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THE IMPACT OF CITIZEN-GENERATED DATA INITIATIVES IN EAST AFRICA

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DATASHIFT

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This report is one of a three-part series in which researchers from DataShift's pilot locations – Argentina, East Africa (Tanzania and Kenya) and Nepal – examine the impact of citizen-generated data initiatives in their own countries. Read the others at thedatashift.org/learning-zone/research/.

DataShift is an initiative that is building the capacity and confidence of civil society organisations to produce and use citizen-generated data. We are supporting civil society organisations that produce and use citizen-generated data in our initial pilot locations: Argentina, Nepal, Kenya and Tanzania. The project is sharing experiences to build capacity on citizen-generated data across the world, and is seeking to inform and influence global policy processes on the SDGs and the data revolution for sustainable development. DataShift an initiative of CIVICUS, in partnership with the engine room and Wingu.

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INTRODUCTION

In October 2015, DataShift commissioned a team of researchers to look into the impact of citizen-generated data initiatives in Kenya and Tanzania. This was a response to their objective of promoting the role citizen-generated data can play in monitoring and driving progress on the Sustainable Development Goals (SDGs) and ensuring the new Global Partnership on Sustainable Development Data prioritises citizen-generated data and civil society.

The work presented below identifies citizen-generated data initiatives in Kenya and Tanzania that address issues relevant to the SDGs and assesses each initiative's long-term or ongoing impact.

The case studies seek to address the following questions:

- **Use of the data**: Has the data been used by policy-makers, civil society organisations or other actors? If so, how?

- **Data quality**: Are any levels of verification built into the initiative? How sound is the data, particularly if it comes from multiple sources?

- **Sustainability of the initiative**: What is the initiative's projected lifespan? Is this clearly indicated? Are there plans to maintain the initiative's online presence after the period of data collection ends?

- **Local context**: How is data on the topics that citizen-generated data initiatives address received at the local level? Is it considered to be trustworthy?

- **Self-assessment**: How do they perceive the project to be going? Is the project meeting their initial goals?

There has been growing realisation that data is a necessary component of evaluative practice, and this has led to the rise of concepts such as open data. Additionally, organisations are increasingly being called on to demonstrate the impact of development initiatives. With this drive, we have seen our knowledge around impact and impact evaluations expand. Traditional data, however, has proven over time to be insufficient to track and plan for development. It has therefore been suggested that an ecosystem that includes citizen-generated data may begin to ensure representation of everyday people's voices and to bridge data gaps. This in turn speaks very directly to the SDG tagline: "Leave no one behind."

African governments have seemingly accepted that achieving developmental

goals and addressing similar concerns will require greater civic ownership. This is evidenced by the African Data Consensus Resolution developed earlier this year, which acknowledged that Africa should generate its own data to enable it to better monitor, track and plan for economic and social targets. It additionally calls for the creation of data "ecosystems" that are more inclusive in nature. In practice, though, the relationship between the state and its citizens remains essentially fractured, and governments tend to remain the sole data producers and custodians. A key example of this is new legislation passed in Tanzania, the Statistics Bill (2015), which seeks to make the government the sole regulator and custodian of data produced by civil society. In Kenya, though there have been some significant innovations with regard to citizen-generated data, largely from start-ups and civil society, the focus is largely skewed towards macro, state-driven approaches and the open government narrative.

The data revolution is also an articulation of the world waking up to the idea that data is key to the development narrative, not solely for monitoring but also for planning. There is therefore growing awareness that data is front and centre in the development agenda, as the push for the data revolution shows. Unfortunately, this revolution, inasmuch as it alludes to a more inclusive way of working with data, other than solely through National Statistics Offices (NSOs), cannot be realised without a concerted and structured effort towards inclusivity. Otherwise, it could remain primarily a prescriptive approach that focuses on building information/data infrastructure and management systems at the national level. It is largely acknowledged that, while structures, systems and "big statistics" are important, citizens are not merely consumers of data but are able to shape the narrative, becoming producers of data and information in their own right.

Enter citizen-generated data. By definition, this is data produced "directly" by people and their organisations to monitor, demand or drive change on the issues that affect them.[1]

However, there is a standoff of sorts between traditional data[2] and new/citizen-generated data.[3] Questions arise around whether the two types of data are compatible – and there are some concerns around the veracity and quality of citizen-generated data. Civicus Secretary General and CEO Danny Sriskandarajah has been quoted as saying that, for the SDGs to be monitored effectively, we need to move "to a government-to-citizen accountability rather than government-

1 DataShift, Harnessing Citizen-Generated Data for Transformative Post-2015 Agenda, May 2015, http://worldviewmission.nl/wp-content/uploads/2012/02/CGD-and-a-transformative-post-2015-agenda-final.pdf
2 This refers to government censuses, household surveys, etc.
3 This refers to mobile surveys, social media surveys, etc.

to-government review mechanism". This is essentially a call for a more robust ecosystem of data players that will be able to begin to plug existing development data gaps. This has been informed by some of the experiences gained from the Millennium Development Goals (MDGs) and the shortcomings that existed with these in terms of inclusions and monitoring.

This study will maintain that civic accountability is a key driving force in implementing development initiatives and is necessary for refining our approach. Further, citizen-generated data is a potential medium via which enhanced agency, voice and accountability can be achieved. What remains is to ensure that innovation and emerging technologies allow citizens to tell their stories in a more structured, timely, accurate, relevant and accessible way. By evaluating the impact of these initiatives, we are able not only to highlight what's working, thereby linking macro and micro policy issues, but also to reflect on successes and to determine how to move the data revolution forward. This may be one of the most cost-effective means of monitoring and evaluating development commitments at the necessary scale.

METHODOLOGY

Five initiatives were selected, based on their location; accessibility (in terms of being contacted and receptivity to participating in the project); duration; nature of the subject dealt with and scope; level of innovation exhibited in the approach; and the topical nature of the content, given our context (why did we find them interesting?) Of the projects selected, all are currently ongoing, although some aspects of each have changed as they have evolved and priorities shifted or because of other factors outlined below. The selected initiatives are as follows:

- Kwale Youth Governance Consortium (Kwale, Kenya)

- Centre for Advocacy and Research Development (Turkana, Kenya)

- Ground Truth Initiative (Kenya-Tanzania)

- Ma3Route (Nairobi, Kenya)

- Sauti za Wananchi (Tanzania)

Interviews were conducted with at least one key informant from each initiative. The research team had planned to contact more than one person per initiative, including users, members of the target audience, donors and key stakeholders. However, given the limited data collection period and slow response rates from participants, this will likely be pursued at a later date. An interview guide was also prepared to guide interviewers.

An overview of each initiative was provided, touching on its theory of change; the political, social and cultural context in which its data is situated; the organisations' capacity in terms of human resources, structures and systems; and the sustainability of the initiative. The initiatives were then compared, in a bid to delineate similarities, difference and patterns emerging from the findings.

With regard to study limitations, assessing uptake or use of data would require some engagement with the users of the data – both identifying them and interviewing a cross-section of them. This would help us ascertain specific aspects of data timeliness and credibility. Given the limited timeline for the study and the fact that some users were policy-makers, it would have taken more time than we had to identify and interview these individuals.

CASE
STUDIES

KWALE YOUTH AND GOVERNANCE CONSORTIUM

http://kygckenya.org/

KYGC is a non-governmental organisation (NGO) set up in 2010 in Kwale county, on the south coast of Kenya. Kwale is one of Kenya's most popular tourist destinations, housing a host of luxury hotels and villas. Despite this association with luxury, Kwale is repeatedly ranked among the poorest performers in health, education and social indicators in the country.

The adoption of the new constitution in Kenya in 2013 saw considerable powers and functions devolved to county governments. Devolution also brought with it the establishment of local structures meant to enhance civic participation in local governance affairs, such as Citizen Forums (CFs) and community management boards for health. It is generally expected that, with devolution, access to services at the local level will improve and systems will be put in place to ensure transparency and accountability. KYGC therefore set out to assess levels of accountability, transparency and service delivery within the county to gain a better understanding of the factors impeding or facilitating effective service delivery.

KYGC's work contributes to TO SDG 16: PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS.. KYGC posits that youth and the community have the right to participate in decisions that affect them. It also views data as essential to ensuring efficient and effective service delivery but as a concept that is largely under-appreciated by both government and citizens in this context. KYGC therefore brings together youth councils from Kwale's four sub-counties (Msambweni, Lunga, Matuga and Kinango) in the hope of empowering the community and other civic structures with

the skills needed to monitor government commitments, as well as to nurture their involvement in governance processes. It is also seeking to fill the data vacuum by building a data repository and evidence base around local interventions that could be used to inform decision-making on development proposals and to enhance accountability, especially with regard to resource allocation.

KYGC acknowledges that data production is not an end in itself and that citizens need to be empowered to have their voices heard. It is therefore aiming to enhance youth 'voice' and to stimulate discourse around issues of governance at the county level. Lastly, it promotes inclusivity of vulnerable groups such as the disabled, and has conducted various projects to this end. By doing this, it hopes to contribute to an accountable and responsive governance system at the county level that fully recognises active civic participation as a core principle of good governance.

KYGC runs various programmes it classifies as citizen-generated data initiatives, most of which take on the form of social audits. In 2010/11, KYGC took part in a digital mapping known as the Youth Empowerment Through Arts and Media (YETAM) project, an initiative by Nokia and Plan International aimed at providing youth with "the skills and tools to communicate [on] issues impacting their lives". Under KYGC, youth groups received training on communication, leadership and technology education and practice and were encouraged to identify and explore issues their communities were grappling with. The groups were then required to package findings and to develop an advocacy strategy to address the issues identified. In this regard, KYGC conducted a variety of social audits aimed at assessing the relevance, scope and use of public funds in local government projects. To ensure community participation, it engaged youth groups under the consortium in monitoring identified projects, as well as seeking to expand community involvement by engaging CFs.[4]

Another social audit was a monitoring of disability mainstreaming in public schools in 2013. Very little is known of the status of persons with disabilities (PWDs) in Kwale county, and efforts to improve this situation are not considered comprehensive. Yet concerns have been raised about access to education for children living with disabilities as well as whether existing institutions having the necessary capacity or resources to adequately support and accommodate them. This is added to general concerns around stigma directed towards PWDs, high levels of ignorance around disability and little to no understanding of legislation around PWDS within communities. KYGC thus decided to conduct a study over six months that would determine the nature and extent of disability in the county, as well as to

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4   KYGC has tracked an average of 10-15 audits per year since 2010, but of late it has not carried out the exercise because of budgetary constraints.

make an assessment of the factors that affect PWDs.

Third was the Youth Action for Open Governance and Accountability (YAOGA) set of audits. This project built on experience gained from the YETAM project. YAOGA aims to use data from its social audits to facilitate social accountability around statutory budgeting processes. Ten youth groups have been selected to participate in data collection that focuses on county development projects. Under YAOGA, KYGC is also hoping to create an online platform to make budget and service delivery processes more transparent. The county government approached KYGC with this idea, seeing this as an opportunity to foster inclusion of youth and communities in decision-making. The county transparency portal will host information on project implementation, and it is hoped that community scorecards will be developed to monitor county government budgets, expenditure and performance. According to our interviewee, the platform has already been developed but is currently inactive as the county government website needs to be restructured in a way that will allow for more effective interaction.

Lastly, KYGC conducted a study called "Who Is In, Who Is Out?" to assess citizens' access to health, education and water services. Findings show, for instance, that in certain communities children travel 7-12 km to school every morning, KYGC is currently pursuing a grant to map extractive industries and mining sites in Kwale. It hopes to empower communities living in or near mining sites, as they are largely unaware of their rights and the parameters within which mining firms should operate. KYGC also aims to use this as a platform to encourage mining companies to run corporate social responsibility programmes that will uplift living standards around the sites.

METHODOLOGY

DATA COLLECTION

According to KYGC, it uses a two-stage, random stratified sampling method to sample projects for audit. Projects are randomly selected from a themed list of all projects in each sub-county. Data collectors are recruited from KYGC member organisations, with the only criterion that appears to have been applied, in terms of field worker selection, being that the worker should own a smartphone, which could not be purchased under the current budget. With regard to YAGOA, however, participating groups were selected via proposal after being asked to submit a concept note detailing their experience, how long they had been active and whether they were registered with the Ministry of Gender, Sports and Culture. KYGC also visited the groups to assess them in situ. Each group receives €4,000 to undertake data collection.

KYGC has made a point of integrating innovations in information and communications technology (ICT) into its accountability work. Its initial rounds of audit were conducted manually and resulted in concerns around the credibility of findings. KYGC thus sought to develop a methodology and use tools that would be less vulnerable to questions of reliability. This resulted in the use of Poimapper, a mobile phone software application designed to support data collection, storage, viewing and analysis. Both quantitative and qualitative data are collected, as well as photographs, videos and spatial data, which are presented on OpenStreetMap (OSM). The main aspects of Poimapper respondents valued was its ability to attach location-specific point of interest information, which allows for better validation of data through, for instance, tagging all edits with the editor's name, timestamp and GPS location. Also important were that text and images could be submitted in combination with point of interest locations; its synchronisation and offline features; its inbuilt analysis function and ability to create track logs showing records of field worker movements; and its ability to generate analysis reports and to record and upload videos and interviews and real-time map-based visualisation of data.

The organisation also has a form on its website that allows it to track community perceptions, complaints and issues. It averaged 30 submissions a month in 2010/11; in 2012-2014, submissions dropped (to 2 a month) because of limited operations. The training of youth groups has led to another increase in submissions and KYGC is hoping the upward trend will persist with the implementation of YAOGA. In addition to its own monitoring of Community Development Fund (CDF) and Local Authority Transfer Fund (LATF) allocations, KYGC is hoping to set up a toll-free number so citizens can anonymously report on any project details related to social accountability. It will be able to geographically profile civic reporting with data from the hotline mapped using Poimapper and OSM. The maps will show how many cases are in each ward. KYGC aims to provide this information to the youth groups, which will hopefully spread the word to the community.

INDICATORS

KYGC tracks various indicators. For example, when auditing or evaluating projects, it aims to determine value for money, relevance to the community, quality and implementation efficiency. Value for money is determined in three ways. First, KYGC visits each infrastructural project with an "expert", for example an engineer, who can evaluate the quality of construction or the quality of equipment and materials procured. Then, using the evaluation report, KYGC makes a judgement as to whether project implementation or development is aligned with the budget and project priorities. Finally, the team also looks for anomalies in the tendering

process, mainly by extracting information from the minutes of tender committee meetings. Thus it can assess how tenders are awarded and what factors inform decisions made.

KYGC also makes a judgement on the relevance of the project and whether it addresses the needs of the community or whether it was brought about by some other agenda. For this, it interviews community members living within a radius of 2-3 km from the project. It also looks at how long a project took to be completed and at how and by whom the project is monitored and evaluated (e.g. whether the community was involved in monitoring and evaluation and, if so, at what level?).

For non-infrastructural projects, youth groups are used to monitor staff availability; adherence to service charters; availability of medication; staff attitudes; and the hospital environment. For health-based projects. For education-based projects, a class monitor collects data on the learning environment, which includes an assessment of infrastructure; teacher absenteeism, teaching quality and teacher attitudes. For disability, a survey was conducted between March and June 2014, covering 24 schools in Matuga sub-county. This covered basic demographic data; socioeconomic and cultural data; nature, types and causes of disabilities; coping mechanisms; nature of services available; and community perceptions and attitudes towards PWDs.

DATA ANALYSIS AND VALIDATION AND VERIFICATION

Analysis is carried out on Poimapper. Where this is not possible, such as for qualitative data, the analysis is carried out manually by staff (two university students interning with the organisation). With regard to validity and verification measures, KYGCs report that each survey uploaded onto Poimapper was developed by KYGC in consultation with its project partner and the relevant county authority. The surveys are also reviewed by community stakeholders prior to being distributed. Meanwhile, carrying out data collection via smartphones and Poimapper minimises input errors. Additionally, track logs appear to enhance KYGC's credibility as a data-producing organisation: it initially encountered resistance from the government, which argued that its data was fabricated, so, in addition to measures already taken, it supplements data collected with information from government records, as seen in this excerpt from a blog post on the project:

> *The CDF officers … were concerned with the findings and questioned the methodology and outcome of the work. They scrutinized some of the reports on the Nuru ya Kwale site and questioned for example, why Mkongani Secondary School was reported as a "bad" quality project. The officials wanted to know the methodology and indicators the team had used to reach their conclusions because according to the representatives of the CDF committee, the auditors*

gave the Mkongani Secondary School project a clean bill of health. Despite their initial resistance they eventually invited KYGC to their offices to access the relevant files in order to supplement the unknown/missing information.[5]

However, accessing these documents was described as a difficult process:

"They can be taken in circles for a month or two months, generally being evasive"
(Interviewee 2).

Thus, to further supplement efforts, interviews are recorded and follow-up phone calls made to respondents to determine whether data entered tallies with their interview experience. If time and budget allow, the team also makes a site visit in order to verify the accuracy of data entered.

DATA DISSEMINATION AND USE

Data, largely descriptive in nature, is shared through the organisation's blog,[6] on OSM and on social media. OSM displays a summary of results that consist of general descriptors of each audited project.[7] The blog primarily features a brief summary of findings from audits conducted, with a link to the data on OSM and one to the Kenya Open Data Portal on each project page. The blog also acts a platform on which interested parties can interact on these issues,[8] with a separate page explaining how data can be accessed on OSM. There is, however, very little information presented on the methodology used or the criteria used to judge project quality. There also appears to have been very little activity on the organisation's blog between 2013 and 2015, with most posts having been made in 2011/12. The highest number of posts relate to the CDF project, with very little information on other projects.

According to KYGC, the peak in it online activity came right after it launched. However, in 2012/13 a major partner withdrew all support, which threw the organisation into distress. Prolonged online inactivity on the blog resulted in

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5   Health Geography, "Information with an Impact", February 14, 2012, https://healthgeography.wordpress.com/2012/02/14/information-with-an-impact/

6   https://nuruyakwale.wordpress.com/

7   Such as name of the project; funding source; name and type of facility; location; contact information; funding information; money allocated and used; level of community contribution; project period; outline of those responsible for procurement; monitoring and evaluation and implementation of project; and lastly quality and status of the project.

8   https://nuruyakwale.wordpress.com/about/

diminished traffic and online interactions. The partnership was re-established following a change in management at their donor's county office. KYGC also creates platforms for engagement by holding public discussions, especially between policy-makers and the community, on findings related to service delivery, sector-specific implications of budget allocations and progress on development projects. It has thus far held one annual assembly and one debate, in 2015. It made no presentations in 2014. Once it has audited a project, KYGC also invites representatives of the community and the relevant line ministry to a presentation of findings and holds a discussion with them. Information on recommendations made and responses given at these meetings is not readily available. KYGC is also occasionally invited to forums held by other organisations to explain how it implements the social audits and its use of technology.

When asked whether data on OSM could be accessed or viewed easily, the interviewee stated that increased access to and use of smartphones and the increasing popularity of OSM had made this the case. However, the average Kenyan may have some issues understanding and navigating OSM. KYGC said it often received comments on what it posts on the map even from youth who live in rural areas, where one would presume smartphones are not present.

> *We were actually worried about what number in Kwale county would be able to access the data on either platform. But we were really shocked and surprised that we would get responses from even the remotest parts of Kwale … smartphones appear to be everywhere.*

Even so, it is unclear the extent to which information on these platforms reaches and is understood by target users, especially County Budget Economic Forum and County Assembly members and civic structures such as the CFs. KYGC does not currently track use or uptake of its data: it is currently unable to track how many people visit the OSM map and does not necessarily keep track of its blog analytics, although these can be accessed. Nevertheless, various examples show how data had prompted various positive reactions from the relevant authorities.

One example relates to the construction using the CDF of the new maternity wing at Tiwi Rural Health Training Centre. This remained unutilised for a period of two years, with hospital staff continuing to use the old maternity wing. On inspection, it was evident that the new wing had been constructed poorly and failed to adhere to health department requirements. For instance, doors were not wide enough to accommodate wheelchairs or beds. These issues were presented to the relevant authorities, who responded positively and began working on rectifying them.

KYGC also debriefs communities on progress made by institutions seeking to respond to its recommendations. Other examples of a positive response to KYGC's work include Mkongani Secondary School, where a crooked wall was fixed, and Bila Shaka Water Project, where the CDF Committee relocated a water tank as its previous location had resulted in no water flow.

KYGC data may also have been used in intangible ways and for research purposes: the organisation states that its reputation and awareness of its work have grown. In 2013, it received some students from the University of Washington DC, who sought to use its data in a case study. In September 2014, KYGC was invited by the African Development Bank to a workshop for all its CFOs to address the issue of technological innovations used to target corruption.

Table 1: Online platforms used for disseminating data

PLATFORMS	FOLLOWERS	NUMBER OF POSTS		
BLOG	not clear	2015, 2 posts 2014, 2 posts	2013, 2 posts 2012, 6 posts	2011, 28 posts
TWITTER	22 followers	2011, 2 posts 2015, 17 posts		
FACEBOOK	1,554 members	Not clear		

IMPACT

KYGC can be described as having had a positive effect on the county, although these effects are currently documented anecdotally. With regard to its main achievements, KYGC believes it has grown as an organisation. It now encounters a county government and CDF Committee that is more responsive and open to being held accountable, albeit marginally so. The government and other stakeholders now view it as a credible source of information: it rarely receives queries around the veracity of its data, unlike when the project began. It is also receiving increased requests from other organisations seeking assistance in trying to improve their data.

Second, KYGC believes it has been a motivator in pushing the county government to use ICT to facilitate transparency. Although such tools have not yet been fully adopted, KYCG's work led it to be invited to share experiences at international forums such as that held by the African Development Bank. Lastly, the community has been sensitised on issues and KYCG believes the level of consciousness has risen. There has also been some impact at the legislative level in terms of influencing policy shifts. For instance, during drafting of the County Finance Bill, KYGC produced a position paper that highlighted giving the inspector general a mandate for revenue collection from all hotels would likely put them in a

compromising position. Instead, KYGC suggested that ICT tools and systems be put into place to fill this role. KYGC also countered the issue of raising land rates. The county adopted the position paper.

KYGC also trains county authorities on budget analysis and prioritisation that takes into account human rights, specifically as this relates to women, youth and children. This is so the authorities are better informed as they make decisions. There has yet to be any training with the media. KYGC also builds capacity and knowledge of youth on issues around county budgeting, service delivery procedures and processes and social accountability tools and mechanisms. It has held one each of the following with representatives of youth groups from each sub-county: induction workshop (early 2015); leadership training; training on the budget process; training of trainers (ToT); and reflection meeting with youth groups (October 2015). For example, under YAOGA, KYGC took representatives from 84 youth groups through a ToT workshop.

The training programme sought to educate youth groups on budget-making processes, methods of data collection and social audit case studies. Youth groups were also required to draft a group project work plan on how they planned on engaging with monitoring budgetary processes. KYGC anticipates that, if the trainees pass down information from the workshop, 400 youth can be reached and trained on monitoring county governance. Training has thus far focused on the youth groups, although it is hoped that it will also be possible to train the media on budget and service delivery procedures for the purpose of informing local media campaigns.

Lastly, the organisation has also observed youth within the county, especially those involved in youth groups working on its projects, become more proactive in raising concerns around county governance. For instance, one young person sparked off a heated debate on the Kwale County Youth Forum page around a county official's recent commissioning of a single street lamp worth Ksh. 70,000 yet having spent five times worth the value of the project in going to visit it.

SUSTAINABILITY

The organisation currently lacks an internal, formal, monitoring and evaluation function to keep track of its progress relative to the goals set. It does, however, hold an annual general assembly to reflect on the year's activities, to conduct a SWOT (strengths, weaknesses, opportunities, threats) analysis and to develop a strategy to address issues raised. We had no access to reports that could verify this or speak to the quality of this evaluation.

To increase the impact of its work, KYGC hopes to expand its scope to provide a

more comprehensive picture of access to local government services. This would include measuring the distance people travel to access services; mapping the distribution of resources and amenities throughout Kwale county (e.g. roads); and starting to monitor changes in the community's political consciousness or awareness vis-à-vis capacity to act.

CENTRE FOR ADVOCACY AND RESEARCH DEVELOPMENT

http://esukuldata.org/

The Centre for Advocacy and Research Development (CARD) was started in April 2014 and operates in Loima sub-county, Turkana county, Kenya, with the overall aim of improving the social and economic status of the Turkana people. Conceived by a group of Turkana professionals, it was felt there were few advocacy organisations in the region focusing on issues of devolution and community participation in development around the areas of education, health and food security.

CARD's user-generated data focuses on the education sector and feeds into **SDG 4: TO ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL.** Turkana is considered to have low literacy levels, low school attendance and high teacher absenteeism. The political leadership, the provincial administration, the school board of management, the community and parents as well as learners recognise these trends as the foundation of poor performance but, regrettably, the situation is rarely challenged. Additionally, evidence-based policy-making, and use of data in general, is a relatively new concept to local government; where it is not, these institutions remain largely wary of data:

With the government it is tricky, the government needs a push, you have to find a way of really sneaking in the data aspect … Accountability is a problem.

CARD commenced its monitoring work in 2014, focusing mainly on the issue of teacher absenteeism. This was motivated by information gathered from studies conducted in the region that indicated this required attention.[9] The project steadily

9   E.g. the HIVOS Service Delivery Indicators Report.

expanded to include data collection on school infrastructure; enrolment levels; and dropout and transition rates (i.e. number of children transitioning to the next level of education).

While CARD has not explicitly defined its theory of change, it believes its data provides an evidence base from which ameliorative actions can be launched. It hopes to influence policy change at a local level as decision- and policy-makers become more aware of how their decisions affect a particular context. It also seeks to inform advocacy work in the education sector, and thereby to have an impact on teacher attendance; student performance and learning outcomes; and improving community participation in education matters and the overall accountability of school management structures. Secondary objectives include empowering students and developing student leadership potential in order to enhance their capacity to engage with service delivery at a school level. Unlike teachers, who are protected by unions and the Teachers Service Commission (TSC), learners often suffer silently in the absence of the mechanisms necessary to exercise their basic rights.

CARD currently has 10 members of staff, most of whom, including the CEO, are volunteers. To conduct their work, they partner with various other organisations. Until recently, the TSC was the principal partner with regard to monitoring teacher absenteeism, but this partnership has since been discontinued. Data collection now focuses more generally on the school environment and the Ministry of Education, Science and Technology (MoEST) is the primary partner. CARD also receives assistance from the Open Institute, which provides technical support and capacity-building, for example training on data management.

METHODOLOGY

DATA COLLECTION

Data collection is carried out manually, by survey, over a six-month period. So far, there have been at least two rounds of data collection, with the main respondents being head teachers, staff and pupils in Standards 4-8. CARD's methodology is fairly simple, and, given its context, reduces the likelihood of error. The team first maps all schools in Loima sub-county and monitors student enrolment at both primary and secondary schools. Enrolment figures help determine whether the community is actually benefiting from free primary education and sheds light on the intersection between culture and children's rights, specifically their right to education, as some parents hold back their children for various cultural reasons. CARD runs data collection cycles at the beginning of the year and again at regular intervals throughout the year, its rationale being that enrolment is often quite high at the start of the year but steadily declines as the year progresses. This indicator

is monitored via student registers and also using enrolment figures displayed on public notice boards found in each school. The interviewee mentioned that CARD also tracks the wider reasons for any decline in enrolment figures and reports on these, although these reports are not available on the website. CARD also collects information on transitions – that is, how many children proceed from one stage of education to another.

Another aspect monitored is scholarship programmes funded by the CDF or LATF. The CDF bursary programme has been in operation since 2003 and is managed by ward representatives. In the last financial year, the CDF managed to disburse Ksh. 25 million in Loima alone. While there appear to have been significant improvements to the disbursement of funds and access to the CDF bursary in general, since the devolution programme was launched in 2013 CARD would like to determine how many students benefit from the bursaries; where students benefiting from the scheme originate – that is, whether they are all from Loima sub-county; and perhaps the level of benefits accrued. According to the respondent, current figures held by various institutions on the number of students benefiting appear to contradict each other.

Data is also collected on other aspects of the learning environment, such as staffing, infrastructure, teacher attendance and quality of teaching, which are generally considered to influence learning outcomes. With regard to staffing, CARD tracks the number of staff, their designations and positions and the levels of remuneration given to support staff (e.g. chefs, guards, cleaners, etc.). In terms of infrastructure, quality is considered lacking in the region and investment priorities appear to be politically driven, for example based on the affiliation of the community in question rather than driven by evidence. Thus CARD provides information to the relevant authorities to aid in prioritisation during resource allocation.

CARD collects data on teacher absenteeism: over a period of six months, it takes note of lesson duration, instruction time and teacher presence or absence. The project recruits student monitors from Standards 4-8 to carry out the work, as they have higher numeracy and literacy levels and thus the capacity to track various indicators. Secondary schools are not monitored in terms of absenteeism. The student monitor registers also highlight reasons given for a teacher's absence.

It should be noted, however, that CARD is no longer tracking teacher absenteeism. After two rounds, this aspect of the project was stopped because of various challenges, key of which was the resistance to the project from the Teachers Service Commission. CARD's data indicated high levels of teacher absenteeism with most teachers attributing their absence to the need to travel to collect their salaries from Lodwar town. Lastly, CARD collects data on the nature of disability

in Loima in order to enhance PWDs' access to education and improve their future prospects. Loima sub-county lack a special needs centre or a school to take care of the disabled. It is felt at CARD that special education can be provided at existing schools in the area rather than transferring children with special needs to isolated learning centres that currently do not exist.

There are various ways in which CARD would like to expand its dataset, such as by exploring childhood pregnancy rates to determine the number of girls being impregnated while in school and dropping out as a result. It plans on working together with chiefs and sourcing data from schools and the children's office to get a better idea of the extent of the problem.

DATA ANALYSIS AND DATA QUALITY

Basic data analysis is carried out using Excel. With regard to quality, CARD has made attempts to put into place various measures to verify its data. It conducts headcounts in randomly selected classrooms and compares these numbers with the numbers displayed on the public notice board. It then triangulates data sources. Two particular challenges were raised in this regard. First is the scarcity of data in Turkana in general, with little to no information at the sub-county level: all comparisons have to be made using county-level data. Where this exists – data come from Kenya Open Data, the World Food Programme (WFP), MoEST and the Uwezo Project run by Twaweza – it is not sufficiently disaggregated. Thus data is not comparative in any real sense: much could be done to create greater alignment between datasets in the region. Second, CARD reports that a lot of official data is unreliable and of questionable quality. It has found that data is often inflated to get additional supplies or funding: for instance, enrolment numbers determine the quantity of food rations WFP provides and the funds disbursed by the Free Primary Education Fund. The interviewee was concerned that, since WFP is planning on shifting from food rations to cash hand-outs, this may have further implications for the quality of data.

DATA DISSEMINATION AND USE

CARD displays its findings on http://esukuldata.org/. Information appears to target policy-makers and civil society organisations operating in the region. Education data is presented on the website in the form of summarised descriptive statistics in tables and maps. More comprehensive reports of these audits and other studies are shared with key stakeholders via other forums, such as at the monthly county education coordination/cluster meetings, chaired by the county education director and attended by mainly civil society education partners in the region – namely, MoEST, Tubai, Turkana Education For All, the United Nations Children's Fund, the Diocese of Lodwar, World Vision, the CfBT Education Trust, Windle Trust

International, Save the Children and Alemun Pastoralists Empowerment Initiative. At each meeting, stakeholders are given the opportunity to explain their current work, discuss common problems and challenges and share ideas.

CARD states that it makes information available for the purposes of informing decisions and arguments, especially around budget prioritisation and for the informed designing of development programmes in the education sector. CARD receives various requests for data from civil society organisations and international NGOs in the region, specifically around enrolment data. These numbered roughly 16 since project inception. One could tentatively state that CARD data is being used to inform decision-making, as described below:

We know of schools that are critically understaffed. In several locations, the leaders from Loima have referred to our data to see which schools are understaffed, and the MP has called me severally when he wants information on education, which I share with him and he will say I am lobbying for an additional 20 teachers and I want to know which school needs them most. In terms of learning the extent of the problem, we also want to ensure equitable distribution of resources, if we have the data in regard to enrolment data and teacher distribution ... even in terms of improving infrastructures, our data can tell you which schools have dormitories, which ones have them but they are underutilised.

This response was made in light of chronic under-staffing in schools in the region. For example, in 2014, 10 new schools were started in Loima sub-county, but no new teachers were employed to replace those promoted. That being said, CARD does not currently monitor the uptake of their data for these purposes. It also does not track the volume or frequency of downloads made via the facility provided on its website where data is available in the form of tables.

While this project could produce vital data, it has encountered several stumbling blocks, which directly impact data use. First, parents and sponsors play a critical role in upholding accountability, yet their participation in public schools' governance is negligible. The community was also described as being largely ambivalent towards education matters, save for those elected to the school board. Where school management boards have been instituted, CARD states that elected representatives are not sufficiently equipped or educated to govern appropriately. Community members were also described as having limited interest in developing infrastructure at schools and generally removed from the learning and governance aspects of their children's education. This was attributed to most parents in the region being uneducated and not knowing how to engage with issues of low student performance or bad governance. It was reported that the only time the community became interested in the learning process was when access to food for

their children was threatened in any way. For instance, if children stay home for one reason or another, parents worry about having to feed them rather than about their grades:

If teachers are deployed to their home areas there is a view that the community cannot question the performance of a school if it is one of their own. They do not even call for sanctions for such a teacher … If the teacher is selling food, they will react immediately because that is a key issue for them
(Interviewee 2).

Second, CARD faces a lot of resistance to any data it publishes that highlights inefficiencies and corruption within the system. For instance, with regard to teacher absenteeism, CARD found that the local TSC office, which had been fairly optimistic about the project at its genesis, shifted its stance once the study results were released. CARD suspects this owed to political interference driven by fears of severe disciplinary action. CARD was asked to stop monitoring absenteeism and political pressure was applied via elected representatives who publicly stated that teachers should not be monitored. It thus now focuses on other aspects of the learning and school environment.

In terms of improving data dissemination, CARD would like to set up a blog and also to see the information go further in reaching the community, most of whom cannot access it online. The main means of doing the latter would be through "community barazas" and use of basic information, education and communication (IEC) materials to explain data and trends to community members in greater detail. CARD has attended one community forum thus far, where it presented a general overview of education in Loima. CARD has also been invited to speak about education in Loima on three local radio stations (Jambo Radio, Matata and Akicha). It does have some social media presence and states that it is very active on these sites. However, a quick assessment shows that CARD has tweeted only once, although is is more active on Facebook (although activity on the latter waned in 2015). A key challenge to expanding dissemination efforts is CARD's limited budget. Data collection currently takes up a large portion of the budget, which is at Ksh. 2.1-2.4 million per data collection cycle (covering a period of six months).

IMPACT

CARD's work has reportedly improved the community's understanding of the state of education in Loima, although levels of awareness have not been objectively measured. CARD has become a reliable source of education data in the region, with stakeholders reported to have acknowledged that it can provide reliable information on enrolment figures on a regular basis. CARD's activities have also had the effect of minimising manipulation of data: there are fewer discrepancies in figures or measures collected by the different institutions - that is, they differ to less of a degree than prior to CARD's monitoring exercise: "*The difference is now not as big as before, they will now add only five or so pupils*."

Table 2 lists other outputs of CARD's work.

SUBJECT	RESULT
Tap pupil's leadership support to enhance service delivery at school level.	• 176 class monitors trained • Pupils empowered to demand teacher attendance • Pupils more responsible with their learning and appreciate importance of teacher attendance
Improve timely completion of syllabus and increase teacher-pupil time	• Teachers try to recover lost instructional time in order to complete syllabus • Improved teacher and pupil relationship
Enhance teacher performance and learning outcomes in public schools	Poor results reversed. Schools that scored low mean scores in 2013 demonstrate improved performance in 2014 (e.g. Kalomegur Primary)
Promote access to information and management of resources for basic education	• Staff registers distributed to 38 primary schools with Standards 4-8 for tracking attendance at classroom level • Online portal for Loima sub-county schools created

As mentioned earlier, CARD's data is also being used tentatively in decision-making. Another example provided of this was of dormitories being constructed and furnished in Naremek and Kabulokor Primary Schools. CARD data revealed that the dorms had not been in use for a year, reason being that some parents were not willing to let their girls sleep in school because of insecurity and the risk

of pregnancy. CARD's data also revealed that dormitories were in high demand from parents in other schools, who preferred that their girls stayed at the school site. It was CARD's feeling estimation that, had its data been referred to, and had the county also spoken to MoEST officials, funding would have been allocated appropriately, rather than bowing to head teachers' demands, who are described as having a tendency to request things they do not need. CARD reports that it has observed its data now being referred to to resolve similar issues. It has also observed its data informing the deployment of teachers to understaffed schools.

It appears that CARD's work has also had unexpected effects in terms of raising community expectations: the community has come to expect that CARD's data-collecting activities will lead to immediate interventions. For example, CARD has been approached by individuals and institutions requesting support for their infrastructure projects, such as construction of teachers' houses or drilling boreholes. It has therefore had to explain that it is not an implementer and that its work aims to advocate for a more responsive local government. This community response may be indicative of the governance inadequacies as well as a lack of trust in local government to address community needs.

GROUND TRUTH INITIATIVE

http://groundtruthinitiative.org/

The Ground Truth Initiative (GTI) is "a global new media and technology consulting company specializing in community-based participatory technology". Started in early 2010 by Erica Hagen and Mikel Maron, GTI's focus is on promoting inclusivity in development and democratic governance conversations, by bridging technology gaps, using open data and establishing collaborative platforms. It does this mainly by equipping poor and marginalised communities with skills in using the internet, mapping, digital storytelling and citizen journalism to highlight the issues they care about as well as to frame their own development processes.

The development of GTI was informed by the founders' experience with Map Kibera in 2009. It became evident to them that, despite Kibera being a heavily studied community, the residents themselves did not have access to that information. Thus, in order to provide these communities with an opportunity to represent their own views, the founders sought to explore how they could work with citizens living in informal settlements and very poor communities in terms of teaching them to collect data they would be able to use. Initially unsure as to how receptive Kibera residents would be to this type of data collection, they were pleasantly surprised when they responded positively. This inspired them to bring the tools they used in Kibera to a wider audience, expanding their offering to include consulting services, training and strategic advising internationally.

GTI's work is located within **SDG 11: MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE.** In summary, its broader objectives include:

- community development and improvement
- working for a world in which all people have equal ability to create and share information to influence their future
- giving people a greater voice through data collection and research by building a culture where digital storytelling, open data and geographic information leads to greater influence and representation for marginalised communities

For the purposes of this case study, we focus on GTI's work on the Map Kibera (Kenya) and Ramani Tandale (Tanzania) projects. The Map Kibera project focuses on the residents of Kibera constituency in Nairobi, Kenya. Kibera is often described as the largest slum in urban Africa. The 2009 Kenya Population and Housing Census reports its population as in excess of 170,000 residents, in contrast with popular estimates that put the population at 1 million residents. Since 2009, Map Kibera has sought to address the glaring omission of roughly a quarter million of Nairobi's inhabitants from mass communication and from city representation and policy decisions. It did this by recruiting and training Kibera residents, sourced from local community-based organisations, in how to use GPS gadgets, record coordinates on paper, upload results onto OSM and use social media and WordPress for blogging. GTI received a grant from Jumpstart International for the first phase of work.

GTI's work in Ramani Tandale focuses on the residents of Tandale civic ward in Dar Es Salaam, Tanzania. Tandale is an administrative ward in Kinondoni district, on the western side of Dar Es Salaam, that encompasses a large number of unplanned settlements. According to the 2012 Census, its population is 54,781 residents. The project began in August 2011 and seeks to increase influence and representation of marginalised communities through the creative use of digital tools for action. The first project was a project funded by the World Bank and Twaweza. In addition to its team of mappers, GTI partnered with 20 students from Ardhi University's School of Urban and Regional Planning and 25 community members from the area of Tandale in order to map various amenities, including public toilets, health clinics and rubbish dumping sites. This group underwent training on how to use GPS and submit data collected to OSM.

DATA COLLECTION

The process involves working with people in the community who go on foot using GPS devices to collect locations and use paper to record coordinates and input this into software that uploads the information to OSM. Lately, GTI has been using smartphones, but this has been a challenge because smartphones are not readily available. GPS and paper have proven the most accessible.

## DATA ANALYSIS AND DATA QUALITY

The team tries to introduce people to a simple method of data collection for the larger community; the more senior team members act as fact checkers. Initially, the mapping team did not focus on accuracy and reviewing the data and did not do any data checks because the aim was to get the information out there and then

the community would later correct as the project progressed. However, during the Open Schools project in Kibera, a senior team conducted the data collection and GTI supervised a quality assurance process to determine whether there was any missing data or incorrect numbers. Checking over every single entry took a long time but, because they were very thorough, they found a number of corrections.

Additionally, GTI updates its information through a variety of means. The team looks at other datasets, such as those managed by organisations such as the Red Cross. The two organisations share data to fulfil their respective data needs. In other cases, schools will sometimes contact the mappers and tell them they have the wrong information; this gives them a chance to correct the information. Ms Hagen explained that initially some of the schools did not want to appear on the map; however, when they saw other schools were part of it they were more approachable and often demanded to be included or willingly informed the mappers that they had moved. Map Kibera's local team of mappers also physically verify the information and this helps with the constant refreshing of information.

DATA DISSEMINATION AND USE

GTI uses OSM to display the data and regularly posts updates on its blog.

An example of OSM data submitted as part of the Ramani Tandale project
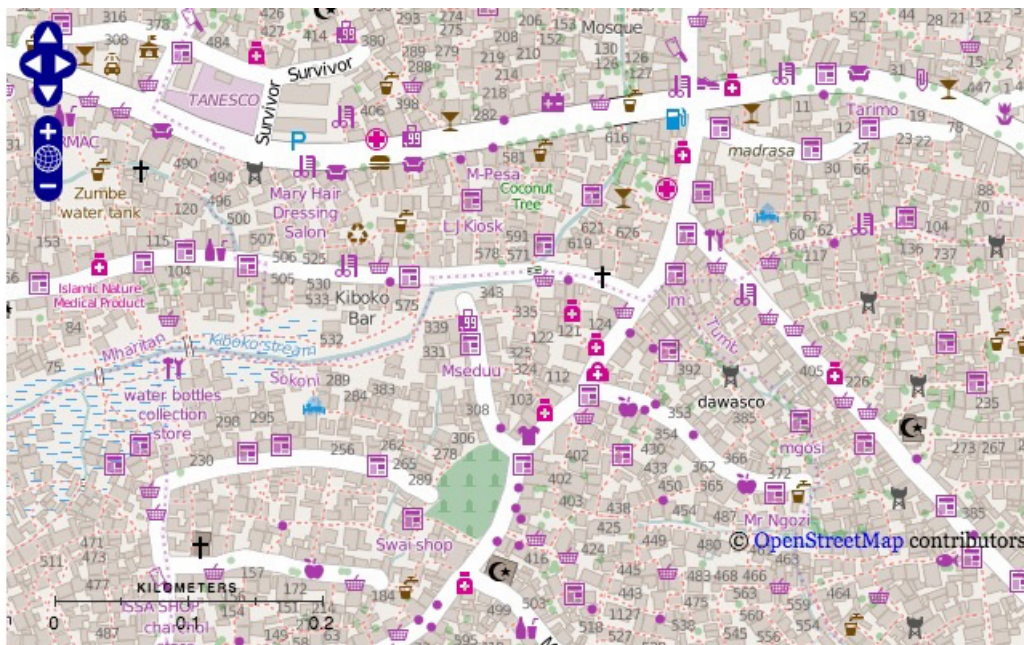
IMPACT

The impact observed has been varied. In Kibera (Kenya), several organisations and interested parties have used the information to inform planning for greater service delivery, specifically in the provision of water, sanitation, health and education. The project has resulted in some form of policy influence: information from the Open Schools project [10] was presented to MoEST and the local MP in early 2015. The local MP, shocked to see how few schools there were in the location, has since taken a greater interest in education in the area, particularly with regard to improving government schools. The organisation admitted, however, to being unable to determine exactly how their information was used in this situation. It also recognises the difficulties of measuring use of its information in its given context when it cannot control all variables. Causality remains difficult to determine, even where data appears to have had positive effects. GTI is therefore still in the formative stages of the intervention, continuing to produce up-to-date information in the hope this will lead to positive change without having proof that it actually does.

Second, Voice of Kibera, an online news and information-sharing platform, has been set up by residents to supplement the mapping work. This form of citizen journalism aims to provide an alternative voice to mainstream media and to allow the community to take charge of their own narrative. Similarly, the organisation has observed a shift in how the community interacts with data on social media as well as how they interact with local government. One of the founders stated that they are now more likely to engage with local leaders to share or act on information they have collected. The respondent stated that there was a lot of opportunity for growth in terms of engagement as most community members often do not often start off feeling confident about approaching or talking to leaders. There have also been some social and more personal effects, such as the initiative fostering a positive sense of place. Community members are happy to see their area represented on a map and to have positive stories told about their home.

One other key outcome is the adoption of GTI's model by other organisations and in other parts of the city. Most notably, in the Ramani Tandale project, the World Bank, which led engagement with the government, was meant to provide further support by linking the project to government planning processes. This linkage failed to occur. Instead, the World Bank in 2015 scaled up a similar project and model called Dar Ramani Huria (Swahili for Dar Open Map), a community-based mapping project in Dar Es Salaam that trains teams of local university students and

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10 See http://openschoolskenya.org/about/#about-overview

community members to use OSM to create sophisticated and highly accurate maps of the city. The project was set up in response to devastating floods experienced in Dar Es Salaam during the 2015 rainy season, causing considerable damage in informal and unplanned settlements. The neighbourhoods selected to participate were thought to be the most flood-prone.[11] The aim is to bring disaster prevention responses to areas not previously mapped as well as to bring awareness to local government of the need for flood prevention and risk management. At the end of the project, the results will be presented to the local administrative units for their action. The project is being conducted in conjunction with several partners, including the World Bank's Global Facility for Disaster Reduction and Recovery, Ardhi University and the City of Dar Es Salaam.

Ramani Huria seems to be actively engaging local administration officials, who are using the data to inform their planning efforts:

> *Dar es Salaam experienced a rare cholera outbreak in August 2015, and it is continuing to affect the city. Tandale has been one of the wards most affected by the outbreak … Mr Lossai said that his office have been using the maps provided by Ramani Huria to identify the location of the victims within the ward. The maps have provided them with detail information on water points and sanitation data, thus allowing his team to investigate the sources of the outbreak … Mr Lossai is in the process of writing a project proposal to the Municipal Council which aims to improve the drainage system in his ward … With the maps developed by Ramani Huria, which include current drainage infrastructure, Mr Lossai is better informed and able to identify key points to be developed or improved in future planning. Following on from the mapping that took place in Tandale, Mr Lossai has developed relationships with Urban Planning graduates who continue to help him and his colleagues in the future planning of the ward and improving the livelihoods of those who live there. Mr Lossia concluded by saying that the maps created through community mapping have been invaluable and will continue to be of use to the ward of Tandale in years to come.[12]*

FUNDING AND SUSTAINABILITY

It has reportedly been a challenge for small organisations such as Map Kibera to navigate complex foreign funding and grant management systems. Therefore, GTI was set up in Washington, DC, as a partner to Map Kibera and Ramani Tandale to

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11 See http://ramanihuria.org/about/

12 See http://ramanihuria.org/community-mapping-has-long-lasting-impact-in-tandale/

provide support remotely. GTI handles fundraising and grant management as Map Kibera and Ramani Tandale do not have this capacity. Attempts were made to build up local capacity but the transfer of skills was not happening fast enough. In-country support is provided by the coordinator with support from a local team. All activities carried out locally fall under Map Kibera and Ramani Tandale.

Map Kibera is mostly donor-funded, with all funding directed through GTI. GTI is, however, often hired as consultants, thus creating another revenue stream. This allows the project to generate its own revenue. GTI attempts to strike a balance between donor work, which often tends to be more socially driven, and consultancy work.

Sustainability measures include the empowerment of local staff, mainly through the building of their capacity. For example, the Map Kibera coordinator is currently in Washington, DC, attending a leadership fellowship. One way to encourage sustainability and impact is by GTI collaborating with existing community groups in these areas to ensure its work results in greater impact. The Map Kibera team has used the information to reach out to smaller community groups, especially in Kibera.

SAUTI ZA WANANCHI

The Sauti za Wananchi (SzW) project was started by Twaweza in 2012. Twaweza, meaning We Can Make It Happen in Swahili, focuses on enabling learning, monitoring and evaluation around issues of education, civic agency and open and responsive governance in Kenya, Tanzania and Uganda. Twaweza seeks to actualise SDG 16: PROMOTING PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS. Its main ethos revolves around its tagline Ni Sisi (It Is Us), which posits that citizens must engage in change and progress rather than await state-driven development. Twaweza sees itself as a development catalyst, to foster an "ecosystem of change driven by enabled citizens". To this end, it also brokers and utilises the "power" of partnerships and what it refers to as the five networks: "mass media, mobile phones, religion, teachers' unions and fast moving consumer goods". Key pillars in the approach also include a commitment to learning and sharing of knowledge so as to sustain the strategy for change.

Twaweza has two flagship programmes: Uwezo, which conducts learning assessments, and SzW. We focus on the latter. SzW, started in 2012, a high-frequency mobile data collection programme, collects and curates data on the "perspectives, welfare and experiences of citizens for the purpose of informing decision making in a more timely manner and that is more responsive to changing data needs."[13] Data collection on a national scale usually takes two to three years to process and publish, rendering it relatively obsolete for use in evaluating policy, rectifying strategy or holding officials accountable. Governments thus proceed with uninformed decision-making, often excluding citizens from the process. "In such an environment, myopic decision makers, or decision makers who are uncertain about the impact of their interventions, may decide not to change anything at all."

13 Twaweza, " Sauti Za Wananchi: Collecting Data Using Mobile Phones", 2013, http://www.twaweza.org/uploads/files/SzW%20Approach%20Paper%20FINAL.pdf

Its target audience is therefore primarily local decisions-makers, although it also targets implementers, members of parliament, newspapers, analysts, donors and citizens. SzW is combines "the strength of household surveys (representativeness) with possibilities offered by mobile phones (low cost, high frequency feedback)"

SzW's primary objective is to produce and package data to better inform public discussion and improve the link between citizens and policy-makers. Its programme theory is located within Twaweza's overarching objectives, which are to make a measurable impact by ensuring: citizens and civil society demand and access credible information they could use to engage public officials and deepen accountability; citizens are able to monitor and discuss pertinent issues relevant to their livelihood and well-being; and public governance is framed by evidence-based knowledge.

The main project partner in this regard is Ipsos, a global research firm. Ipsos assists Twaweza with questionnaire development, training of data collectors and running of the survey and pilot, and runs an initial analysis of the data. SzW also collaborates with the International Law and Policy Institute on its Sauti za Zanzibari project. SzW is in the process of being launched in Kenya and Uganda: it has just started in Kenya with a baseline survey and will move to Uganda in 2016.

METHODOLOGY

SzW is more sophisticated in its methodology compared with the other initiatives, which may be a function of greater access to financial and human resources. To begin with, it conducted multi-stage stratified sampling to select a representative sample. It targeted adult respondents, selecting 10 people from each of 200 Enumeration Areas (EA), randomly selected from the 100,017 EAs in Tanzania. The sample size thus appeared to be of significance and reflected urban-rural demographic ratios. SzW has so far conducted two panels. The first closed in July 2015 after running for 2.5 years. It then recruited a new panel of respondents in 2015, who will likely be with the programme for another 2.5 years. Mobile phones and solar chargers were provided to all respondents. High poverty levels in Tanzania mean mobile phone ownership is not pervasive; in addition, only 24% of Tanzanians are connected to the national grid.

DATA COLLECTION

According to the interviewee, Twaweza runs approximately 20 rounds of data collection a year. Its approach is informed by a baseline survey conducted in 2012 to identify respondents as well as insight into topics the monthly interviews would focus on. With regard to indicators being tracked, SzW's main topic areas are

education, water and health, which it surveys on a rotating basis throughout the year. It also includes other "trending" topics in the rotation. The baseline survey methodology and process are extensively documented on the website and can be downloaded.[14]

SzW develops all survey tools, with some assistance from Ipsos, which reviews the tool and provides feedback following pilot exercises.[15] Tools are available on the website. Data collection is also outsourced to Ipsos, which, on a monthly basis, over a period of 14 days, conducts interviews in Swahili. Data is collected mainly using computer-aided telephonic interviews (CATI), with respondents interviewed on a variety of themes or topics. These topics are preselected or informed by current affairs and prevailing community discourse. "Hot topics" that generally attract a lot of media attention include the national elections or the debate around changing the language of instruction from English to Swahili in Tanzanian secondary schools. CATI is said to be the preferred mode of data collection owing to its efficiency and enhancement of data quality . Data collected is mainly quantitative in nature, although respondents do answer a few open-ended questions. This format is mainly used because of its cost effectiveness.

DATA ANALYSIS AND QUALITY

Ipsos conducts a preliminary analysis of the data (e.g. coding) and shares this and the raw data with SzW staff, who then carry out further analysis using STATA. SzW appears to have gone to lengths to ensure it collects quality data, specifically in ensuring reliability of research instruments and having a robust methodology. It clearly states that, given the nature of its work and its target population, "Accuracy is a priority."[16] Although the interviewee did not go into detail on validation and verification procedures, the following was noted. First, data is looked at on a daily basis to identify any peculiarities or outliers. Where these are identified, respondents are called back to validate information.

Second, a citizen monitor is tasked with monitoring issues in the community and also used to verify information submitted by the panel. For example, if respondents report absence of a particular service, the citizen monitor will visit the site to validate that information. There is one monitor for each EA, thus a total of 200 citizen monitors. SzW staff schedule special rounds with monitors having briefed them on the issues they need to verify. They call them back after a day or two to

14 Twaweza, "Sauti Za Wananchi: Collecting National Data Using Mobile Phone", 2013, http://www.twaweza.org/uploads/files/SzW%20Approach%20Paper%20FINAL.pdf, Accessed 25 November 2015.

15 As presented in Ibid.

16 Ibid.

confirm data. The first respondent panel had no citizen monitors, unlike the other panels.

Third, SzW interviews 10 respondents from each EA, as a check against inaccurate information, making it unlikely that incidents reported on will vary greatly in detail. SzW staff also provide oversight and have put various quality control measures in place. For instance, all interviews are recorded and SzW staff can listen in on interviews. Staff at Ipsos are said to be sufficiently trained on data collection and analysis techniques. Lastly, new respondent panels are recruited to avoid the "professionalisation" of respondents and respondent fatigue. SzW would like to change the panel every six months, but this investment is not feasible given its current budget.

DATA DISSEMINATION AND USE

Data is packaged in various ways. While data collected is disaggregated to a high level, it is presented as national-level data. Political polls additionally disaggregate findings by education level and in some cases an urban-rural comparison is provided. Raw data is available from the website and is not summarised in any sense, which allows for wider analysis by others. These datasets appear to be updated once a year. It is also noted that, despite collecting spatial data, Twaweza is yet to make use of maps for the presentation or dissemination of its information.

Data is disseminated mainly through two avenues: Twaweza's website and launches, although data is also presented in mainstream media and via social media. With regard to the website, data is made available via downloadable documents that are accessible to all – that is, users are not required to perform any procedures to access data. The data is packaged into both narrative and statistical formats – that is, in the form of a policy brief that provides a two- to six-page summary of findings presented as seven to nine facts, with the use of bar and pie charts and with few or no accompanying pictures. This is accompanied by information from secondary sources for emphasis or comparative purposes. Additionally, raw data is provided in Excel tables. The presentation of data in this manner was described as being 'high level', mainly targeting policy-makers, and therefore not particularly user-friendly for the general public. However, it is yet to be established whether these formats are particularly "accessible" to the target demographic. The approach to data presentations is reflective of traditional approaches, the efficacy of which could be explored further. SzW thus solely depends on the media to communicate findings to respondents and community members. It drafts a press release and puts it on the website for wider consumption.

A launch is a stakeholder forum where the policy brief is presented to a range of stakeholders, including media houses and funders, and a facilitated discussion is held around the findings. Since 2013, approximately 25 launches have been held. Attendance was described as average, with numbers varying according the topic under consideration. A panel of key stakeholders is on hand to discuss the findings and their implications for the sector in general. The discussion is then opened up to members of the public. One interviewee mentioned that, because of lack of awareness around Twaweza and they work it does, a lot of questions from the public revolve around the methodology (e.g. whether the survey is nationally representative) as well as the legitimacy of the organisation (e.g. how is SzW run?) Few in attendance actually interrogate or engage critically with the findings. There is currently no documentation on these forums, making it hard to establish what kind of issues are raised or the quality of engagement therein. SzW currently has no records of how many policy-makers have attended the launches or the issues raised within these forums, which could be critical to evaluating use of its data.

Media houses are invited to every launch and the interviewee reported that the launches were usually covered in the media, although this is not an extensive report but instead a snapshot of the findings and general information that can be consumed and understood by the public. It should be noted that not all survey findings are packaged into policy briefs or presented at the launches, only those that are considered to have traction, are pertinent or are popular and considered launchable. Once launched, the policy briefs and related raw datasets are placed online. Twaweza also has various social media tools embedded on its website (i.e. Facebook, Twitter, Flickr and YouTube) and, in the interviewee's view, it is active on social media most notably via an online chat room (Jamii Forum) and Twitter (over 17,000 followers), with almost daily interaction with users. The Facebook page currently has 8,069 likes. However, these figures do not provide us with a good indication of whether the data is used or considered useful.

DATA UPTAKE AND USE

According to the interviewee, SzW currently does not measure whether or how data is used. Currently, the only means of making a tentative assessment of this is to look at the extent of the data downloads – that is, how many times raw data or policy briefs are accessed and downloaded. It was also mentioned that SzW encourages people to reference it as the source of data. Thus tracking citations would be another way to track uptake of data.

In terms of how frequently SzW is contacted for information, the project recently

experienced an upsurge in interest in its data around the topic of political polling and elections. This was the highest number of requests for information received. The poll attracted a lot of media attention and a large number of the queries made centred on the legitimacy of Twaweza as an organisation, understanding of the methodology and specifically around the reliability and validity of data. Prior to the poll, the interviewee stated, the organisation had not received much by way of requests for information. Thus interest in the data is largely driven by popular interests.

IMPACT

Impact for Twaweza is conceived to be changes in civic engagement or policy or at a legislative level, facilitated by discussions with the people or legislators appreciating alternative perspectives and reviewing different aspects of an issue. With regard to political outcomes and policy influence, the following examples were provided:

- The government wanted to pass a SIM card tax law. Twaweza collected data on citizens' opinions; respondents generally felt they could not afford the tax given their living conditions. The government received the information well and the law was withdrawn.

- A policy was proposed that sought to change the language of instruction in secondary schools. Respondents felt this would be a counterproductive measure. As a result, the law has not been passed and is still under review.

- There has been increased engagement with civic education by political parties. SzW conducted a political poll in 2015 known as Let the People Speak to collect views on the political leadership in light of the elections held in October 2015, with the participation of 1,848 respondents. The findings ran contrary to the general expectation and pointed to the ruling party candidate being voted in rather than the opposition member. The survey also showed people did not know the election date and that parties they thought were registered as a political party were in actuality not. In response, the opposition party began to run an education campaign, and media houses amplified their focus on the election date, encouraging people to show up and emphasising that findings of the survey could change onlyif they voted. Other politicians queried both the results and methodology, while others made disparaging comments about the organisation. Together, the survey and resulting discussions are thought to have engaged a larger number of people inasmuch as the organisation received a lot of backlash.

Despite these responses, Twaweza's relationship with the government and policy-

makers appears to be quite tentative. The government is generally perceived as being hesitant on "data" as a concept, because they believe data will foster negative perceptions against them. They are thus largely on the defensive, unwilling to field the host of questions that often arise when data sheds light on particular issues. Second, recently drafted legislation in the form of the Statistics Bill (2013) may present some challenges to Twaweza's future operations. The Bill stipulates that data to be released to the public will need to be approved by the National Bureau of Statistics before release. Given the nature of bureaucracy, this will likely limit its work extensively, specifically the volume and frequency with which data will be released to the public.

SUSTAINABILITY

SzW as a programme was described as being long term in nature, having initially been set for a period of 10 years. The funding environment was described as stable, with main donors having committed to the programme for an extended period of time. Thus, according to the respondent, the programme will continue to function as long as there is an expressed need for information.

MA3ROUTE

http://www.ma3route.com/

Ma3Route, registered as a private company, is a mobile, web and SMS platform that makes it easy for commuters and motorists to move around the city of Nairobi, Kenya. The platform crowd-sources transport data and provides users with information on traffic flows, matatu (14-seater public transport vans) directions and bad driving reports. Having commenced operations in 2012, Ma3Route initially focused on providing information on matatu bus routes and directions for visitors to Nairobi. Over time, it has evolved to tackle the broader subject of mobility in a bid to ensure **SDG 11: MAKING CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE IS REALISED. THIS EVOLUTION WAS DRIVEN BY USERS IN RESPONSE TO THEIR NEEDS.**

Ma3Route's long-term vision is to see citizens empowered by relevant and timely information on mobility and for users to see the evolution of their city in this regard following engagement on the platform. Ma3Route chose to focus on mobility as cities are becoming denser and, in emerging cities, this creates pressure on the urban infrastructure. Coupled with lack of relevant information, this ends up stunting the development potential of the city. Ma3Route's objectives are as follows: to make travelling easier in developing countries by democratising timely transport information; and to bring greater sanity to the roads and inform city planning and transport regulation in emerging economies through the provision of transport data and trend analysis.

Nairobi has more than 3 million residents and a reputation of having some of the world's worst traffic congestion. An IBM report[17] estimated that there were 2 million cars on a road network developed more than 50 years ago, when the capital was a tenth of its present size. "The government has made immense investments in infrastructure over the last 10 years but we are challenged by the fact that many departments within government are working in isolation and not collaborating," said Dr Bitange Ndemo, former Permanent Secretary in Kenya's Ministry of Information

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17 Citizen IBM, "Laying the Foundation for Nairobi's – and Kenya's – Economic Growth", 2012, http://citizenibm. com/2012/08/laying-the-foundation-for-nairobi%E2%80%99s-%E2%80%93-and-kenya%E2%80%99s-%E2%80%93-economic-growth.html, accessed 10 November 2015.

and Communication. The report added that congested roads were costing Nairobi about $500,000 a day in lost productivity, not to mention increased greenhouse gas emissions that harmed the environment as well as the health of citizens. Furthermore, despite the increasing number of cars on the roads, 75% of the city's 1.5 million commuters drive alone.

DATA COLLECTION

The Ma3Route community contributes a range of information, including on traffic accidents, traffic flows, preferable roads and routes, public transport price surges, noisy matatus and violence. Ma3Route also runs another project, collating information on accident reports within Nairobi county and its environs. Ma3route hopes to collaborate with the National Transport and Safety Authority (NTSA, whose mandate includes minimising loss of lives through road accidents) to develop interventions to mitigate these accidents. Research and experience has shown the organisation that accidents adversely affect the quality of life in cities. Moreover, the resulting inefficiencies affect government/county budgets, even though it is easy to mitigate accidents using solutions that will effect a quick turnaround and will be fairly easy to implement.

Ma3Route uses its pre-existing online community (through @AccidentsKE) where it encourages users to report road accidents, minor and severe, with pictures and brief descriptions. To encourage data submission, it randomly select users who are sent Ksh. 100 as a token of appreciation. These reports are geo-coded, mapped and analysed to find trends such as accident hot spots, peak accident times and most-affected road users. Once data collection is finalised, the report will compare Ma3Route and police data, sourced through NTSA, and the information will be used to inform policy-makers and arm citizens with knowledge to demand safer roads for all road users. The team strongly feels that the accident data report could be used for quick wins by NTSA because any interventions would achieve the desired impact as well as gain political mileage. Ma3route has found that, in interactions with government agencies, positive political mileage is a key consideration, and this often determines whether or not any action will be taken. For instance, in early 2015, the Nairobi county government introduced new traffic plans to decongest the city. However, despite evidence showing these measures would eventually do what was necessary, the plan failed because there was no buy-in from the public, and this resulted in a negative perception of the county government actions:

> *Over the past 2 weeks, Kenya's capital city has been in a tizzy over an attempt by the Nairobi County government to reduce the notoriously bad traffic congestion. Cement-filled containers were installed at the behest of Nairobi Governor, Dr. Evans Kidero, on April 3rd to block certain turns, especially*

at major roundabouts such as the Westlands Roundabout, Nyayo Stadium Roundabout, and the turn to Riverside Drive. This was done in the short-term as part of a strategy unveiled at the City Hall earlier this year meant to decongest Nairobi roads.

The road blocks have been the source of much citizen frustration, spurring Twitter hash tags online including #KideroDrums, #NoDrums, and #SomeoneTellKidero. Some Nairobians have been sorely frustrated by the fact that this move has actually increased time spent on the road. However, aggregated data from our regular users reveals that since the installation of the drums, there has been an increase in reports on clear roads in the city, as reported by our users.[18]

Ma3Route has been successful because it is deemed trustworthy by the large community it has on its social media platforms. It is actively working to bring all stakeholders to the same table. Ma3Route therefore hopes to collaborate with a variety of stakeholders in order to create a repository of transport and mobility related information. These stakeholders include but are not limited to:

- NTSO, which collects traffic accident reports via the traffic police.

- Kenya Traffic Police, deemed problematic by Ma3route because they use paper-based data collection methods – that is, accidents are recorded in the Occurrence Book located in each police station thus there is no central repository of information, which is inefficient. Furthermore, they are plagued by corruption, so their data is not deemed trustworthy.[19]

- Insurance companies and hospital reports, although there is a challenge here because no one links their information with other players, such as the police.

- NGOs like the UN, Roads Volunteers and the Red Cross.

- Taxi services like Uber, which have the capacity to track useful information such as popular routes and traffic trends from gadgets installed in the vehicles.

DATA ANALYSIS

Ma3Route collect data using the Ma3Route app and Twitter reports and analyses the information collected in various ways: using GIS and lately by using reverse

18 Elizabeth Lesor, "#KideroDrums Frustrating For Some, Notable Increase In Clear Roads For Others" https://ma3routeblog.wordpress.com/2015/04/15/the-roundabouts-effect/, accessed 15 November 2015; A report investigating transport sector reforms in Kenya stated that "The traffic police on the other hand while charged with enforcing the Traffic Act have on numerous times been caught on camera receiving bribes and have featured in various corruption indices reports as leading in the vice. In fact while the Kenyan Police was reported as the most corrupt institution in Kenya by the East African Bribery Index Report, it's the traffic arm of this organization that tops the list."

19 Ibid.

geo-coding, especially on accident data, using keywords to generate reports. It also does a basic keyword analysis of the Twitter reports generating basic charts and frequency plots. We found that the Ma3Route approach to data is more qualitative than quantitative in comparison with the other initiatives interviewed and this is because the initiative gathers the information through passive crowd-sourcing as it does not want users to be discouraged from interaction/providing information by introducing too many questions or prompts through its application.

Because of the fast paced nature of how the information is collected, verification of the data is often done by the social media community in several ways, for example through multiple reports of an incident, or users submit photos from the incident: normally about 50-60% of the information collected is verified this way. The team also regularly checks images from traffic cameras installed throughout the city as a further means of verification.

The interviewees added that they had put in place filters to ensure offensive messages were not displayed on their platforms by malicious users and that the online community was also very protective of this virtual space and often alerted the Ma3Route team when malicious content bypassed the filters, perhaps because of the language used.

IMPACT

Ma3Route describes its impact thus far as largely intangible, measured more by the social capital it has with its user community. Since mobility does affect where people work and where they live and is such an integral part of day-to-day life, the community relies on the Ma3Route platform to plan their movements. One tangible way it has measured its impact is the growth of its crowd-sourcing base/social media users to over 250,000 followers, with over 14,000 downloads of the mobile application, which is deemed very successful in the Kenyan market.[20] The difficulty in measuring its impact means Ma3Route is looking to invest in impact measuring capabilities/tools or to partner with organisations that can assist them in doing this.

SUSTAINABILITY

The organisation is able to generate revenue from various sources, such as advertising on its website and selling subscriptions on digital platforms. It has also organised its data into three packages for sale: the first is what is referred to as top-tier data, which is which is organised into a narrative report, with detailed analysis and accompanying meta data. The third tier is raw data, partially analysed.

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20 https://ma3routeblog.wordpress.com/about/

The organisation is often approached for its top-tier data and it decides what to charge on a case-by-case basis. A lot of academics are interested in the data so it has designed a barter system whereby the academics access the data in exchange for further analysis, which works in its favour because there is a shortage of locally available data scientists, which impedes its work.

The organisation also gets revenue from SMS notifications because not all users use Twitter. Ma3Route's model is also scalable, which provides it with a lot to leverage in terms of attracting partners. It is also looking at introducing the platform to other cities in Kenya and other countries. It has so far had enquiries from Nigeria, Singapore and Zambia.

TREN

TRENDS, SIMILARITIES AND DIFFERENCES

TRENDS, SIMILARITIES AND DIFFERENCES

IMPACT

In the initiatives we studied, impact is not quantifiable and appeared to be determined subjectively: most initiatives lack monitoring and evaluation capacity and, as such, most effects or outcomes of their work exist mainly as anecdotes. The various initiatives report as impact their uptake of results by their target audience. However, "uptake" and "use" are not clearly defined and it is unclear what metrics are used to arrive at conclusions such as an empowered or trained individual; improved understanding, relationships or performance; informed decision-making; and increased participation – all of which are statements that contain complex concepts that need to be interrogated further.

Causality cannot be inferred with the current methods as there are numerous confounding factors that have not been controlled or accounted for through their methodology. Similarly, one cannot clearly state that legislative or policy changes that occur are directly attributable to release of information. In Twaweza's case, for instance, data was requested more frequently depending on how politicised the topic was. It appears there is a need to at least track other factors that lead up to legislative change – for example the role of lobbying and interest groups, policy windows and so on. Initiatives also report impact in terms of increased requests for data or how interested the community is in the initiative.

Another trend is that impact seems to be measured using intangible measures such as increased confidence of the target audience in interactions with the local governance authorities, as reported in the KYGC and Map Kibera case studies. Ma3Route has built trust with its community of users, who regularly refer to the platform to plan their day. These organisations are eager to acquire tools that will enable them to measure their impact in more tangible ways, but limited resources force them to sacrifice this need and focus instead on keeping the project running.

METHODS USED BY INITIATIVES

As most questions around the credibility of the data revolve around methodology, most of the initiatives pay close attention to this aspect of their work. However, there is wide variation in the form of methodology used. Data collection tends to focus on measuring perceptions and opinions, quality and presence or absence of infrastructure and access to local government services. Twaweza's approach was considered the most academic, while for organisations like KYGC and CARD, data collection and analysis are relatively simple. This may owe to limitations in capacity – in terms of both funds as well as the necessary skills to develop this further.

The simplicity of method in these two latter cases, however, works in their favour, given their context, and is further augmented by the use of software (in KYGC's case) to limit human error and enhance the data's credibility. With regard to sampling, most organisations reported selecting their projects or respondents randomly, with the sampling techniques used varying in sophistication. Validation and verification were also simplified to a process of retracing steps taken or making call backs to respondents.

Analysis across the board yielded largely descriptive statistics, and most findings, save for SzW's, cannot be generalised because of the small samples used and the localised nature of the work conducted. It should be noted that lack of generalisability does diminish the "data attractiveness" to key stakeholders such as the national government.

Lastly, SzW was the only programme that provided incentives to its respondents. For the other initiatives, data collectors or producers were largely volunteers (some werepaid a stipend). The exception was Ma3Route, which crowd-sources information, and whose users are the data producers. Their only incentive was perceived to be the value that contributions make to navigating their everyday lives. (Although, for the accidents project, randomly selected users who submit information are given a token of Ksh. 100.)

DATA DISSEMINATION

This occurs mainly through websites, with activity on social media varying significantly. However, it is unclear whether the data is actually reaching the target audience. For three of our five initiatives, community members were not the target user of their data and thus information was not packaged or aimed at them. These initiatives targeted policy-makers and appeared to disseminate their data to this constituency primarily through meetings. Data is also made available online, although it is difficult to determine whether the target audience is being reached in this way. Despite the community not being their main target group, some

organisations had recognised the need for community engagement and therefore disseminated data via community forums (e.g. barazas), although in most cases these were held irregularly.

DATA USE

In the initiatives we studied, impact is not quantifiable and appeared to be None of the organisations measures use of the data and there have been myriad difficulties experienced in convincing government to use the data. With regard to government attitudes, one respondent stated,

> *"Some say it's very nice and that they'll consider using it but…*
> *until the government changes their attitude that's when*
> *we will see actual change."*

However, there are other contextual issues to consider when addressing how or whether data is utilised. The following factors may have impacted the level of data or information use by various stakeholders:

- **Relationship with government**: A key issue identified across all initiatives was the government's negative attitude towards data and its minimal uptake of data, albeit with some exceptions. Most state actors at local or national level treat these initiatives with caution or some suspicion. Some, on the release of data that indicated some failure on the government's part, had their reputation called into question by political figures. While there are a few examples of officials using data to modify or rectify their approach, these are not pervasive occurrences or indicative of a wider culture of responsiveness. CARD, for example, experienced positive engagement with school management but had to stop collecting data on teacher absenteeism after political resistance was raised to this aspect of its project. KYGC describes its relationship with government in ambivalent terms, attributing this to a culture of non-transparency and political interference. KYGC has also been accused of being a threat to local culture and leaders and of trying to garner political mileage. With time, the relationship between KYGC and the CDF Committee in particular has improved somewhat, and officials are now said to be more receptive. This may be because KYGC ensures it provides positive feedback to government officials when it is warranted. However, with the county government the relationship is still cautious.

- **Response to the data**: One key challenge is negative reactions to findings. Our findings revealed there were numerous instances of authorities questioning the credibility of data reported in order to intimidate or discourage the organisations. In the case of CARD, the TSC reacted strongly to data presented

on teacher absenteeism and this led to CARD abandoning this aspect of its work. In Twaweza's case, the government stance is largely defensive, and often involves painting the organisation as seditious. Attempts are then made to discredit the institution and the findings it presents. This is more common around highly politicised issues. For instance, with regard to its polling data, rumours were released stating that the organisation had been bought off by the ruling party. Additionally, the Twaweza Facebook page was duplicated and spurious information was posted on the forged page. Even where negative attitudes are not evident, the government does not readily accept findings. For instance, despite huge investments in education, the provision of education survey showed children were still failing and teacher absenteeism was still prevalent. The government did not welcome this information.

- **Relationships with the community**: It appears that community buy-in is a prerequisite to data collection and dissemination. Some initiatives were treated with suspicion when they went to collect data as communities did not understand the organisation's motive or its methodology. Thus initiatives such as Twaweza undertook an exercise of raising awareness of their work within the community, to the extent of providing a manual to explain what they were doing. Similarly, KYGC had to establish its legitimacy in the community's eyes given rumours being spread by political forces that opposed the work it was doing. Community expectations also need to be navigated and managed: communities begin to expect the organisation running the initiative to fulfil the government's mandate. In CARD's case, the community started to believe CARD was going to fix the sub-county's education problems. These expectations also went beyond the specific sector being dealt with, with some organisations and individuals approaching CARD to fund infrastructure projects. Interestingly, in Kwale, owing to KYGC's use of technology, the community now views the organisation as "experts" and they are often called on to share knowledge of their methods and software use with others, especially other organisations. Additionally, in some communities, mapping has had a positive effect in terms of civic pride, with some members feeling like they have been represented.

- **Manipulation of data**: There were reports of manipulation of data by the local authorities in at least four of the initiatives examined. These included cases of official figures being misrepresented (inflated or reduced), which interfered with data collection, data comparison and the general effectiveness of advocacy work. For example, in interactions with NTSA for the accident reports project, Ma3Route found NTSA was reluctant to present accident data as its figures were much lower than World Health Organization (WHO) estimates. WHO reports that between 3,000 and 13,000 Kenyans pass away in road traffic

accidents annually; the interviewee said the Kenyan Police Traffic Department reported this figure at approximately 3,000 annually.

- **Theory of change**: All the initiatives are doing work considered novel within their respective context. However, none of the interventions explored had explicitly documented their theory of change or programme theory, which is generally typical of most small, local civil society organisations. There was also very little said on how they plan on arriving at their objectives or the evidence informing their particular approach(es). There thus appeared to be an "experimental" feel to a lot of the projects being undertaken (apart from that of SzW), and this may be an issue that requires further exploration with a view to informing the sustainability of the initiative.

SUSTAINABILITY

Apart from Ma3Route, all the initiatives in question were fully reliant on donor funding. The biggest challenge to most respondents was the amount or consistency of funding. Data collection is costly, especially in places like Loima, where mobility is difficult. This complicates verification and validation process as it is often logistically difficult to conduct site visits. Funds are therefore routinely described as limited, which, given the funding environment, is not surprising. Donors in the region are increasingly looking into investing in projects with a clear return for them. In Kenya's case, this could be as a result of the economy being rebased to a lower-middle-income country.[21] Limited funds in this regard have affected the initiative methodology, and all initiatives would like to upgrade their approaches in one way or another. For instance, Twaweza would like to refresh its sample more frequently, such as after a year or six months,but can only do so after 2.5 years given budget constraints.

Funds would also address capacity issues in terms of growing the number of people employed by the initiative, improving the level of training they can access and increasing their ability to purchase various technologies to facilitate their activities. The capacity of staff who analyse data could be improved, for instance, as most initiatives are unable to conduct critical analysis, especially with regard to comparative work and monitoring and evaluation of their initiatives. Additionally, given lack of funding, KYGC lacked computers where it could analyse its work. Skills in data science, management and visualisation, digital storytelling and user experience, lobbying and how to strategically engage with stakeholders were

21 World Bank, "WB Update Says 10 Countries Move Up in Income Bracket", July 1 2015, http://www.worldbank.org/en/news/press-release/2015/07/01/new-world-bank-update-shows-bangladesh-kenya-myanmar-and-tajikistan-as-middle-income-while-south-sudan-falls-back-to-low-income accessed 10 October 2015.

all mentioned and are required in order to make the data more effective and accessible/usable by target audiences. Most initiatives also lack the software to support their work as well as the capacity to use the same.

Funding also impacts the sustainability of programmes and the overall impact of the initiatives. For instance with KYGC, despite findings showing that schools lacked basic amenities to support disabled children, monitoring of disability mainstreaming was discontinued because of budgetary constraints. It should be noted, however, that limited funding may also stem from a lack of skills or capacity needed to make effective grant applications. This was observed in the case of GTI, which handles the fundraising and grant management functions of the local projects in Kenya and Tanzania because of limited local capability.

With regard to programme duration, all initiatives are currently active with no intention of stopping their operations in the foreseeable future. Most programmes run by each initiative last for the duration of the grant, which on average is one year (with the exception of SzW, which is projected to run for 10 years). The sustainability of the organisations is pegged on the funding environment and is likely to be adversely affected should sustained funding not be secured. This also depends on how well they can sell their idea to donors, which is a capacity challenge, as described above. Organisations like KYGC are forced to carry out activities dictated by their funders and not what is outlined in their core objectives. The idea of generating revenue commercially is not something that has taken root in data communities at local level just yet. Given the high cost of collecting data via traditional means, and while there are no quick solutions to revenue generation, it may be worthwhile borrowing from models that will make the initiatives more viable, such as GTI's model, whereby the initiative has positioned itself as consultants and has developed a portfolio of services to use to generate revenue for its activities on the ground.

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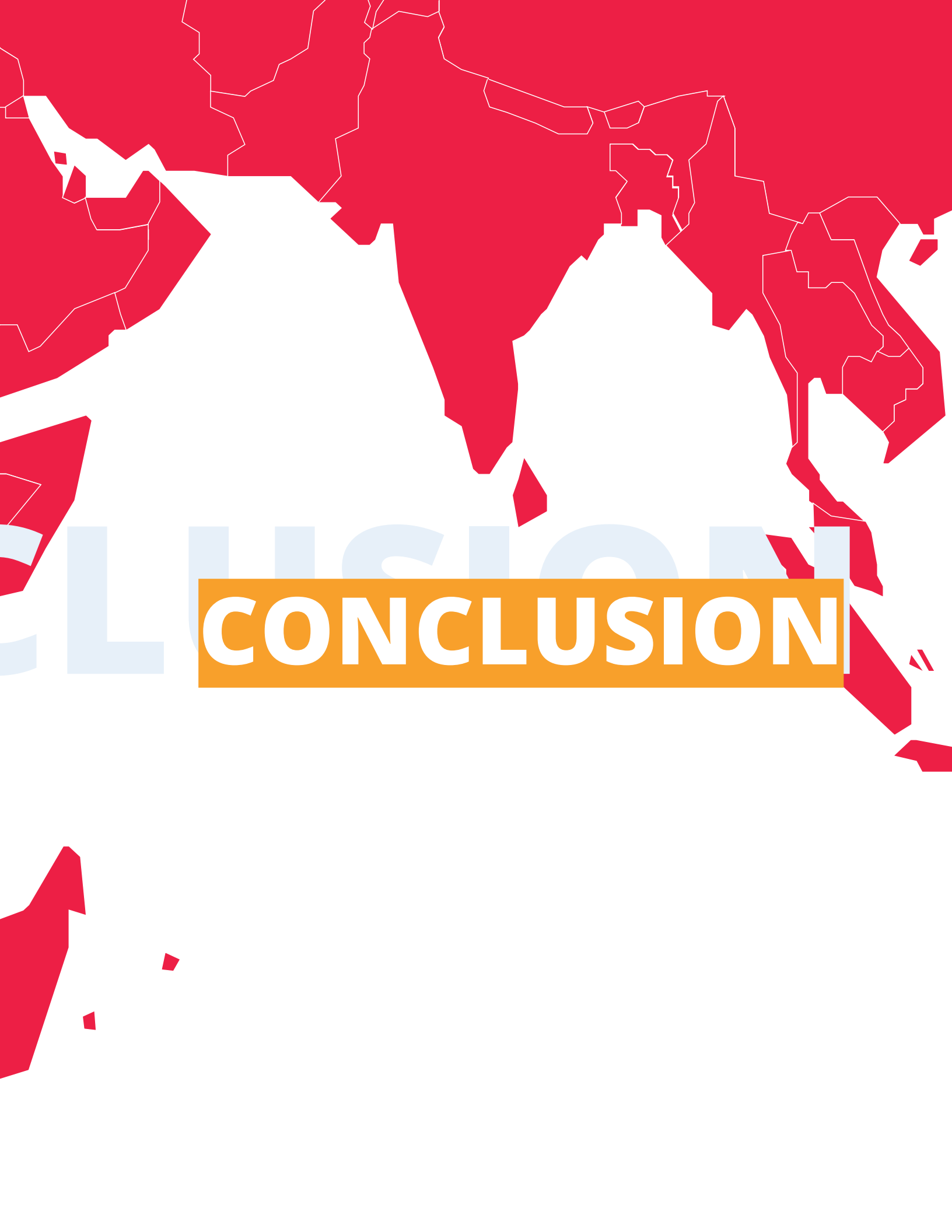
CONCLUSION

CONCLUSION

The data revolution is an expression of the global development sector's acknowledgement of the centrality of data for development, a concept that has been proven by the private sector's success with using big data. The data revolution as well as the Africa Data Consensus call for an "ecosystem" of data communities. The Africa Data Consensus defines communities as follows: " a group of people who share a social, economic or professional interest across the entire data value chain – spanning production, management, dissemination, archiving and use." This means that citizen generated data will be included in this and donor funding will be more available especially for initiatives that have already began to build models."

The level and quality of interaction between citizens and duty-bearers is vital to supporting behaviour change in governance relationships. More informed citizens are more likely to participate, enhancing prospects for accountability. For citizens to act and for government office holders to respond, the potential benefits of engaging in transparency and accountability processes need to outweigh the risks. New technologies can help improve the government–citizen relationship if citizens are willing and able to exercise their agency, and government office-holders are willing and able to respond effectively. This was explicitly expressed by GTI, which has experienced this with Map Kibera. For positive changes in accountable governance to be sustainable, citizens need to feel they are being treated fairly and not suffering negative consequences from their engagement, and government actors need to recognise that it is in their political interests to give effective responses.

EMERGING ISSUES

- **Literacy levels of the community, especially for the more rural initiatives, have implications on how organisations running initiatives engage with them**. While some communities may display a genuine hunger for democratic governance, they are unable to voice these demands coherently or in a manner in which they will be heard, such as in KYGC's case. Second, explaining methodology and use of ICT is often difficult in these contexts, and this is coupled with cultural beliefs that sometimes make it difficult to work with ease.

Lastly, community members and a large number of civil society organisations, especially in rural areas, do not understand how government works (e.g. funding cycles, reporting lines, etc.) This hampers their engagement with county government, which perpetuates government's tendency towards top-down directives or policy-making. There is, however, a great need to undertake civic education, especially for communities in the interior, which makes up 70-80% of Kwale's population, according to KYGC.

- **Networks: There is power in numbers, but weak networks and lack of cooperation between civil society organisations with similar purposes or stakeholders with common interests diminish the potential impact any single one of them can make.** A good example is that one of the major challenges experienced by Ma3Route was that stakeholders in the mobility sector operate in silos, which works against each player because they are not building their data capacity. KYGC also mentioned that, although there exists a network of organisations working in the area on various aspect of community welfare, there were growing tensions between these organisations in the region. While some of the organisations may collaborate in terms of holding joint forums where they can share knowledge, the network was described as not strong. This was attributed to the manner in which some organisations conducted their affairs (e.g. rent-seeking behaviour), which was reportedly delegitimising the work of other credible organisations.

  What we came to realise is that many organisations around Kwale are there because they are creating job opportunities for those working for them rather than working for or helping the community. When you have a project, the project ought to be of benefit to the community but when we see you driving your new car after one year of the project and then ... we can only assume ... (KYGC Interviewee).

- **Initiatives by and large did not mention their connection to a larger narrative, though these linkages are clear – for instance the SDGs or the emerging and sustainable cities narrative.** The MDGs were perceived as very top down in their approach, with people at local levels never really hearing about them let alone understanding them. The SDG process response has been to try and be more inclusive, but there is a growing concern from national and local data communities that it will be a repeated prescriptive approach. The African Data Consensus is the beginning of a push back to say Africans and data communities at the local level know how they want the realm of data to work and to set out a road map before they can engage constructively with global data initiatives such as the Global Partnership on Data for the SDGs.

- **Devolution appears to have been a key driver for the establishment of initiatives in Kenya that are focused on monitoring governance-related issues.** This is in part a response to constitutional requirements on public participation and within devolved governance structures, where there was an evident gap in data disaggregated to local levels. County governments need this data to plan for their respective counties and civil society needs it to help citizens hold their local governments to account. It will be interesting to see what effect the proposed constitution will have in Tanzania, once adopted.

- **However small, there are indicators of politicians and policy-makers beginning to use data to inform their interventions.** Map Kibera and CARD's data was used by local MPs to address pressing issues in public schools in Kibera and to get more teachers allocated to schools in Turkana, respectively.

- **The impact of state corruption on monitoring activity and on data credibility in general is an area that requires further research, but that was reported as affecting activities in this context – especially as the government is one of the only other sources of data initiatives can either extract data from or use to compare their data to.** Corruption in this regard speaks to government ministries and authorities, as well as the TSC in the case of CARD. Accessing information in machine-readable formats may sometimes involve corrupt dealings with government officials.[22]

LESSONS LEARNT

The following were outlined as specific lessons learnt as initiatives were implemented:

- **OBJECTIVITY:** Numerous interviewees stated that they had to make a concerted effort to remain objective, ensuring lack of bias – "to present the data as it is and not try to speak for it" (Interviewee 1). The organisations' aim is to always collect quality data and present it as is, whether negative or positive, regardless of any repercussions.

- **INNOVATE AROUND PROBLEMS:** Twaweza managed to address difficulties in contacting or tracking particular respondents and to remedy them by putting in place various structures. It pairs respondents at an EA level. Thus, if one respondent cannot be reached (e.g. because they have changed SIM card or because of an unfortunate event) they can contact the other. It also puts in place reserve respondents, such as a group leader in each EA and appointed citizen monitors, to deal with issues of validation, respondent tracing and dropouts.

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22 Note that corruption references are hard to disclose in full detail because of sensitivity issues.

- **BUY IN:** The need for buy in was constantly referred to – the need to engage all stakeholders and show them that you are working for the good of the community. It is important to create awareness in the communities in question around the purpose of citizen-generated data initiatives and the methodology to be used. For instance, Twaweza managed to educate the community on the above, which allowed it to address cultural inferences that would have eventually impeded data collection. In SzW's case, there were community suspicions and concerns that the organisation was collecting data for an unfavourable religious entity. Meanwhile, community members may seek to understand issues around confidentiality and anonymity. Finally, there is a need to avoid a culture of blame, as this may only result in resistance from both the community and government agencies. Initiatives like Ma3Route have been successful in getting buy-in from their online community, which understands that the success of the platform hinges on its active participation. Thus the community takes pride in not only submitting information but also ensuring their virtual space is protected from malicious content.

- **UNDERSTANDING CONTEXT:** Contexts and culture differ even within the same region or country. Thus strategies of engagement have to be adjusted appropriately, especially when transplanting a model from one area to another. For instance with GTI, the culture of engagement between communities and local government also differs: in Tanzania, communities were described as being more likely to demand or expect more of government in terms of service provision. However, in the Kenyan context, communities in informal settlements generally demand little from government, preferring to rely on their own initiatives or donors. Additionally, Ramani Tandale engaged a variety of stakeholders from the onset, unlike in Kenya, where engagement with government structures happened later in the project cycle. Similarly, it was said that strategy must address how to engage with political processes, how to challenge power and the status quo when addressing issues of accountability in different cultures. Organisations were also urged to be aware of cultural dynamics and their implications for research activities. For instance during Twaweza's activities, three domestic violence incidents were reported whereby female respondents were attacked because of having received mobile phones from the organisation without having received prior approval from their spouse. There may also be a lack of female participants, highlighting particular community perceptions around gender and human rights.

- **ORGANISATIONS** can leverage community identity and pride to build community engagement. GTI found that communities were experiencing a sense of exclusion, injustice and a feeling that their communities were

misunderstood. The communities wanted to be portrayed in a more positive light and believed in the importance of having their needs and concerns understood, and articulated from their own perspective.

EAST

WHAT IS DATASHIFT?

DataShift is a demand-driven initiative that builds the capacity and confidence of civil society to produce and use citizen-generated data to monitor sustainable development progress, demand accountability and campaign for transformative change. Ultimately, our vision is a world where people-powered accountability drives progress on sustainable development.

WHAT IS DATASHIFT DOING?

DataShift is supporting civil society organisations to produce and use citizen-generated data in our initial pilot locations: Argentina, Nepal, Kenya and Tanzania. It is sharing experiences from this support to build capacity on citizen-generated data across the world, and is seeking to inform and influence global policy processes on the SDGs and the data revolution for sustainable development.

DataShift is an initiative of **CIVICUS**, in partnership with **the engine room** and **Wingu**. For more information, visit **www.thedatashift.org** or contact **datashift@civicus.org**.

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