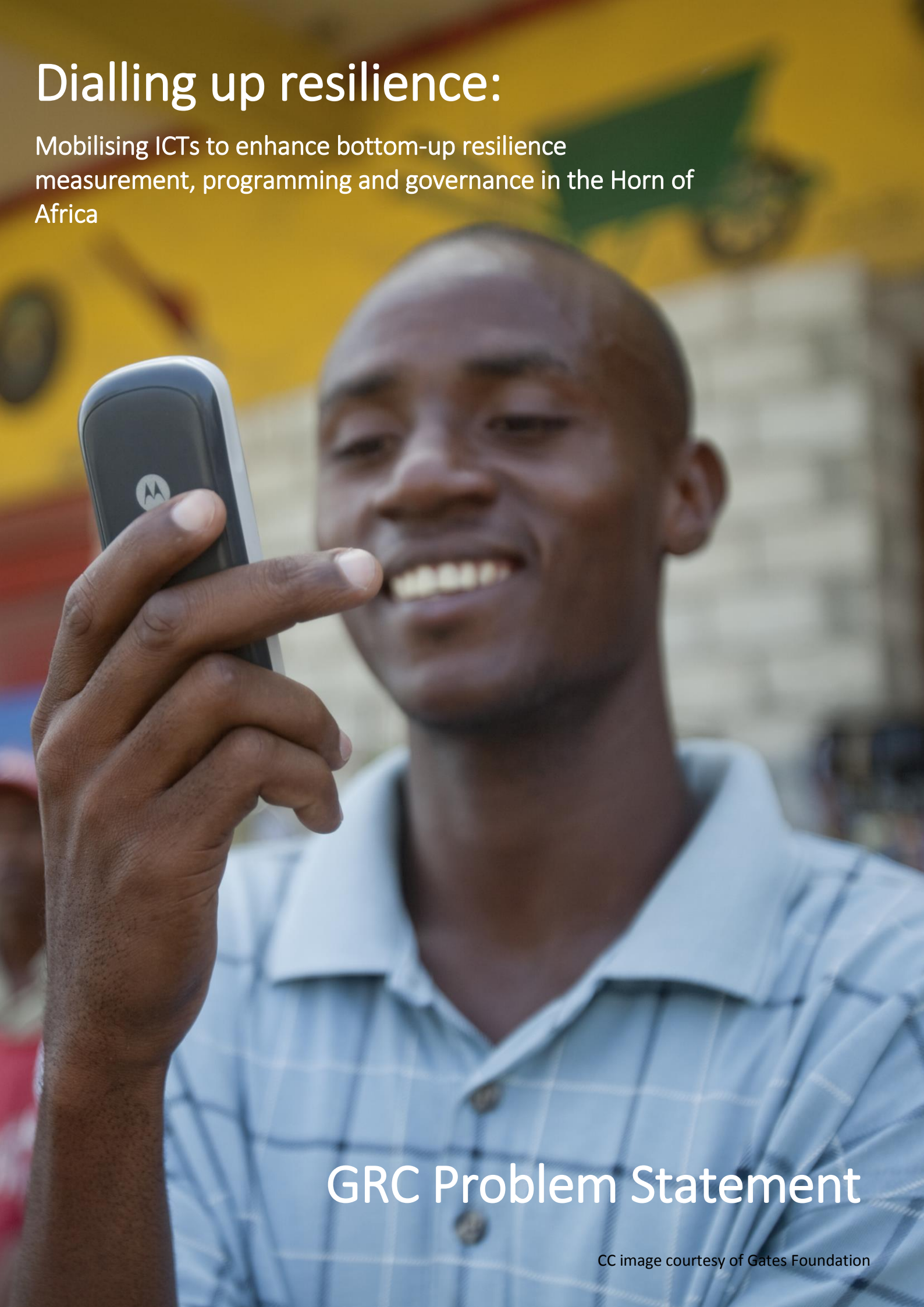
Dialling up resilience:

Mobilising ICTs to enhance bottom-up resilience measurement, programming and governance in the Horn of Africa



GRC Problem Statement

CC image courtesy of Gates Foundation

SECTION ONE: Team Members

a. **Title:** "Dialling-up Resilience: Mobilising ICTs to enhance bottom-up resilience measurement, programming and governance in the Horn of Africa"

b. **Lead Organisation:**

i. Overseas Development Institute (ODI).

c. **Consortium partners:**

ii. Aspiration
iii. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)
iv. Data-Pop Alliance
v. Government of Kenya, National Drought Management Authority (NDMA)
vi. Kenya Red Cross (KRC)
vii. Mobile Accord Inc (MAI): GeoPoll

d. **Project Leader:** Lindsey Jones, Research Fellow, ODI.

SECTION TWO: Problem Statement

How should we measure a household's resilience to disasters in the Horn of Africa or elsewhere? The question is crucial for a number of reasons, not least because a clear understanding of disaster resilience can help us to: identify vulnerable groups and areas; determine which activities are best able to support the resilience of people and communities; and track the effectiveness of resilience building programmes over time. With this in mind, researchers and practitioners have devised myriad different approaches, methods and frameworks for measuring resilience.

Despite the attention, assessment of resilience is fraught with complexity. Not only is the definition of resilience heavily contested, so too are the methodologies used to measure it. Confounding factors such as what mix of indicators to choose, which scale to focus on, and how to recognise the context-specific nature of resilience each muddy the waters. To make matters even more difficult, resilience measurement requires a considerable amount of socio-economic data: information that is currently sparsely available for much of the Horn of Africa, has large inaccuracies and is difficult and expensive to collect. Indeed, despite growing global interest in supporting resilience-building activities, approaches to measurement and tracking of resilience have not been able to deliver the desired policy or programming support[i].

While many measurement tools have proven insightful, we believe that current ways of measuring and understanding an individual's resilience suffer from a basic flaw: they fail to recognise and account for the wealth of knowledge that people themselves have in understanding their own resilience. Most frameworks are expert-led and objective in nature; largely missing is a way of recognising and including bottom-up perspectives of the factors that contribute to a person's or household's resilience—a subjective approach to assessing resilience.

An alternative to top-down resilience measurement

Attempts at measuring resilience are significant and valuable but vary greatly. Most current approaches to resilience measurement follow the same core steps (though not all approaches tackle them in the same way). The first step is to either consult or assemble a group of 'resilience experts' to consider the capacities and capabilities that make a household resilient to particular disasters and threats[ii]. This will typically result in a framework of resilience that features a number of different characteristics. For example, a large number of frameworks consider resilience to be made up of: the ability to bounce back from shocks; the ability to adapt; or the ability to transform livelihoods. Next, relevant 'objective' indicators are used to help inform each of these characteristics, drawing on whatever socio-economic (or other) data is available – ranging from household income and child nutrition to social networks and access to financial capital. Lastly, each of these indicators and characteristics are weighted and aggregated to form an overall score.

These approaches have clear benefits. They build on the successes of similar measurement methods used in determining household food and water security, economic consumption or living standards – each of which has proven invaluable in helping to improve targeting and delivery of development activities. However, they are not without weakness. Approximations have to be made, placing considerable weight on the choice of framework and characteristics used. The context- (and scale-) specific nature of resilience also means that identifying the right indicators is challenging: In Kenya, what contributes to resilience of a fisher in Lamu may not be the same as for a pastoralist in Turkana. Equally, there may be differences associated with other social makers, such as gender, age or class, and combinations thereof. In addition, the range of different data sources and inputs needed to compile such indices usually necessitates large household surveys, which tend to be costly and time-consuming.

Above all, a top-down expert-driven approach to resilience measurement fails to recognise that people themselves have a very good understanding of how resilient their households are and what contributes to their ability to deal with disaster risk. These bottom-up, subjective perspectives are rarely captured quantitatively, and may offer ways of addressing thorny issues such as context, indicator selection and lack of socio-economic data.

We believe that bottom-up measures of resilience have the potential to radically change the way that we track resilience, improve our understanding of what constitutes 'effective resilience-building', and hold governments and civil society to account. At its simplest, it involves asking people to consider the various factors that contribute to their livelihoods and judge how resilient they consider themselves to be to given shocks and stresses. This innovation builds on the recent success of the concept of subjective wellbeing, which has opened up an entirely new area of research and transformed how subjective information is fed into national and local development policies[iii].

Importantly, subjective approaches would by no means replace traditional top-down forms of resilience measurement. Far from it: there is much value to the collection of objective indicators. Rather, we hope that subjective information can be used alongside objective forms of data collection to provide a more holistic understanding of what contributes to an individual's disaster resilience and track the effectiveness of resilience-building activities over time.

Under the solution statement, we will propose and test different ways of measuring perceptions of resilience and seek to embed bottom-up information in policy and planning processes to improve the targeting and delivery of resilience-building activities in the Horn of Africa and elsewhere.

Filling data gaps

Current approaches to resilience measurement require significant amounts of data. Yet in many developing country contexts, socio-economic data are sparse. Where information does exist it is often unreliable or only stretches back for a short period of time. In contrast, bottom-up, subjective measures of resilience offer a unique opportunity as questions are likely to be far shorter and require the collection of fewer data points. Opportunities may therefore exist to collect information through more innovative means, such as ICTs and 'Big Data' methods.

One such opportunity is offered by the use of mobile phones. All over the African continent, people are using mobile devices to improve their livelihoods by sending money home to family and friends, checking market prices, and accessing weather forecasts. Mobile phone usage in the Horn of Africa is skyrocketing, with close to 80% penetration in Kenya and strong growth in Ethiopia, South Sudan and Somalia where penetration jumped 1600% in the five years leading to 2009[iv]. Looking forward, mobile data traffic in the Middle East and Africa is expected to increase 15 fold over the next five years (a compound annual growth rate of 72%)[v]. This presents a unique opportunity to collect information on resilience and communicate through both voice (call-centre) and Short Message Service/Unstructured Supplementary Service Data (SMS/USSD) based formats. Both formats can be sent to any phone ('smart' or 'feature'), across different networks and in a language of choice. Recipients are able to reply free of charge, without pre-loaded credit and receive a small financial incentive via airtime credit to participate.

These new approaches to tracking resilience allow us to do things we have never been able to do before: collect and analyse resilience data and bottom-up perspectives at an unprecedented scale, frequency and granularity; receive insights from vulnerable communities where access is difficult, unsafe and expensive (such as in fragile and conflict-affected areas); and gather and use information in real-time, showing trends over time (such as immediately after a disaster event). In addition, they offer a means of encouraging two-way communication and data collection across a wide range of recipients. However, they are largely untested, and many questions remain regarding their validity, usefulness and relevance to resilience measurement. Many challenges must also be addressed when using such techniques, including targeting, problems with recall and reference frames, issues of exclusion of certain groups, data quality, whether it is empowering or disempowering to specific groups, and other hurdles.

Under the solution statement we propose to trial different methods of collecting resilience-related information using ICTs and Big Data. We seek to develop guidelines for the use of particular methods including SMS, call-centre and household-level evaluations, and for the integration of Big Data with data collected through household-based methods

Making resilience-related information count

Resilience-related information can help to inform a wide range of activities. For example, better measurement is key to improving monitoring, learning and evaluation (ML&E) of resilience-building activities such as index-based livestock insurance or social safety net programmes. Knowing what works and what doesn't also allows us to enhance the effectiveness of resilience-related policies and programmes. We believe that bottom-up ICT-enabled methods for collecting resilience-related information can help to identify hot-spots of high and low resilience across a country or county and their dynamics: something which may prove to be of immense value to agencies tasked with coordinating humanitarian responses to disasters and organisations working toward developing adaptive capacity and resilience. In fact, a subjective method of measuring resilience may aid in bringing disaster relief and development agencies together to increase coordination and build

resilience before disaster strikes. In addition, it can be used as a tool for holding NGOs and governments to account on resilience-related activities through feedback and bottom-up assessments from local recipients of resilience-building activities.

However, preliminary research conducted during the Problem Statement phase suggests that, a) the quality of current information is insufficient in guiding real-world decisions at the local level, and b) organisations (whether government or civil society) do not have adequate institutional mechanisms and sufficient technical support to make use of resilience-related information. Thus, in order for our Solution Statement to have any chance of impact, we will need to include a strong and well-thought through Pathway to Impact. As part of this, ensuring that potential next-users are fully engaged within the partnership is key. The team will also look to build on the wealth of knowledge and experience brought by NDMA, Kenya Red Cross Society and CCAFS to understand how to support the uptake of science and information into decision making in the Horn of Africa.

Under the solution statement we will seek to ensure that resilience-related information is better integrated into policy and programming at all levels of governance. We aim to maximise the utility and relevance of all data through our extensive networks, local knowledge and unique opportunities presented by bottom-up ICT enabled resilience measurement tools.

---

[i] Levine, S. 2014 Assessing resilience: why quantification misses the point. Overseas Development Institute: UK

[ii] Bahadur, A. 2015. Resilience frameworks: a review. Overseas Development Institute (ODI). London: UK

[iii] Diener, Ed. "Subjective well-being: The science of happiness and a proposal for a national index." American psychologist 55.1 (2000): 34.

[iv] Korenblum, J. 2012. Mobile phones and crisis zones: how text messaging can help streamline humanitarian aid delivery. Humanitarian exchange magazine
Accessible at: http://www.odihpn.org/humanitarian-exchange-magazine/issue-53/mobile-phones-and-crisis-zones-how-text-messaging-can-help-streamline-humanitarian-aid-delivery

[v] Cisco. 2015. Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update 2014–2019 White Paper. Accessile at: http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html