Actor Network Theory and *Ziziphus mauritiana*: Building the Resilience of Communities in Muzarabani District, Zimbabwe

by

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Introduction

"Natural hazards are a part of life. But hazards only become disasters when people's lives and livelihoods are swept away."(The late Kofi Annan's message for the International Day of Disaster Reduction, 2003)

Semi-arid spaces are prone to natural hazards such as floods and drought and food insecurity is presented as a complex challenge in Sub-Saharan Africa. Support systems such as food aid has been used by different intervention actors to help affected communities adopt and integrate resilience management, most have been criticised of (1) Lack of local people's involvement (2) over simplicity and over dependence on external interventions. However, communities in these semi-arid spaces are not passive actors as often documented in the literature, but are actively involved in improving their livelihoods by turning to eco-resources such as *Zm* (Ebhuoma & Simatele 2017). Climate variability and resilience studies have distinguished and emphasised the importance of eco-resources and other asset portfolios such as social-economic, in building the adaptive capacity and resilience of the poor to the effects of climate change induced natural hazards (Ruth *et al.*, 2017; Faye *et al.*, 2010). There is therefore an urgent need for local simple well known control options that make use of existing eco-resources to build resilience levels of semi-arid communities. The study therefore proposes a radical actor networked based approach to enhance the understanding of the development of sustainable climate change adaptation interventions guided by the Actor Network Theory

Conceptual approaches and ANT as a radical approach

• Actor Network Theory (ANT) and Resilience
All actors Human and non-human are important hence should be respected in any process (*Ziziphus mauritiana* in Muzarabani, Zimbabwe)
ANT
    Scale
    Power
    Commodity Chain Analysis (CCA).
Resilience
    Risk/Hazard
    Ecology
    Ecological resilience

Aim

The study seeks to interrogate the role that *Ziziphus mauritiana* plays, as a non- human actor, in building the adaptive and resilience capacity of poor people in Muzarabani of Zimbabwe through the lens of the Actor Network Theory (ANT) and Commodity Chain Analysis (CCA).

Materials and methods

The   study area: Muzarabani is semi- arid region found in the northern part of Zimbabwe. The area experiences adverse weather conditions that include: drought and floods. Most of the people are food insecure and rely on various adaptive strategies that include the use of *Zizphus mauritiana* which though regarded by the locals as part of their life is neglected by some actors.
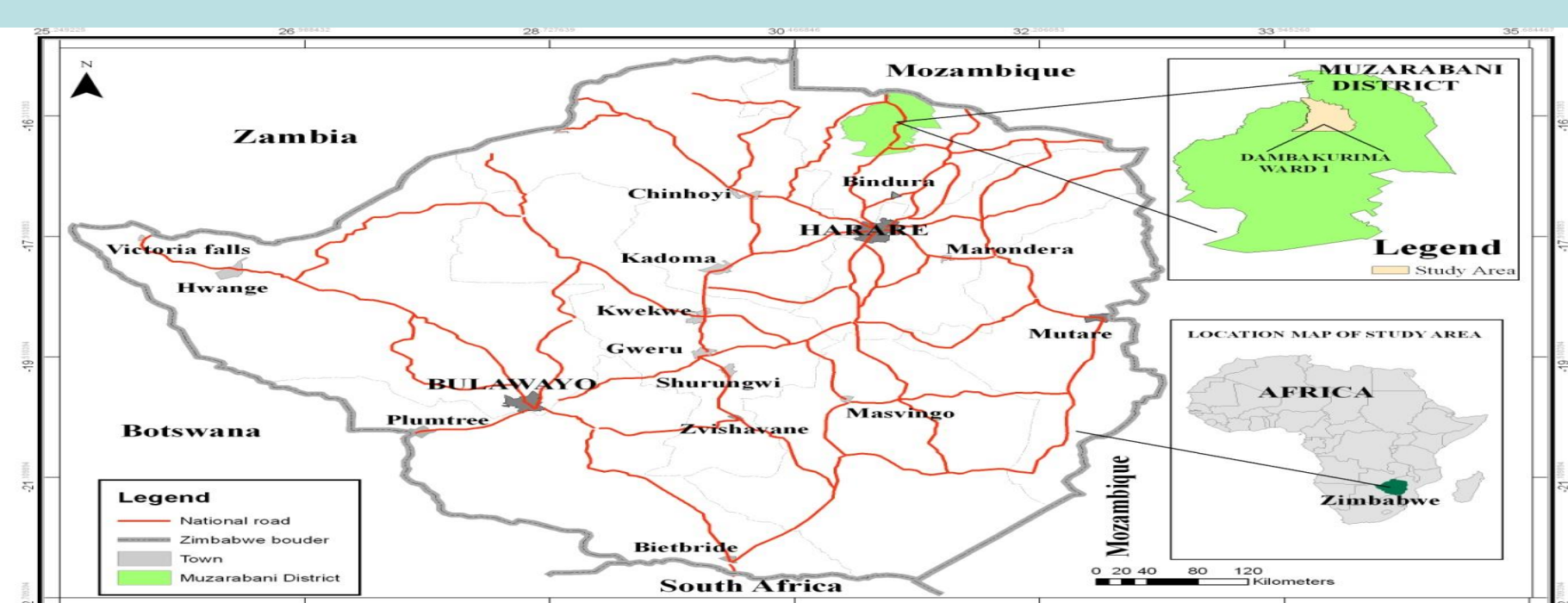

Figure 1: The Study site in Dambakurima village of Muzarabani District, Zimbabwe
Source: Cartography unit (2017), School of Geography and Environmental Studies, University of Witwatersrand, South Africa.

Methods: The qualitative approach was largely used. Empirical evidence, which is largely the role that *Zm* plays in the adaptive capacity and resilience discourses on semi-arid space of Muzarabani was established by observations, interviews with diverse actors that included household heads, traditional leadership, civil society organisation (CSOs)and government department s. Actor Network Theory and commodity Chain Analysis was used.

Results

Table 1. Commonly collected wild fruits and their uses in Muzarabani

Scientific Name	Local Name	No of Respondents	%	Uses
Ziziphus mauritiana	Masau or Masawu	57	81	Food, brewing beer, income generation, medicine
Adansonia digitala	Mawuyu	6	9	Food and income generation
Diospyros mespiliformis	Mushenje/Shenje	14	6	Food, brewing of beer for traditional rituals
Strychnos innocua	Hakwa/Mukwakwa	3	4	Food
Total		**70**	**100**	

Results

Table 2: Food Availability patterns of households in Muzarabani**(Scores out of ten).**

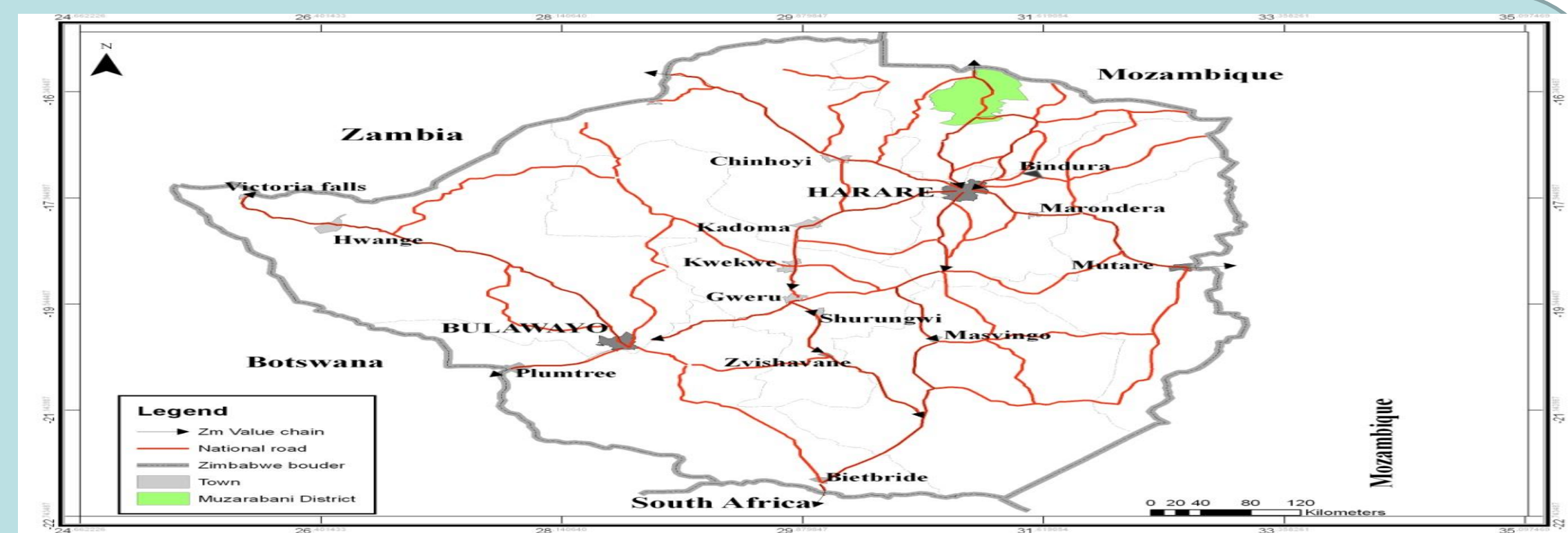| Crop/month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Oct	Nov	Dec
Maize	2	1	-	-	10	10	10	10	4	4	4
Sweet potato	-	-	-	2	4	10	10	7	-	-	-
Ground nuts	1	1	6	10	10	10	6	4	2	2	1
Pumpkins	-	5	5	10	10	10	6	5	4	-	-
Okra	-	-	3	4	4	10	6	3	1	-	-
Wild vegetable and *Ziziphus.mauritiana*	10	10	10	10	10	8	8	7	7	7	10
Garden vegetable	-	-	-	3	4	5	4	5	3	3	1
Watermelon	-	-	6	10	8	6	6	4	-	-	-
Sugar cane	-	-	6	7	7	3	3	4	-	-	-

Figure 2 The *Ziziphus mauritiana* Commodity chain the Zimbabwean experience

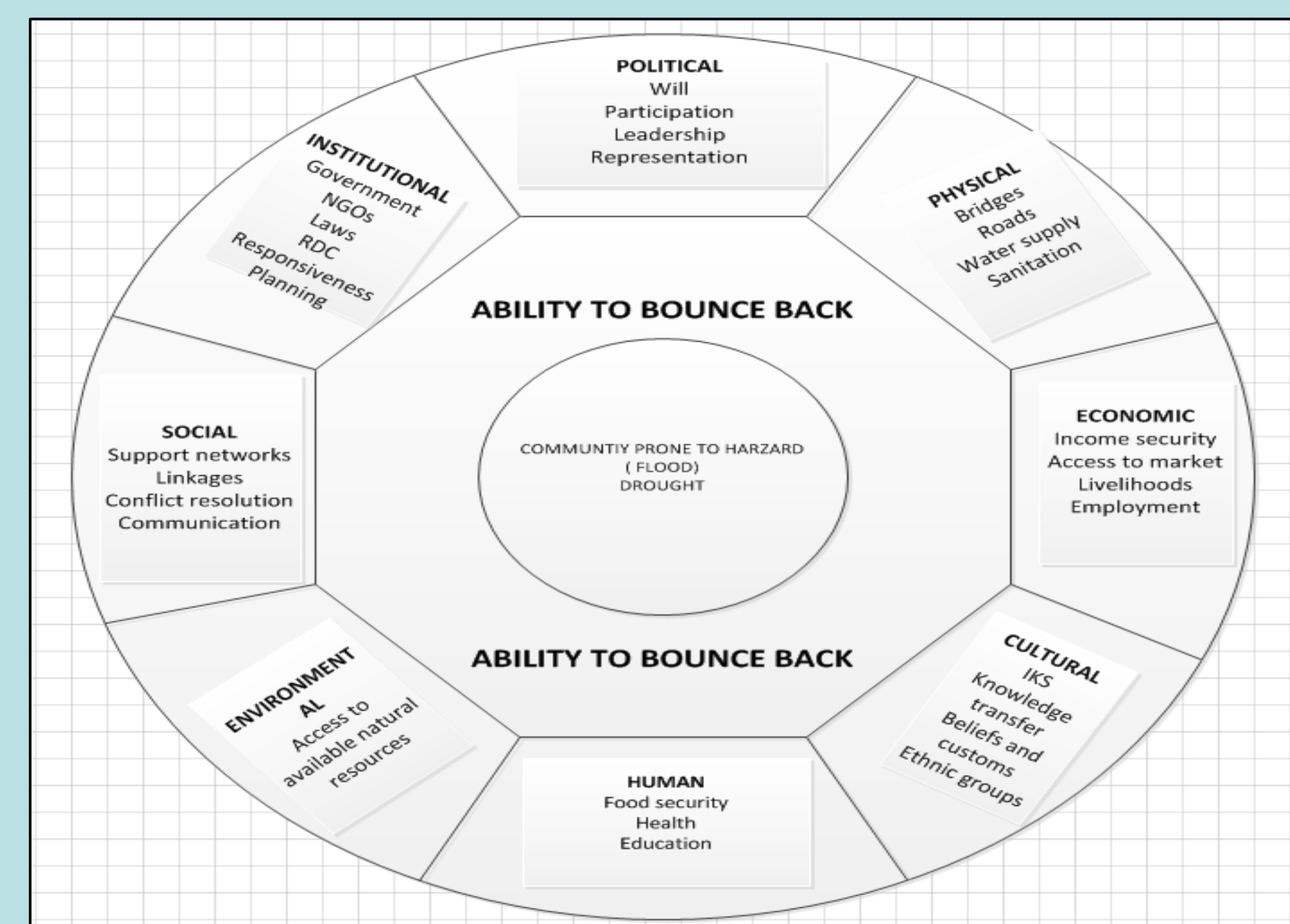### Unpacking the eco-based resilience building approach using ANT

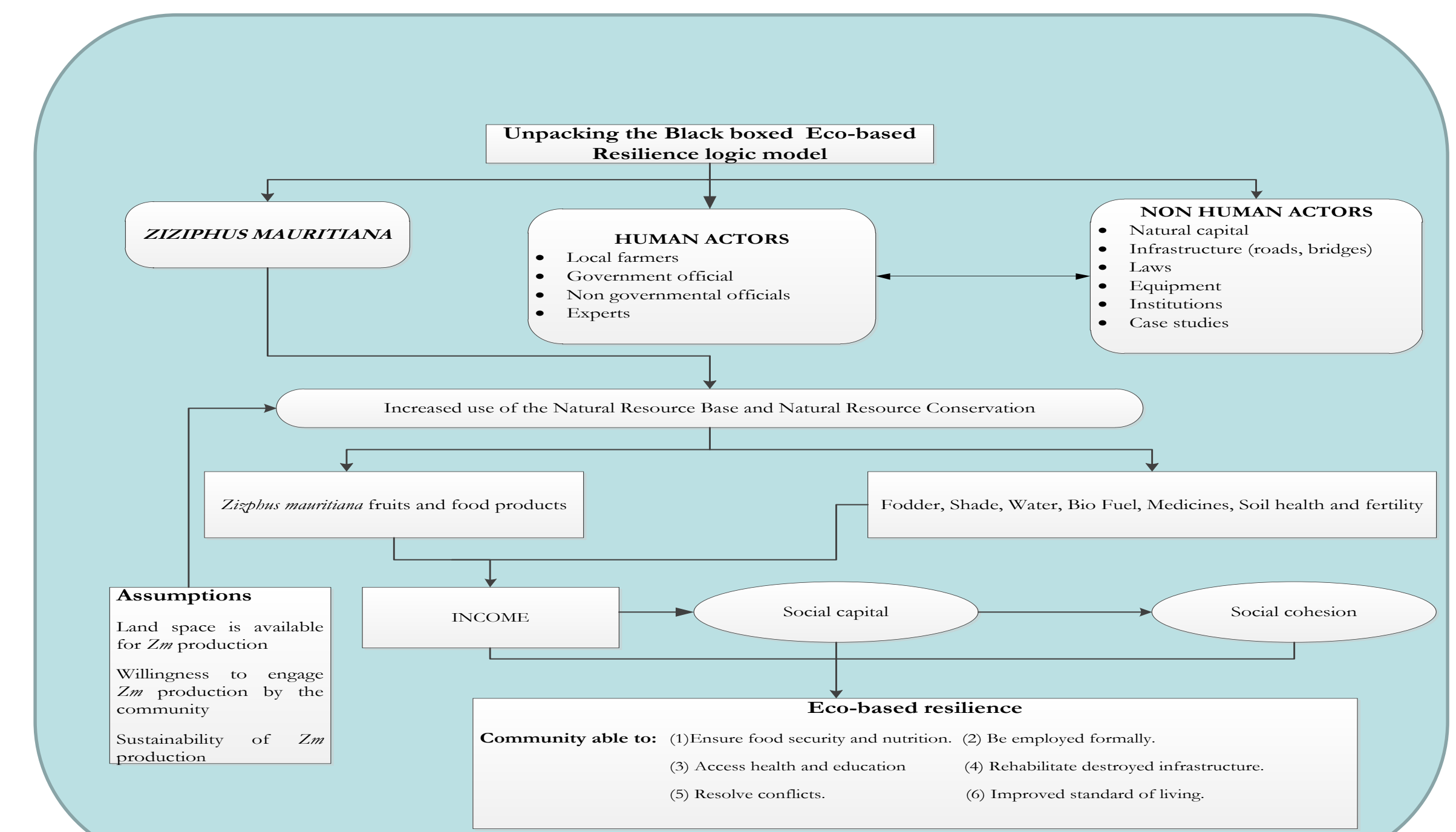Figure 3 Factors which influence resilience efforts in Muzarabani

Figure 4. Proposed Eco-based resilience logic model(ANELRM)

Discussion

The locals placed high emphasis on the use of the often ignored *Zm*. However, challenges in the known strategies point to a new approach like ANELRM, Results show the importance of considering locals and the various actor that include human and non human in building resilience options in semi-arid spaces. The study therefore proposes the following approach named (ANERLM). Use of diverse actors paying particular attention to their needs and local natural resources. Species identification and improvement for the benefit of the poor locals affected by adverse weather conditions. Value addition of the local eco-resources. Practicing fair and transparent Commodity chain networks

Conclusion: The radical approach can be used to enhance the understanding of building resilience in semi arid regions. The ANT allows the recognition of all actors(human and non human). There is also need to place importance on diverse actors and the complex links among them. ANT integrates Indigenous knowledge systems and research and promotes sense of stewardship if adopted in semi-arid spaces. The theory also combines well with other theories such as CCA to help explain complex relationship in semi-arid spaces.