



# Prioritising Resilience Interventions in Urban Communities: A Costa Rica Case Study

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## Summary

*This case study reports pilot testing of RABIT – the University of Manchester’s Resilience Assessment Benchmarking and Impact Toolkit – in a vulnerable urban community in Costa Rica. It aims to help increase resilience to external shocks: particularly, but not exclusively climate change stressors.*

*The case describes three things:*

- *how to understand community resilience in an analytically-robust way*
- *how we benchmarked and visualised community resilience*
- *how we used these metrics to prioritise future actions that will strengthen community resilience.*

*It provides an outline guide for those wanting to understand and enhance the resilience of vulnerable communities.*

## **The Urban Resilience Challenge**

As the 21<sup>st</sup> century proceeds, urban communities – particularly those with low-income residents – will face a growing series of short-term shocks (economic crises, climate events, violent attacks, health epidemics, etc) and long-term trends (climate change, migration, economic restructuring, new technologies, etc). In abstract terms, we know the solution: urban communities must become more resilient.

That is because resilience is defined as the ability of vulnerable systems – including communities – to withstand, recover from, adapt to, and potentially transform amid change and uncertainty. Resilience will therefore play a crucial role in the achievement of urban development outcomes. It provides a holistic, long-term and community-centred approach that is rising up the urban development agenda.

That is the theory. The challenge arises in practice: there are few credible guides that activists and researchers can follow which explain what resilience is, how to apply resilience metrics, and how to use those metrics to shape action. This case study provides such a guide. It explains how one aspect of the University of Manchester’s Resilience Assessment Benchmarking and Impact Toolkit (RABIT) was piloted in an urban community in Costa Rica with local partner Cooperative Sulá Batsú. As described below, this defined and then benchmarked resilience in the community; and then used that as the basis for prioritisation of future actions.

## **What is Resilience?**

The RABIT approach to resilience draws from the ideas of complex adaptive systems. It understands resilience not as a system structure or process, but as a system property. It is not something a system is or does, but something a system has (or fails to have). The system could be a household, an organisation, a nation. But in this case, the system is a community.

To understand resilience, RABIT identifies nine attributes – or sub-properties – of resilience. Three are primary foundations of resilience: robustness, self-organisation, learning. Six are secondary enablers of resilience: redundancy, rapidity, scale, diversity, flexibility, equality. The stronger these are in a community, the more resilient it will be. As summarised in Table 1, each attribute has a series of key markers: indicators that we can use to assess the strength or weakness of each attribute.

<b>Resilience Attribute</b>	<b>Definition</b>	<b>Key Markers/ Indicators</b>
<b>FOUNDATIONAL ATTRIBUTES OF COMMUNITY RESILIENCE</b>		
<b>Robustness</b>	<ul style="list-style-type: none"> <li>Ability of the community to maintain its characteristics and performance in the face of environmental shocks and fluctuations.</li> </ul>	<ul style="list-style-type: none"> <li>Physical Preparedness</li> <li>Institutional Capacity</li> <li>Multi-level Governance and Networking</li> </ul>
<b>Self-Organisation</b>	<ul style="list-style-type: none"> <li>Ability of the community to independently re-arrange its functions and processes in the face of an external disturbance, without being forced by external influences.</li> </ul>	<ul style="list-style-type: none"> <li>Collaboration/Consensus-building and Participation</li> <li>Social Networks</li> <li>Local Leadership and Trust</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Capacity of the community to generate feedback with which to gain or create knowledge, and strengthen skills and capacities. Closely linked to the community's ability to experiment, discover and innovate.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity Building</li> <li>New and Traditional Knowledge</li> <li>Reflective Thinking</li> </ul>
<b>ENABLING ATTRIBUTES OF COMMUNITY RESILIENCE</b>		
<b>Redundancy</b>	<ul style="list-style-type: none"> <li>Extent to which community resources and institutions are substitutable; for example, in the event of disruption or degradation.</li> </ul>	<ul style="list-style-type: none"> <li>Resource Spareness</li> <li>Functional Overlaps and Interdependency</li> <li>Resource Substitutability</li> </ul>
<b>Rapidity</b>	<ul style="list-style-type: none"> <li>Speed at which assets can be accessed or mobilised by community stakeholders to achieve goals in an efficient manner.</li> </ul>	<ul style="list-style-type: none"> <li>Rapid Resource Access</li> <li>Rapid Resource Assessment/Coordination</li> <li>Rapid Resource Mobilisation</li> </ul>
<b>Scale</b>	<ul style="list-style-type: none"> <li>Breadth of assets and structures a community can access in order to effectively overcome or bounce back from or adapt to the effects of disturbances.</li> </ul>	<ul style="list-style-type: none"> <li>Multi-level Networks</li> <li>Resource Access and (intra/inter) Partnerships</li> <li>Cross-level Interactions</li> </ul>
<b>Diversity and Flexibility</b>	<ul style="list-style-type: none"> <li>Ability of the community to undertake different courses of actions with the resources at its disposal, while enabling them to innovate and utilise the opportunities that may arise from change.</li> </ul>	<ul style="list-style-type: none"> <li>Different Courses of Action/Emerging Opportunities</li> <li>Adaptable Decision-making</li> <li>Innovation Backbone</li> </ul>
<b>Equality</b>	<ul style="list-style-type: none"> <li>Extent to which the community provides equal access to rights, resources and opportunities to its members.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthened Competencies/ Gaps' Reduction</li> <li>Inclusiveness</li> <li>Openness and Accountability</li> </ul>

**Table 1.** The RABIT Model of Resilience<sup>1</sup>

<sup>1</sup> Ospina, A.V. (2013) *Climate Change Adaptation and Developing Country Livelihoods: The Role of Information and Communication Technologies*, PhD thesis, IDPM, University of Manchester, UK.

## Measuring Resilience in Context: Barrio Luján in Costa Rica

The RABIT model of resilience can be taken forward via various different approaches to measurement. In this case, a semi-structured interview-based approach was used. This was piloted in Barrio Luján, a neighbourhood of c.1,900 inhabitants in the South-East of Costa Rica's capital city, San José. Barrio Luján was selected on three grounds: a) relatively accessible and safe as a pilot location; b) mixed in terms of housing stock (houses, apartments, and some temporary/fragile structures) and demographics (c.60% born in the neighbourhood and 40% migrants from other parts of the country or region); c) subject to climate-related events such as flooding, and with involvement in wider resilience initiatives.

A purposive sample of interviewees was used that targetted key stakeholders: six individual interviews with ordinary community members, and four group interviews with 14 representatives of meso-level institutions (police, fire, local emergency committee, and two community associations). Interview topics covered local community strengths and weaknesses, specific discussion of climate change impacts and responses, and an open discussion of resilience attributes. Interview transcripts were then subject to text analysis, enumerating the number of times the markers shown in Table 1 were discussed, and categorised into either strengths or weaknesses of the community.

## Visualising Urban Community Resilience Priorities

Deriving from the text metrics, the benchmarking of community resilience can be visualised. Examples are shown in Figure 1 (combining incidence of attribute strength and weakness within stakeholder interviews) and 2 (subtracting incidence of weakness from strength for each resilience attribute).

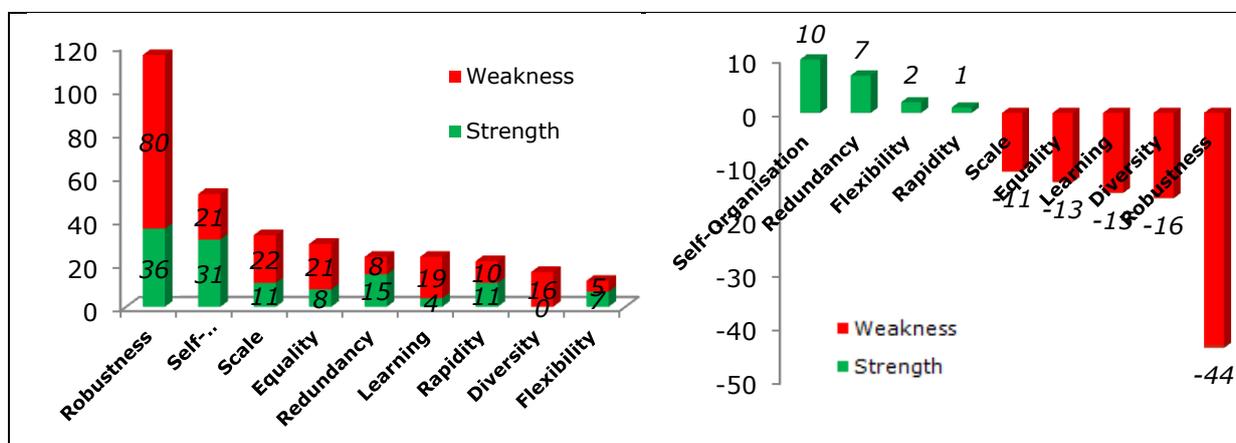


Figure 1. Relative salience of strength vs. weakness of resilience attributes

Figure 2. Summative view of resilience attribute strength/weakness

Figure 1 visualises three conclusions about resilience in this particular urban community:

- a) Foundational attributes of resilience - robustness, self-organisation, and learning – are of greater salience and concern than enabling attributes - redundancy, rapidity, scale, diversity, flexibility, equality. Robustness far outweighs other attributes as a focus for attention.

- b) The community is seen to have particular strengths in relation to robustness (thanks to a certain strength of local institutions, some physical preparedness, and some broader networking) and self-organisation (again thanks to the collaborative nature of some community institutions, and trust among some of the longer-term residents).
- c) Weaknesses in community resilience are a far greater concern than strengths: the former outnumber the latter almost two-to-one, and there is an aggregate resilience score of -79. Hence, there is a firm imperative for action to strengthen community resilience since stakeholders hold an overall negative perception of Barrio Luján's resilience.

In order to direct that imperative to action, we can supplement with the data shown in **Figure 2**, which helps identify three priority tiers for resilience-related interventions in the community:

- 1) First-tier priority – well ahead of others – will be actions to strengthen the robustness of the community. That means seeking ways: to make Barrio Luján more physically prepared for shocks such as climate events; to develop institutional capacity within the community; and to create networks and links to higher levels of governance.
- 2) Second-tier priorities should address community diversity, learning, equality and scale. Again, the detail should relate to the specific markers for each attribute.
- 3) Third-tier priorities will be actions on rapidity, flexibility, redundancy and self-organisation. These will help the community but appear to be less pressing than the other areas for resilience intervention.

These findings – including the priority tiers – were then discussed first among the research group, and then at a community feedback workshop in order to produce a list of high-priority interventions on resilience, as presented next.

## High-Priority Resilience Interventions

Proposed interventions for the first two priority tiers are shown in Table 2, with the highest priority for intervention – action on community robustness – shown first. On the right side, ‘Level of involvement’ indicates which of community-level, municipality-level and national-level stakeholders would be involved.

Attribute	Marker	Intervention	Level of Involvement		
			C	M	N
<b>Robustness</b>	Physical Preparedness	<ul style="list-style-type: none"> <li>Community campaign to clear and maintain river area prone to flooding</li> </ul>	X		
	Institutional Capacity	<ul style="list-style-type: none"> <li>Devolve seedcorn funding to community Risk and Disaster Prevention Group</li> </ul>	X	X	
	Multi-Level Governance and Networking	<ul style="list-style-type: none"> <li>Municipal authorities (government, fire, police) to hold participatory workshop for community youth on community development including emergency prevention and response</li> </ul>	X	X	
<b>Learning</b>	Capacity Building	<ul style="list-style-type: none"> <li>Undertake a community mapping exercise to identify emergency-related stakeholders, resources, risks, and to plan emergency actions</li> <li>Seek funding for training programmes for community organisation members</li> <li>Build community of practice around local development actions</li> </ul>	X	X	
	New and Traditional Knowledge				
	Reflective Thinking				
<b>Scale</b>	Multi-Level Networks	<ul style="list-style-type: none"> <li>Ensure emergency action plan has identified individual contact points within community and in local institutions</li> </ul>	X	X	
	Resource Access and Partnerships	<ul style="list-style-type: none"> <li>Seek sponsorship for a “Green Barrio” or similar action initiative</li> </ul>	X		X
	Cross-Level Interactions	<ul style="list-style-type: none"> <li>Develop an occasional programme of either presentations to community organisations from municipal/national actors; or visits for community organisation representatives to municipal and national organisations</li> <li>Negotiate with municipality and Ministry of Public Works for investment in improved water and sewerage management</li> </ul>	X	X	X
<b>Diversity</b>	Different Courses of Action/Emerging Opportunities	<ul style="list-style-type: none"> <li>Create cross-community network to share ideas about climate-related initiatives</li> <li>Encourage broader range of activities among Barrio Luján’s Entrepreneurial Women’s group</li> <li>Incorporate competition for best innovative idea as part of “Green Barrio” initiative</li> </ul>	X		
	Adaptable Decision-Making				
	Innovation Backbone				

Attribute	Marker	Intervention	Level of Involvement		
			C	M	N
<b>Equality</b>	Competency Gap Reduction	<ul style="list-style-type: none"> <li>Targeted training activities towards more-marginalised groups including senior and unemployed community members</li> </ul>	X	X	
	Inclusiveness	<ul style="list-style-type: none"> <li>Review membership of community organisations to ensure some incorporation of more marginalised groups</li> </ul>	X		
	Openness and Accountability	<ul style="list-style-type: none"> <li>Ensure general availability of information such as contacts, actions, etc of community organisations, including a 'welcome pack' for new residents</li> </ul>	X	X	

**Table 2.** Priority actions to improve community resilience in Barrio Luján

### Further Information

For full case study details, see: Ospina, A.V. et al (2016) *Benchmarking Urban Community Resilience: Piloting the Resilience Assessment Benchmarking and Impact Toolkit (RABIT) in Costa Rica* <http://www.niccd.org/resilience>

For full details of how to utilise the RABIT toolkit, see: Ospina, A.V. & Heeks, R. (2016) *Resilience Assessment Benchmarking and Impact Toolkit (RABIT): Implementation Handbook* <http://www.niccd.org/resilience>

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**RESILIENCE ASSESSMENT BENCHMARKING and IMPACT TOOLKIT**