications, and energy production centres), deaths, injuries, mass displacements, and separation of families. The magnitude of disasters' pushes the affected communities and individuals under undue pressure to adjust and to mobilize (personal or community) resources to respond.



Fig. 1: Types of crises and the factors associated with each type
Adapted from Developed by Ivor Browne (2007)

A crisis is a threat to homeostasis, a stressful life experience affecting the stability of an individual so that his or her ability to cope or even function is seriously compromised or impaired (Gleason, 2008). It is a temporary state of upset or disequilibrium, accompanied by confusion and disorganization. The disorganization is integral to the reducing of problem-solving abilities to a point where traditional coping strategies are not effective (Atkinson L., Atkinson C., Smith, Bem and Hoeksema, 1996). The phases of crises and related problematic tendencies are discussed below:

Phase 1: Initial rise in tension from the impact of the stimulus calls forth habitual problem solving responses.

Phase 2: Lack of success and continuation of stimulus is associated with increasing upset and ineffectuality.

Phase 3: Further rise in tension acts as a powerful internal stimulus and calls out emergency problem solving mechanisms - novel methods to attack the

problem, trial and error, and attempts to define the problem in a new way.

Phase 4: As tension mounts beyond a further threshold, its burden increases to breaking point. To avoid major disorganization, the person employs restitutive methods to reduce anxiety and open up maladaptive pathways. These can eventually lead to the development of various psychiatric syndromes shown in the figure 2 below:

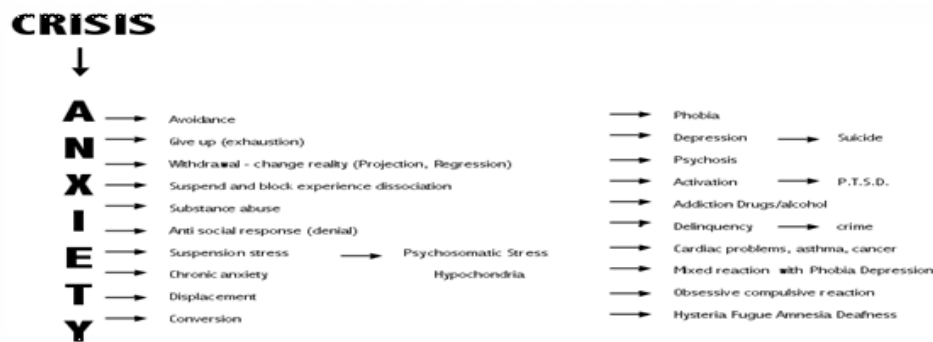


Fig. 2: Crisis Theory. **Source:** Ivor Browne crisis theory (2007)

Disasters, whether natural or man-made, are unpredictable crises with the potential to disrupt individual, family, and community functioning especially when the forgoing are unprepared. They destroy buildings, cause death and injuries, force people to relocate or push them out of their habitat, and completely disorganize families. The Red Cross and Red Crescent Movement (2010) report the complexity of multiple hazards in Haiti that occurred before the earthquake, and the painful awareness that the rainy season would be followed by hurricanes like (Gustav, Hanna, and Ike and tropical storm Fay), which left hundreds of people dead, tens of thousands homeless, and aggravated chronic malnutrition in several parts of the country.

The state of their environment shows the grave and complex conditions generated by the earthquake and the subsequent hazards for the survivors to contend with. These issues may not be resolved by short term interventions but rather would demand massive integrated intervention. The loss of relatives, the shortage of food and the problems of chronic malnutrition for people with already depleted resources generates hopelessness and high stress levels. The thought of past disaster experience and the evidence of successive possible disasters create emotional and mental tension on the coping abilities of the people to withstand the demand of crisis situations. Therefore, the increased tension before a disaster based on the negative appraisal of the response system triggers the stress level of vulnerable and poor members of the society. This further complicates the ultimate occurrence of the disaster and its effect on the already ailing physical human body systems and families.

Affected individuals, families, and/or communities depend on available resources and capacities at their disposal and in their environment to manage the

crisis. Inadequacy of resources or capacity to contain the situation or event within a reasonable time period adversely affects adjustment and cushioning against the shock. Deficiency of resources or capacity causes the individual, family, and community to fall out of balance, causing them to worry about loss, and mourn the inability to recover from the effects of the disaster leading to anxiety and other related mental health challenges.

Stress Theory: In disaster risk reduction, stress theory enables professionals, practitioners, and other actors to appreciate that disasters are stressors. The accumulation of stress upon the survivors accentuate with the subsequent occurrence of threat or an eminent disaster. It is evident that responders not appreciate the pre-disaster stress that is motivated by the perception of rains or drought or any disaster. The stress resulting from a situational crisis varies depending on the severity, duration, and surprise of the stressor. In cases where disasters have destroyed uninsured houses and livelihoods beyond the individual's or community's ability to recover, stress is inevitable.

Morris and Maisto (1998) argue that stress is an environmental demand that creates a state of tension or threat and requires change or adaptation. The environment place an inconsiderate demand on the individual or community to respond with limited social, economic, and psychological resources, which are not always readily available. When demand resulting from disasters or mere perception exceeds ability; and capacity is unable to meet strong needs, stress results (Israel and Schurman, 1990). It becomes an aversive circumstance that threatens the well-being and/or the functioning of individuals, organizations, neighbourhoods, communities or society (Norris , Stevens, Pfefferbaum, Wyche and Pfefferbaum, 2008). It results from the characteristics of the stressor, appraisal of the stressor, the response to or effects of the stressor, and the various conditions that influence the Stevens, Pfefferbaum, Wyche and Pfefferbaum, 2008).



Fig. 3: The process of stress response according to (Maripe, 2014)

In this case the stressor (disaster/hazard) and the impact it has on individuals, families, and communities is appraised on the basis of the availability or lack of capacity (resources) to cope and the stress appraisal determines the stress response of the affected persons. All kinds of losses resulting from disasters demand an urgent recovery system and the longer it takes, the more stressful it becomes (Neale, Davison, and Haaga, 1996). The delayed and unorganized recovery system may lead to mental and social dysfunctionality for an extended period for the affected. For example, the loss of life is irreplaceable; a house may

be rebuilt or reconstructed depending on the resources, incurred injuries may be permanent or temporary; and the loss of livelihoods may be difficult to recover after a disaster.

Disasters (floods, earthquakes, hurricanes, war, and imprisonment) are classified as cataclysmic events. These combined with daily problems, chronic strain, and the lack of resources to control the challenges compound the stress levels of individuals, families, and communities and reduce their capacity to cope with and prepare for future disaster events (Drabek, 2001). Chronic strains include poverty, long term unemployment, racism, on-going increased workload, interpersonal demands at work, family conflicts, loss and/or gain of roles, and lack of support. According to Norris Stevens, Pfefferbaum, Wyche and Pfefferbaum, (2008), specific stressors that have been found to affect post disaster mental health include:

- i. Bereavement
- ii. Injury to self or family member
- iii. Life threat
- iv. Property damage
- v. Financial loss
- vi. Community destruction and displacement

Maripe (2014) shows that communities and individuals stress level is complicated by weak disaster preparedness, response and prevention measures. As such, cumulative disaster incidents make them more vulnerable and prone to huge economic losses and less resilient to the stressors. In response, other people turn to use or abuse drugs and/or substance to cope with the effects of disaster, and/or suffer from chronic anxiety and withdrawal at the sight of impending floods/rains/and/or drought. The stress level escalates because of the non-recovery from the impact and damages incurred from past disaster.

Ecological Perspective: This is used to appraise social welfare problems and situations and determining specific and appropriate interventions (Ambrosino, Emeritus J., Emeritus G. and Ambrosino, 2005). The social environment includes but is not limited to homes, work, laws, policies and social rules in the community. It enables the professional social work to conduct comprehensive assessment of the micro-system (individual), mesosystem (relationship between micro-systems), exo-system (settings like school boards, local government), and macro-system (community) at different levels of the social environment (Ambrosino *et al*, 2005).

The constant interactions and transactions of community members with the various systems around them determine their resilience and/or vulnerability to disasters (Kirst-Ashman, 2010). The findings established that constant interaction and transaction of community members with the disaster risk reduction agents was limited to emergency response, hence, high vulnerability (Maripe, 2014). The main activities required for effective and efficient preparedness and

response, prevention and mitigation, recovery and reconstruction, and ultimately development were not available in the communities, families, and individuals to use before, during, and after disaster.

Therefore, it is crucial to integrate disaster risk reduction knowledge, measures, and practice in daily transactions and interactions of people to improve community resilience. The ecological perspective facilitates the exploration of diversity, gender, and cultural differences including the effectiveness or non-effectiveness of these interactions. The exploration targets the energy, adaptation, coping, and interdependence prevailing amongst people in the social environment. These are crucial ingredients for community disaster preparedness, response, prevention, mitigation, recovery, and reconstruction.

The ability and flexibility of the people exposed to hazards and their adaptation provides a platform for developing resilience measures against disasters (Hull and Kirst-Ashman, 2004). This is dependent on the adoption of appropriate interventions after mapping out disaster terrains, capacities, and vulnerabilities. The interest is not only in the coping ability of communities but also their adaptation determined by changing the nature of hazards and risks and disaster patterns (Ambrosino *et al*, 2005). In addition, disasters like other crises, offer communities an opportunity for growth. Figure 6 below shows the ecological perspective interaction patterns that exist between individuals and various systems in their environment. These interactions and transactions should be the target for vulnerability interventions to disasters and other related risks. The diagram below shows the Macro-system (culture, societal attitude and values, state and policies).

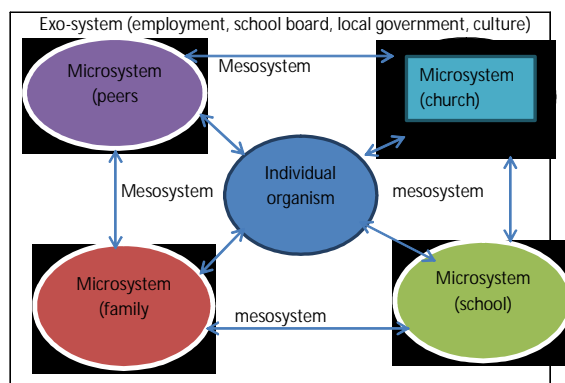


Figure 4: Ecological Perspective model (Understanding social work and Social Welfare)
Source: Ambrosino *et al* (2005:56)

Social Constructivism: This theory in disaster risk reduction brings about valuable insights for practitioners and action teams involved in community hazards and risks assessment. Cohen, Duberley and Mallon (2002) argue that social constructivism theory posit that knowledge is constructed as opposed to created and is concerned with the nature of knowledge and how it is generated. It emerged

some thirty years ago with its origins rooted in sociology and associated with the post-modern era. Social constructivism is crucial for the researcher to appreciate how communities construct knowledge to prepare and respond to prevalent disasters within their environment. Berger and Luckmann (1991) assert that the interaction of people with their social world leads to the understanding of society as both an objective and subjective reality. As such, the social world influences people to develop routines and habits that may promote and sustain their vulnerability or enhance their preparedness to disasters. The social practices and institutions together with the disaster sensitive interactions and negotiations between relevant social groups should produce needed disaster related knowledge which enables vulnerable communities to become resilient and reduce the impact of disasters (Bujold, 2002).

The community resilience to disaster study established that amongst the 3580 respondents in the South East District, 87% (3096) considered themselves vulnerable to various hazards (Maripe, 2014). This shows that prevailing habits and routines of the community are predominately weak in community preparedness, response, and resilience to disasters. As such, vulnerability to disaster in the district is high and cut across age, gender, marital status, employment, educational status of the community. According to Maripe (2014) vulnerability in terms of:

- i. Age (20-51 years and above) 87% (3093) were vulnerable while 11.3% (403) were not,
- ii. Marital status (single, married, divorced and widows/widowers) 68% (3074) were vulnerable while 11% (397) were not,
- iii. Educational levels (primary, junior/senior secondary, tertiary) 86% (3048) were vulnerable while 11% (392) were not,
- iv. Gender 34% (1219) of male respondents were vulnerable while 5% (167) were not and 53% (1877) of women were vulnerable while 7% (236) were not, and
- v. Employment, the employed, self-employed, and unemployed were all vulnerable.

The vulnerability to disasters resulted from the adaptive measures and the lack of adequate knowledge on hazards and risks and the measures necessary to protect themselves against disasters. Therefore, necessary for the community to acquire disaster related habits and routines based on the knowledge of hazards and risks to ensure efficient and effective disaster risk reduction. It is incumbent upon and the acquisition of knowledge and social actions that go together to reduce risk behaviour to hazards and disasters and the establishment of recovery systems. It is critical to ask evaluative, political, and pragmatic questions on hazards and risks, and community perceptions on disasters, and identify actions necessary to protect the communities from hazards.

Resilience Theory: Disasters affect the normal functioning of individuals and communities in many ways from the marginal to the extreme where everything collapses. An example is the earthquake in Haiti which demolished structures and killed thousands of people (Red Cross Red and Crescent Movement, 2010). Therefore, resilience is both about withstanding shocks and disturbances (like climate change or financial crisis) and using events to catalyse renewal, novelty, and innovation. It is essential that individuals, families, and communities prepare, prevent, or minimize disaster disruption or situational crises. Resilience theory encourages individuals, families, communities, and countries to anticipate, adapt, learn, and transform human actions in light of the unprecedented challenges of the turbulent world (Folke, 2010). Anticipation and adaptation are products of deliberate efforts of people to learn from past events and proactively transform relevant human actions before another impending crisis occurs.

Disruption arising from disaster is explained by crisis theory as the unexpected change together with its demands for resources that the affected may not have that leads to stress. The stress theory explains that the adaptation, adjustment, shifts and learning from the crisis and resultant stress require the system to rapidly make proper and immediate adjustment to return to its equilibrium, which is the needed resilience.

Tobin and Whiteford (2002) assert that community resilience is dependent on pre-existing social, economic, and political conditions as well as post-disaster response, relief efforts, mitigation strategies, and longer term rehabilitation programmes. These are not always available for vulnerable and unprepared communities. The level of equilibrium required by individuals, families, and communities during a crisis is dependent on available capacity to contain the perturbation. It is important to ascertain whether people/communities have identified the characteristics of likely traumatic events in their environment before it occurs and are prepared to respond accordingly. Norris, Steven, Pfefferbaum, Wyhce and Pfefferbaum (2008), argue that resilience can fail when resilience resources are redundant, that is, when they are themselves damaged or disrupted by the stressor. The figure below shows the link between theories:



Figure 5: Theoretical linkages (Maripe, 2014)

The characteristics of a crisis are the dangers and opportunities, the seeds of growth and change, a state of disorganization and disequilibrium, and the breakdown in coping within the community. Furthermore, it is crucial to identify the community's ability to cope with situational crises which have a sudden onset

and are unpredictable, the perception that it will or will not happen to them, and their preparedness to manage the emergency during times of stability. The assessment gives an indication of what could be expected after a crisis in a community and establishes whether survivors will emerge on a higher or lower level of functioning. According to Norris Steven, Pfefferbaum, Wyhce and Pfefferbaum (2008), resilience is the process that produces adapted outcomes; the more rapid the return to pre-event functioning, the greater the resilience. It was discovered that the preparedness and resilience level of the South East District communities is quite unsatisfactory. The communities lacked adequate preparedness and response knowledge to various hazards as follows:

- i. 56% (2007) on torrential rains,
- ii. 59% (2107) on windstorms,
- iii. 63% (2241) on floods,
- iv. 58% (2071) on wild-land fires,
- v. 63% (2241) on drought,
- vi. 84% (3012) on earthquake, and
- vii. 72% (2576) on climate change (Maripe, 2014).

A resilience model to hazards based on the perceptions of communities that could easily be used by vulnerable people was adopted by Paton and Johnson (2001) borrowing from Bishop, Paton, Syme and Nancarrow (2000) and Miller, Paton and Johnson (1999). It requires the community and households to deliberately undertake hazard and risks identification and mapping, if the perception of risk is low, mitigation measures are not necessary, and if the perception of risk is high, it must then prompt the assessment of threat focussing on coping, self-efficacy, and a sense of community that will guarantee preparedness and psychological resilience in crisis.

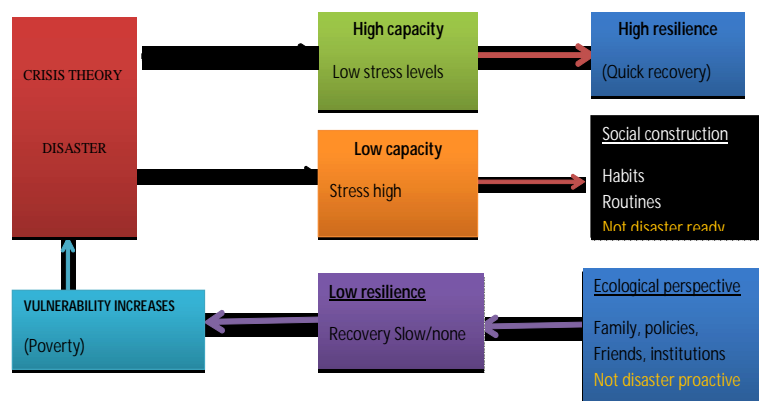


Figure 6: Theoretical situational analysis according to Paton and Johnson (2001)

This study establishes that the perception of risk was at 90% (3194) for these communities but it did not attract equal preparedness actions. It was further found that 43% (1542) were conscious that they would lose shelter, 22% (772) suffer injuries, 5% (171) drown, 6% (220) lose livelihoods, and 14% (489)

engrossed in poverty. This shows a complex web of the prevailing susceptibility and possibility of an increased vulnerability in the event of disasters. It is imperative for the South East District to work towards adopting preparedness and mitigation measures to reduce this vulnerability by following the graph below. Figure 6, below shows the model developed to guide the theoretical basis for social worker analysis of the situation and linkages.

CONCLUSION AND RECOMMENDATIONS

The theoretical base specifies that the unpreparedness for crises and disasters in particular, is distressing to poor individuals and communities with chronic unemployment, and economically disadvantaged. It is presupposed that resilience to crisis requires anticipation that disaster will strike thus providing an opportunity for change and growth. It is then that the individual or community can activate its systems to bounce back to normal functioning. Thus, disaster preparedness, prevention, and mitigation are not only desirable but mandatory for resilient communities. These are made possible through a deliberate process of reconstructing the objective and subjective realities of society that take disaster threats seriously and acquiring appropriate routines and habits. The new routines and habits are developed by disaster simulation exercises and other measures that community members and leaders undertake to promote new patterns of thinking and conduct during crises. Otherwise, communities and/or individuals with skewed resources, not acquiring new routines and habits, and barely surviving on a day-to-day basis are highly likely to fall out of balance completely when a crisis strikes. Thus, it is quite critical that the ecological perspective should be adopted in the process of developing community resilience policies, strategies and practices.

Disasters are situational crises with a damage effect greater than can be imagined and it activates high stress level on vulnerable groups or families. These are particularly individuals with low coping capacity to respond and recover quickly from the shock (perturbation). The vulnerability escalates where the social construction of critical disaster safety actions and thinking is not promoted and adopted. Thus individuals, families and communities acquire behaviours or actions and thinking that perpetuate vulnerability and lowering resilience in the aftermaths of disasters. The complexity is further compounded by a social environment (from the individual – to families - to cultures and institutions-policies) that does not proactively incorporate disaster risk management and mitigation against hazards and risks. Resilience theory requires that disaster specialists and other professionals work with communities to ensure that the social environment build within itself the hazard and risk analysis as well as mitigation measures. This will enable those who survive disasters to recover faster and cushion against other possible shocks, hence less stress and vulnerability. The theories helped to isolate critical

vulnerability and stress factors that may reduce resilience. Therefore, indicating the need for appropriate and deliberate hazard and risk analysis as well as the construction of safety routines and resilience habits in disaster programmes.

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