MEDIATING VOICES AND COMMUNICATING REALITIES

Using information crowdsourcing tools, open data initiatives and digital media to support and protect the vulnerable and marginalised

FINAL PROJECT REPORT

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Executive Summary

Many claims have been made about the potential of the next generation of information and communication technologies (ICTs) for community empowerment and democratisation. Open source information crowdsourcing platforms like Ushahidi, and open mapping and data initiatives like OpenStreetMap, are enabling citizens in developing countries to generate and disseminate information critical for their lives and livelihoods. In some cases these open ICTs contribute to the creation of a new information commons, a shared set of information resources.

These tools, which are used in conjunction with commercial Web 2.0 services and an array of digital media, are seen to create new architectures of participation that have the potential to change the relationship between producers and consumers of information, putting communities in the driving seat.

This report draws on an original empirical investigation of Map Kibera, a community information platform that takes advantage of open ICTs, and similar initiatives to provide key insights on the challenges and opportunities for vulnerable and marginalised communities presented by this latest wave of ICT innovations. The contributions made by these projects to local capacity building and the build up of a new information commons needs to be understood in conjunction with:

- challenges emerging from efforts to sustain participation and govern the new information commons in under-resourced and politically contested spaces

- complications and risks emerging from the desire to share information freely in such contexts

- gaps between information provision, transparency and accountability, and the slow materialisation of projects' wider social benefits

The study also highlights:

- the role of the open source social entrepreneur as a new development actor

- the complexity of the architectures of participation supported by these platforms and the need to consider them in relation to the decision-making processes that they aim to support and the roles in which they cast citizens

- the possibilities for cross-fertilisation of ideas and the development of new practices between development practitioners and technology actors committed to working with communities to improve lives and livelihoods

The report concludes by setting out a research agenda that builds upon this initial work.

1. Introduction

In the last decade we have witnessed an important shift in the use of information and communication technologies (ICTs) for development. The rapid adoption of mobile phones in the South is regarded as the end of isolation for the poor, even those said to live at the 'bottom of the pyramid'. At last, it seems, the poor are 'doing it for themselves'; they are using mobiles to reach loved ones, connect to financial services and markets and become citizens of the information society.

Improved connectivity and the creation of commercial services that run on cheap mobile phones are not the only developments that characterise this paradigm shift. Supported by the mobile revolution, the penetration of the open source software movement in the developing world has seeded innovation that is adding to the sense of possibilities for the least advantaged. Open source information crowdsourcing platforms, like Ushahidi, and open mapping and data initiatives, like OpenStreetMap, are enabling citizens in developing countries to generate and disseminate information critical for their lives and livelihoods. These technologies, which are often used in conjunction with commercial online services for publishing and sharing content, such as YouTube (a video sharing platform) and an array of digital media (such as geographical positioning system (GPS) devices and video cameras), are inherently political in character. They create new architectures of participation and collaboration that change the relationship between producers and users of information, experts and amateurs, with the potential of putting citizens themselves in the driving seat. They can support access to critical information for improving living conditions in settings where former development actors have failed to do so, and change the character of 'ICT for development' interventions through the introduction of new technology actors and new types of partnerships.

This report draws from original empirical research on Map Kibera, a community-based mapping project that takes full advantage of these technologies and similar initiatives, to present key insights and lessons on the challenges of reaching across the two worlds of open source and development to translate technological possibilities into realities. The study highlights issues concerning the sustainability and governance of initiatives relying on citizens as sources of information, particularly those that aim to make information available to others in a new information commons, a shared set of resources available to all. It provides a basis for considering their wider social benefits, the agendas and values of the actors that drive them, the types of partnerships that can sustain them into the future, and the risks introduced through the increased visibility of vulnerable communities supported through these tools.

This study comes at a time when 'openness', in the form of open data initiatives, open APIs[1], increased availability of geographical data, open source information collection and visualisation

tools, and the architectures of participation that they support, are becoming important drivers for policy and grassroots innovation. The World Bank's 'Apps for Development', a competition that challenges participants to develop software applications that contribute to the achievement of the Millennium Development Goals (MDGs), is characteristic of the desire of large organisations to tap into the creativity of open source technical communities, open data initiatives and open ICTs.

The research, which was funded by the UK Department for International Development (DFID), brought together practitioners and academics from diverse fields to investigate how we can begin to combine the dynamism of open source technology actors who are committed to working with locals stakeholders, with the expertise of development researchers and practitioners.

The report is structured as follows:

- Section 2 provides a context for relating new developments in ICTs to persistent challenges and agendas around governance and community mobilisation in the development arena.

- Section 3 outlines the background of the research and its objectives and provides a brief account of the various activities that were undertaken as part of the study.

- Sections 4 and 5 present the results of the study. Section 4 presents findings from a detailed case study of the Map Kibera project which included a strong action research component. Section 5 presents the results of interviews of leaders of similar initiatives, including the use of Ushahidi and OpenStreetMap to support post-reconstruction efforts in Haiti.

- Section 6 summarises the key findings of the study and presents a framework to guide future investigations.

2. New possibilities, persistent demands

The power of the open source model of collaboration was evidenced in full force in the wake of the earthquake in Haiti. In January 2010 volunteers from across the world working over the Internet contributed to the relief effort by providing deployed aid workers with updated maps of the island. Information about people in danger collected through mobile phones by individuals on the ground was passed on to the relevant emergency services and published on the map. The speed with which these online networks were able to create detailed maps of Port-au-Prince and collect information, through the use of tools like Ushahidi and OpenStreetMap, attracted a lot of international attention and led to heated debates about the implications of these processes for humanitarian work and development processes more generally.[2] For some, these new sources of information were disrupting existing humanitarian protocols of communication, adding to the workload of relief workers rather than helping them.

Despite the controversy that surrounds these new information generation processes, it is clear that tools like Ushahidi, an information crowdsourcing software program that was created to collect and disseminate information by Kenyans at the violent aftermath of their elections in 2007, and OpenStreetMap, a project that aims to create the first freely editable map of the world, are creating opportunities for coordination, collective action and advocacy that go to the heart of what it means to be a citizen in the 21st century.

The needs addressed by the latest wave of innovations in ICTs are not new. Access to public information and communication networks and the strengthening of the ability of the poor to express their reality on their own terms are persistent themes in the development agenda. Previous generations of ICTs, such as radio and video, and also drama and role-play have been incorporated in the practice of development practitioners and researchers, in particular those that use participatory methods and approaches that aim to involve communities in their process of their own development. For example, in geography, Participatory Geographical Information Systems (PGIS) and critical cartography have revealed the political character of geographical expert systems and have sought to put geospatial technologies in the hands of disadvantaged groups (Corbett et al., 2006; Pickles, 1995).

The values that inform the design of open ICT tools resonate strongly with the ethos of participatory development. Many of these platforms contribute towards the creation of an information commons- a set of information resources that are collectively owned and managed. The technical communities and the groups of volunteers that coalesce around the production and mobilization of these tools and platforms value transparency and reciprocity, and they are driven by the desire to improve the world in which we live. New open platforms, however, introduce new actors, practices and processes: they can make local relationships and connections visible to global

audiences with an intensity and scope that was impossible before. They organise processes of collaboration, where individuals come together to produce complex information resources artefacts, like the maps created for Haiti, without the need for central control. Many of the people involved in the creation of these resources often do so as volunteers, without receiving any significant monetary reward (commons-based peer production). The lessons captured in every cycle of innovation are incorporated by their producers in the next in the form of an improved resource, be it a piece of software or an open data repository, and the know-how to use it.

It is necessary to note here that the term 'open' can have different meanings. Web 2.0 services, through the use of open standards for exchanging information, are increasing our ability to publish and remix information. Many commercial applications, like Google maps, Flickr (a photo sharing service) and YouTube (a popular video sharing platform), are *cost-free* and rely on content produced by users. They can, however, impose important restrictions on how people use the service and what they are able to do with its content. The technologies examined in this report are primarily open source software tools and platforms. In addition to being freely available, these tools can also be freely modified and allow users to retain ownership over the data that they contribute to the system. In the complex Internet environment many of these closed and open technologies *converge*, making the governance of the commons more complex.

Equally varied in the emerging information and communication environment are the meanings of participation and collaboration. In some cases, as in the case of Internet-based SMS reporting and information crowdsourcing, participation is defined narrowly: contributors are simply asked to provide a small piece of a larger puzzle, whose value becomes evident through the aggregation of their contributions. In other cases, collaboration involves the development of strong social ties, shared norms, and ways of working. As illustrated by the cases of Haiti and Kenya, weak and strong participation can coexist and overlap (Aguiton and Cardon, 2007).

Although there is a growing body of work that examines the possibilities of open ICT initiatives for representation, coordination and decision-making, particularly in humanitarian work (Coyle and Meier, 2009; Greenough et al., 2009; Hogge, 2010), we know very little about their benefits for the poor and the complications that arise when open source values and practices, specifically those espousing open information sharing and volunteerism, are introduced in marginalised communities. This report begins to address this gap by examining the opportunities and tensions arising from creating collaborative, commons-based information systems in a development context.

Our approach is informed by the belief that, like all development processes, ICTs have a politics. They are imbued with specific assumptions and values, and they organise relationships between users in ways that can amplify or undermine existing power relations or give rise to new disparities. Their production and consumption is marked by inequalities that are not erased by

their 'openness'. Studies of the organisation of open source software projects have indicated that there are different levels of openness and that the ability to participate does not ensure the right to have a say in higher levels of decision making. The information that they generate is also political in character: it is meant to contravene existing channels for information, provide alternative perspectives and establish direct communication flows between communities on the ground and global audiences.

In this study we argue that the new architectures of participation and the resources that new technologies create need to be viewed in relation to the strategies of the actors that deploy them, their agendas and ways of working. This investigation is based on the idea that enthusiasm around the potential of these new tools needs to be weighed against the benefits for their primary beneficiaries, poor and marginalised communities, and the risks of increased visibility. To achieve this we examined the character of partnerships on which the investigated initiatives relied; their governance arrangements and the provisions and capacities required on the part of different stakeholders for participation and for translating information into action.

Our research also had an additional goal. We were interested in examining possibilities for collaboration between technologists and development practitioners. This came from the recognition that in many cases the most interesting and effective lessons emerge from working in partnership, by supporting and challenging each other. As part of this process the Institute of Development Studies worked in close collaboration with GroundTruth, the organisation behind Map Kibera, Aptivate, a UK based NGO that provides information and technology (IT) services for development, and Sammy Musyoki, a participatory methodologies facilitator and researcher. The report encapsulates lessons from this collaboration which we believe lay the foundation for the development of new models of practice.

We are indebted to all those who took part in the study for their time and willingness to share their experiences, especially the members of the Map Kibera project. The honesty and openness with which they shared shows the courageousness that characterizes its founders, leaders and participants. Evangelia Berdou is responsible for the views expressed here and for any omissions and errors.

3. Background to the research

The research examined the benefits and challenges emerging from the mobilisation of open technologies and platforms in settings where institutional and infrastructural failings prevent citizens from accessing and using information relevant for their lives and livelihoods. Our investigation focused on applications which support the creation of local content and which are developed collaboratively between technologists and local users and stakeholders.

Specifically, the research addressed the following questions:

1. *What kind of values and social and institutional practices are emerging around open data initiatives and open systems for collecting and visualising information to support and empower the vulnerable?*

To answer this question the study: a) examined the visions and strategies underlying the mobilization of new tools in a local development context, including the character of the partnerships and governance arrangements that underlie their use; and b) initiated a process of learning between technology, open source and participatory development practitioners to investigate the possibilities for creating new methodologies for enquiry, participation and community engagement.

2. *What sort of capabilities and infrastructural requirements do their deployment and use require?*

The research sought to highlight the spectrum of skills required by users and producers of these systems and the resources needed to deploy them meaningfully. These included access to computers, the Internet, and media required to *contribute* to the process of information generation and to ensure the *availability* of the collectively generated resources to the wider community they were meant to serve.

3. *What kinds of risks are involved in connecting local and global publics and making potentially sensitive information publicly accessible?*

The study examined how different stakeholders perceived the implications of increased visibility of people and places supported by open technologies.

The research answered these questions through original, empirical research which involved three components[3]:

1. An in-depth case study of the Map Kibera project, a widely known community mapping project in Nairobi, Kenya, which was based on: a) 15 semi-structured face-to-face individual interviews with GroundTruth members, project participants (mappers, SMS reporters and video journalists), local partners and community elders; and b) participant observations of 10 sessions organised in Kibera as part of the action research component of the project.

2. Action research, conducted in the context of Map Kibera consisting of: a) participatory reflection and assessment exercises through four focus groups conducted by Dr Sammy Musyoki to inform GroundTruth's approach to community engagement; and b) a three day workshop designed to develop the training skills of mappers, videographers and SMS reporters and investigate their attitudes in relation to information sharing, organised by Dr Mark Skipper.[4]

3. A comparative, scoping study of initiatives similar to Map Kibera using individual phone interviews with project leaders to identify divergent and common issues and challenges. Seven interviews were conducted in total.

Components 1 and 2 of the research were carried out in Nairobi, Kenya from 23 October to 14 November 2010.

Lessons from the action research component of the investigation were incorporated in a how-to guide produced by GroundTruth, included in the Annex. Insights from the research were shared through the Map Kibera blog (see http://www.mapkibera.org/blog/category/dfid/) and preliminary findings of the research were discussed in a workshop on 'Citizen mapping and media development' organised as part of the International Conference for Information and Communication Technologies and Development (ICTD2010) on 13 December 2010.

The analysis of the findings was informed by contributions from Joanna Wheeler, IDS (2011) and Parminder Jeet Singh and Anita Gurumurthy (2011) from IT for Change (http://www.itforchange.net/). Wheeler provided insights on the role of information in supporting citizen action and mobilisation for accessing rights through greater transparency and accountability, based on the work of the Citizenship, Participation and Accountability Development Research Centre (http://www.drc-citizenship.org/). Singh and Gurumurthy (see Annex) explored the concept of openness in a development context and investigated the relationship between development actors and technologists.

4. Map Kibera

In this section the results of components 1 and 2 of the study are presented. The results highlight differences between GroundTruth and local stakeholders in expectations of participating in the project and free information sharing. Lessons emerging emerging from efforts to combine the open source model of work with participatory development are captured.

a. Background to Map Kibera

Map Kibera (www.mapkibera.org) started in October 2009 with a small grant from Jumpstart International (http://jumpstartinternational.org/), a non-governmental organisation specialising in community-based mapping. The grant was meant to facilitate the creation of the first public, digital map of Kibera, through the training of the local youth in the use of GPS and open source GIS tools. The problem that the project set out to address was the lack of publicly available geographical information about Kibera and the resources available to its citizens. It was expected that provision of such information would provide the basis for better coordination, planning and advocacy within the community and between Kiberans and the government.

The founders of the project, Erica Hagen and Mikel Maron, worked in partnership with local organisations. These included the Social Development Network (SODNET) (http://www.sodnet.org/), Carolina for Kibera (http://cfk.unc.edu/index.php), an international NGO based in Kibera that seeks to promote leadership, women's empowerment and community development, and the Kibera Community Development Agenda (KCODA), a community media organisation that publishes the Kibera Journal, the only local newspaper. KCODA also operates a 'community monitoring project' in which teams of local youth report on the progress of local projects funded by the Kenyan government and operations of community-based organisations (CBO- non-profit groups that work within a community to improve the lives of the residents). The partners provided Map Kibera with a base of operations, contributed to their initial understanding of information needs, assisted in the recruitment of the youth (project participants) and gave advice on how to successfully embed the project in Kibera.

The first phase of the project (October - December 2009) saw the creation of a basic map that was made available through the project website. A second round of funding by UNICEF allowed the continuation of training and the mapping of points of interest in the areas of water and sanitation, security, education and health. These included public water points and toilets, security hotspots, schools, clinics and informal pharmacists. In this second phase (February - August 2010), community meetings were organised to engage Kiberans in the mapping effort and to refine understandings of needs and potential uses of the map. In this period the founders established two additional projects that sought to extend the use of the map and contribute towards the creation of a community information platform. The first was an SMS reporting project called Voice of Kibera

(VoK - http://voiceofkibera.org/). VoK uses the Ushahidi platform to enable residents to text in reports on events happening in Kibera. The reports, which are approved by an editorial team, are presented on the digital map of Kibera. The second project that was introduced in this period was the Kibera News Network (KNN), a video journalism iniative. KNN videographers create short documentaries and news stories about Kibera that are published on their YouTube channel (http://www.youtube.com/user/KiberaNewsNetwork).[5]

Data collection for our study took place at point when relationships between project leaders their local partners and participants (mappers, SMS reporters and journalists), were tested during a tumultuous period of group formation. Diverging agendas and expectations about roles and responsibilities and the vision of the project were brought to light during discussions for the creation of an organisation, the Map Kibera Trust, which was meant to ensure the sustainability of the project. The present research provides a snapshot of the project just one year from its creation and does not cover how some of the lessons that emerged from the study were taken forward by its founders and participants. To ensure anonymity interviewees are given aliases.

a. Livelihoods, skills and volunteer participation

Map Kibera was set up as a volunteer project. The founders' ideas of what it means to be a volunteer were based on the norms of the open source model of collaboration, where people contribute to the collective effort to improve the world in which they live, develop and showcase their skills, gain access to professional networks, or for the enjoyment to be derived from solving problems. The capacity building aspect of the project was strongly emphasised by project leaders as their main contribution to the community.

Participant's ideas and expectations of what it means to be a volunteer differed radically from those of Map Kibera leaders. In Kibera, being a volunteer usually means receiving compensation in the form of a 'sitting fee' for workshop attendance, and money for lunch and transportation on days dedicated to project work. As many interviewees explained, this is an important source of income for many Kiberans, forming part of diversified livelihood strategies that consist of making ends meet by pursuing many different things at once. Dedicating time to the project, however beneficial this could be in the long-run, meant missing out on opportunities that could immediately put food on the table.

Ok, personally I think it will come out of that work that we are doing. Because you cannot just expect to be paid but yet doing nothing. So we need to do something for us to get paid. For instance if you find like, I personally I am self independent, I have a brother that I am taking care of, he is 19 year, whom I am taking care of, so you need to feed, you need to pay rent, you need to eat at the same time I am going for a college, so I am paying for that. So all this things they really need something like money for you to keep on going. So that is why I feel like as much as we like doing this, I think we should get something, at least a part of it, we should be so much determined to where we are going...

Laura, mapper

For the project leaders this posed a problem from the start. They wanted to attract the 'right' kind of volunteer, youth with a genuine interest in using ICTs to improve living conditions in the settlement, but quickly realised that a volunteer model was unrealistic in Kibera. As a result, they started giving out money for lunch and transportation and paid mappers a small stipend for data collection, on which they had worked intensively. This impacted on group dynamics, creating tensions between mappers and videographers and SMS reporters who complained of not receiving the same benefits. In interviews with the project leaders, the question of how much money is appropriate to give to participants and for what purpose surfaces as a major concern.

Ah, since the VoK started I don't remember getting any money, but for example what most of the SMS reporters have been getting is the reimbursement of credit they have been using to send SMS. That is a good thing, because it gives them moral to send even more SMS. I take it as a pay, but its not really as a pay, where I have a chance, I get the chance to get exposed, when I have been doing the TEDx 4events and meeting different people, I have been writing them and my mind after every TEDx event is not the same as today. So that is a kind of pay, because the VoK gave me that opportunity. And then the other thing, getting other people of reasoning together, I want to call myself an expert, which I do without necessarily going to the university of Nairobi. I am becoming my own expert. I think it something much much more than the money, but I have not received any money from VoK.

John, VoK

Analysis of interviews with participants indicates that at the time of the research, the idea of being a 'volunteer' was also associated with that of being an apprentice, someone on a professional career trajectory. All seven Map Kibera participants that were interviewed for the study saw themselves as budding experts, not as citizen-mappers and reporters in the sense of 'amateur enthusiasts', a term used to characterise volunteer contributors in specialists fields who may lack scientific or professional training. Their views on expertise were associated with strong feelings about the value of the work. If what they were doing was valuable, as international interest in the project indicated, and if the quality of their work was to improve, then clearly, they argued, they needed to be paid.

Becoming a professional, being recognised as an expert and a 'leader', gaining access to professional and social networks as a result of the project's exposure and training that could result in employment opportunities ('being a consultant') were for participants the most tangible benefits of the initiative. The realisation of these benefits, especially in the case of mappers, created a sense of insecurity over continuing access to skills. Fearing that they were becoming too dependent on project leaders for guidance on more advanced technical issues, like creating and printing the maps, they put pressure on the more technically gifted members of the group to learn as much as they could. These more advanced mappers were able to receive advanced training in ESRI, an advanced GIS platform.

Although the value of open source software for the poor and as an engine for growth of the software industry has been frequently highlighted (Harris and Rajora, 2006; May, 2006; Soo Hoe, 2006), the literature on commons-based peer production has not addressed the issue of how open

forms of collaboration can work in settings like Kibera. However, the commercialization of open source software has generated insights on how altruistic motives for participation can coexist with more selfish, individual goals. Volunteers may start contributing to the collective effort because they want to work for a good cause or because they are interested in honing their skills (Lerner and Tirole, 2005; Shah, 2006). In the process they may gain access to professional networks that may lead to better jobs. Although the vibrant tech scene of Nairobi promises similar pathways, the nexus of interests that support the interweaving of selfish and altruistic motives was at the time of the study not well developed in Kibera.

In summary, GroundTruth expected that participants would be motivated to participate in the project primarily from a desire to develop their skills and contribute to the creation of a new information commons. For project participants what was equally important was immediate compensation for their time and effort and assured opportunities for employment and continuing training. Although GroundTruth recognized early on the need to connect the project to livelihood opportunities, they had underestimated the insecurities and pressing needs that participants faced.

b. Governance and information sharing

The creation of the Map Kibera Trust, an organisation that would secure the future of the project by providing it with a legal basis and the extension of the activities of the project in Mathare[6], another informal settlement in Nairobi, acted as a catalyst for the expression of unvoiced concerns, dilemmas and insecurities by participants and partners.

Plans to include KNN and VoK and Mathare in the Trust were initially resisted by the mappers. Although they knew about the existence of the other two teams before discussions for the Trust started, mappers saw themselves as having prior claims to membership because they had joined the project first and the initiative had started out as a mapping project.[7] Mappers' sense of insecurity about their future stemmed from the fact that mapping was suspended during that period, as the project had completed its key objectives in this area, and by VoK and KNN's increased prominence on the founders' agenda. Their anxiety was also fueled by suspicions that GroundTruth was withholding information about available funds.

A major concern expressed in individual interviews and focus groups was how the existing and future funding would be distributed between mappers, VoK and KNN. For GroundTruth the stance of the mappers was understood as part of an inability to 'share nicely' (Benkler, 2004), take initiative, and organise themselves as a team. In interviews and the four focus group discussions carried out by Musyoki, they acknowledged that they had underestimated the effort needed for

To be frank, to be open, me I'm in doubt about the Map Kibera project; I'm in doubt. The last thing I was told by Primoz [GroundTruth] was that when we begin the Mathare mapping, I would be doing technical stuff, we'll be doing mapping, but until now I'm in doubt. Me, I'm just waiting. They told us it will be this November, that's why I can say that the communication- there's no communication. They are not breaking down to us the communication, the way the thing is going.

Nick, mapper

group development, to support participants in moving the initiative forward. As with the expectations attached to the idea of being a 'volunteer', however, the analysis indicates that the concept of 'taking ownership' meant different things to leaders and participants. For GroundTruth it meant becoming self-reliant, assuming responsibility for the future of the project, and developing an entrepreneurial attitude in making the best out of the skills and resources at their disposal. For participants it meant positioning themselves in the emerging hierarchy of the Trust, where board members would replace GroundTruth as their employers, and in which they be would take their place as trainers and 'fathers and mothers' of new members.

Working with KNN has been good, but not with the mappers. We understand that they were there before us. They started things ahead of us. It seems that someone somewhere has fears that the cake will be shared equally between the three. There is little understanding of what we have in common. In anything there is politics. It is healthy so long as it does not harm your neighbour. The other thing that is creating problems is the leaders [of the mappers]. Someone is still thinking in the past. The sooner they get over this, the better it will be for everyone. Engaging each and everybody to address our fears.

John, Vok (focus group discussion with KNN and VoK)

The idea of information sharing was another important theme in interviews, focus group discussions and training activities. In Kibera, participants explained 'information is power'. When mapping or reporting, they would frequently be confronted by residents asking them whether they were being paid for their work or asking for payment to give information. Their right to elicit information was questioned on numerous occasions. In their focus group discussion, mappers mentioned the reluctance of many teachers to provide them with details, such as the number of registered students, and the suspicion with which they were met by informal pharmacists that sometimes sell stolen drugs. For mappers, the ability to ask for and be given information required an authority that they felt they lacked, especially as their work introduced some real risks to the community. Identifying the informal pharmacies, for example, could provoke government action that would result in their closure, blocking access to a critical community resource.

In this context the idea of sharing information freely was confusing to participants. In the focus group discussion with KNN and VoK, the use of KNN videos in a Uchaguzi campaign (the monitoring of elections for the referendum in Kenya through the use of the Ushahidi platform[8]), raised some interesting issues on norms around information sharing, including rules for attribution, licensing, and the balance between providing 'stuff for free' and using the content that they created to generate revenue. In the three-day training workshop organised by Mark Skipper, participants had the opportunity to explore what it meant to share knowledge with each other and with new members, to become generous sharers of information. The workshop made it clear that in Kibera, the meaning of open information sharing, what can be shared and with whom, needs to be rethought to identify the risks of increased visibility and the mechanisms to mitigate them. On the part of the participants understanding what it means to collaborate and make a living within an information commons involved grappling with difficult technical concepts and making decisions

about complex business models.

Questions around the implications of the international attention focused on the project exposed another set of risks. Participants regarded it as uniformly beneficial as it increased their visibility and created opportunities for travel and more training. However, the publicity that the project received also exposed participants to repeated requests for collaboration from people interested in using them as entry points to Kibera. For GroundTruth, the inexperience of the youth in handling and negotiating these requests, some of which were deemed exploitative, was a real source of concern and raised questions about their role as guardians and gatekeepers of participants.

Yeah, because initially it was to be more of organizational tool, where organizations would sit, sit and form. So what we do as organizations, I remember Mikel asking, how can we bring in more organizations to be part of MK. So that we can show case what we are doing, how to put in more information in the map. But I think that has changed since that, because it is now forming into a trust it is now moving just beyond Kibera and I don't know whether they still want to sit down and engage these people strongly, because now its a little bit away. I am not able to follow, I don't know what they do now. Though I now hear that the mappers being moved, some have been sent to Mombassa, some to the West. That is what is happening. I don't know so much what they want to do with the locals now.

Managing director, KCODA

The formalisation of the structure of the project through the creation of GroundTruth and the Map Kibera Trust was regarded with caution from the project partners, particularly KCODA. For the managing director of KCODA these developments implied a divergence from the initial goals of the project, which, he believed, were meant to build the capacity of local organisations, not lead to the creation of a separate organisation.

The perceived lack of acknowledgement, by the Map Kibera leaders, of his contribution to the project, that included the idea behind KNN, was also something that concerned him. Extensive negotiations and discussions initiated by the project founders did not seem to address his concerns.

In Kibera, being known as an originator of an idea, having the right to ask and receive information, and being in a position to manage the risks of increased visibility, involves much more than adopting the ideals of open source and commons-based production. These claims, rights and responsibilities are contingent on relations of trust, authority and livelihoods that have different configurations in poor and marginalised communities than in affluent societies. As the steward of the project, the Map Kibera Trust lent itself as the space where some of these issues could be discussed, but at the time of the research its future was unclear.

In brief, discussions about the Map Kibera Trust revealed the complexity of governing an information commons by and for marginalised communities. In Kibera the ability to ask for and be given information is contingent upon relations of trust and authority. Decisions about what information to share and with whom, and agreement on how the commons could be used to generate revenue required understanding of complex concepts (such as licensing), skills and attitudes (such as entrepreneurial spirit, self-organization) on the part of the participants, and the undertaking of responsibilities on the part of participants and project leaders that were not evident from the start.

c. From information to action: community engagement and benefits

Within a year Map Kibera created the first digital, multilayered public map of Kibera, introduced another two community information projects, VoK and KNN, and trained local youth in the use of an array of tools and platforms. This included training in the use of GPS, OpenStreetmap, Ushahidi, Flip camcorders, basic video editing suites and Wordpress, a blogging platform. The project created a burgeoning community of contributors with valuable technical skills, a greater confidence in their ability to change things for the better, and pride in their community. Erica Hagen and Mikel Maron's two person team grew to include two more members and the GroundTruth initiative was created. The wider social benefits of the map to Kibera, however, were slow to materialize.

The first hurdle that the project still had not overcome was that of enabling *access* of the wider community to the resources created by the project. By the time the research was conducted, only a few copies of the map had been printed. Some were prominently displayed in the offices of KCODA and CFK. Others were distributed to local schools and hospitals. Equally, the videos produced by KNN that were posted on YouTube were not accessible by the majority of the residents. KNN had organised some public showings of their work but videographers admitted that the concept of an Internet- based TV channel was difficult to explain to the wider community. Also problematic was access to the website of VoK. Although it could be accessed through mobile phones, their annotated map was slow to download.

The second hurdle was getting *buy-in* from residents, CBOs, NGOs, local authorities and the government. The difficulties of realising the value of open data and open platforms in Kibera was a recurrent theme in interviews with GroundTruth. The greatest challenge, for them, lay not in the production of the map but in promoting the use of the map in policy and advocacy. In the focus group discussion the mappers suggested that GroundTruth had not worked enough with local authorities. In his report, Sammy Musyoki suggested that a way to move forward would be through the engagement of social movements such as Mungano wa Wanavijii (Slum Dwellers Movement). As a participatory development researcher and practitioner, Musyoki believed that in order to bring about change, Map Kibera and GroundTruth needed to connect to existing political struggles and agendas. For GroundTruth, this raised important questions about their role as a development actor and the balance that they felt they needed to strike between neutrality, ensuring the engagement of a broad-based set of actors, and advocacy.

Discussions between Musyoki and GroundTruth revealed the *uneasy relationship between the open source model of work and participatory development.* Technologists, particularly those operating within the open source model of development, prefer to work quickly, publishing their results to a wide audience, to attract interest and engage others in the collective effort. Participatory development practitioners usually adopt slower rhythms of work that include crafting and implementing a

strategy for engaging with communities which takes into account the particularities of context and power dynamics, and is continuously revised and adapted.

I have been the one person doing the presentations at TEDx, not TEDx Amsterdam or New York, but TEDx, TEDx Mathare, TEDx Kibera also and the big one TEDx Nairobi. So, I was sharing about one, the power of information, free information sharing, how you can become powerful, a person that free information floating from one end to the other. I was also letting them know that Kibera is not what people think it is, especially when you don't come from Kibera. Its what you think it is, when we are coming from Kibera, because we walk from one point to another we see everything that is happening in Kibera and therefore we want to challenge the perception that is there, that Kibera is where we have flying toilets, that Kibera is where we have guns. I assure you in any other town, be it in Amsterdam, be it in Lagos, be it in the Hague it self, you have people who do crime and therefore Kibera can not be an exception, but the way people view Kibera that's its just a place full of guns, a place full of confused people, this is what we are out to challenge, this is what we are out to say it is not as what you think, but as we think, because we are in Kibera and this are the actual news and take it from us.

John, VoK

When asked how the project had benefited the wider community, participants emphasised: a) the role of the map in supporting good governance, through an understanding of the distribution of resources available to Kiberans through national funds and international aid and project monitoring, and b) the opportunities that the platform provided for positive representations of Kibera. The map, videos and SMS reporting were for the youth a channel to counteract the negative images of Kibera as a place of violence and abject poverty in Kenyan and international media. For KCODA Map Kibera also provided the means to reach the international donor community and to communicate more clearly how funds were spent.

Ideas of who the primary audience of the platform was or should be differed between local stakeholders and GroundTruth. GroundTruth was aware of the international dimension of the project but was keen to make the platform relevant to the wider community. Participants and partners highlighted the potential of the map for community development, but seemed to be more outwardly oriented, primarily aiming to reach donors and international media. This was perhaps a temporary stance as the concrete benefits for locals were slow to materialise, but it is also connected with the blockages to accountability created by the aid structure itself. In Kibera, as the director of KCODA pointed out, talking about who gets funding, what programmes are actually yielding results and which are not, is a dangerous business.

The founders of Map Kibera were quick to realise that information can be power, but that empowerment involves both the process of creating the information and developing the means to use it. As Wheeler points out, the existing evidence indicates that making information more accessible does not automatically make it more democratic in its effects. To achieve this information, according to Wheeler (2011: 1), needs to be linked to processes of social mobilisation:

Studies on citizen mobilisation and democratisation indicate that it making information more accessible does not necessarily make information more democratic in its effects. There are examples that would support both sides of the argument. For example, participatory budgeting in Porto Alegre has made information about municipal spending and about the priorities of poor and marginalised groups much more visible (Navarro, 2004).However, this increase in the accessibility of information has led to mixed results in terms of greater democracy and access to rights, especially when not combined with an on-going process of political and social mobilisation (ibid). On the other hand, the right to information campaign in India demonstrates how grass-roots mobilisation can translate into national policy change and more pro-poor outcomes when linked to sustained social mobilisation (Baviskar, 2010). Existing evidence suggests that the democratizing potential of information is closely linked to the on-going processes of social mobilisation: who is demanding the information and for what purposes—and what capacities exist for using the information.

Within a year of its development Map Kibera created an active community of participants with greater self-esteem and burgeoning technology and journalism skills. The broader social benefits of the project were slower to materialise. Efforts to engage the wider community in using the information to support collective action were hindered by barriers to access to the information commons and differences in perception as to who the primary audience of the project was. The assessment of the project's approach to community involvement revealed the uneasy relationship between the open source model of work and participatory development values and practices, the social and the technological dimensions of the project.

5. The bigger picture: new actors and innovation processes

In this section, findings from the third component of the research are presented. This consisted of interviews with leaders of other projects using mapping and information crowdsourcing tools to support positive social action and organisational effectiveness. The seven interviewees were involved in community-mapping initiatives in Peru and Georgia, SMS reporting to address gender violence in Egypt and Haiti, and support to post-reconstruction efforts in Haiti that built upon the resources created in response to the earthquake. [9] The results highlight the variety of strategies that underlie the mobilisation of these platforms and the characters of the actors that guide their production and use. This helps us put into broader perspective the lessons emerging from the Map Kibera study and highlight some of the complications of using citizens as sources of information to support collaborative transparency (Fung et al., 2007).

a. Involving citizens as research partners and data sensors

The visual impact of geographic mashups, websites that organise different types of data on a map, and their ability to quickly draw together data from the field, make information crowdsourcing a valuable resource for activists. One of the interviews concerned Harassmap (http://harassmap.org/), a project designed to raise awareness about sexual harassment in Egypt. Harassmap called upon members of the public to report incidents of women's sexual harassment which were then presented on an Internet map. The interviewee stressed that the initiative was a purely volunteer project managed by a small group of people who had worked on these issues before. Technically, Harassmap was supported by a non-profit US based technology company called Nijel (http://www.nijel.org/), which helped them to customize Ushahidi and set up the SMS portal. The Harassmap team had ambitious goals. In addition to raising awareness and rekindling public debate on a long-standing issue, there were plans to connect affected women to relevant support groups. The project quickly attracted a lot of media attention. By February 2011 300 reports were posted on its website. The leaders of the project were being contacted by individuals wishing to contribute to the effort and by women's organisations from across the world that were interested in adopting the platform.

The validity of crowdsourcing as a new process for collecting information, particularly in a time of crisis, are framed by wider debates on the role of grassroots and social media, such as Twitter and Facebook, in supporting progressive social movements (Hands, 2011; Howard, 2010; Morozov, 2011). A key and under-examined issue concerns the ability of the people using these tools to translate public interest and the media limelight into long-lasting change, and to build upon the resources created in times of crisis to support reconstruction efforts.

Haiti, where information crowdsourcing and mapping were used in full force offers some valuable insights on the subject.[10] Post-earthquake Haiti provided the background for three interviews that

highlighted applications of these tools for top-down coordination and downward accountability. Interviewees were involved in projects designed to establish to generate data to improve coordination and aid allocation.

The first project by the International Organisation for Migration (IOM) involved a low tech adaptation of crowdsourcing that encouraged Haitians living in camps to write letters expressing their needs and concerns. The contents of the letters were coded and organised in a database that was to be made available to other aid organisations. The second project involved the use of Ushahidi for reporting incidents of gender violence by Digital Democracy, a non-profit US company specialising on the use of technology to promote human rights. Digital Democracy was invited to create a mechanism for the reporting of incidents of gender based violence by the UN. To achieve this the organisation opted to partner with Haitian women's organisations that were seen to be excluded from consultation processes between dominant local NGOs, the government and international agencies. The third project, another initiative of the IOM, involved the mapping of resources in Internally Displaced Persons (IDP) camps, through the use of GPS and OpenStreetmap. The mapping was carried out by Haitians trained by the Humanitarian OpenStreetMap Team (HOT), the majority of which were residents of Cité de Soleil, one of the most deprived neighbourhoods of Port-au-Prince.

The potential benefits of these applications need to be considered in light of previous lessons concerning public communication in disaster affected populations and problems of downward accountability. The World Disaster report of 2005 (IFRC, 2005), which focused on the role of information in disasters, highlighted some of the persistent challenges in this area which include insufficient of data on which to base decisions, lack of consistent consultation with communities, and problematic information sharing between aid organisations.

In the case of the tsumani response in Aceh, India, relief workers were unsure about what kinds of information should be shared with the traumatised population, effective communication was undermined by the pressure to respond quickly, and relief agencies did not know how to involve local populations in the decision-making process (Wall, 2006). Information crowdsourcing and open mapping platforms offer an efficient and cost-effective means for data generation and sharing, but it is doubtful whether the challenges described above could be overcome by technical fixes alone. At the time of the interviews, the impact of the IOM letter-box project was still unclear, as was the degree to which Digital Democracy efforts strengthened the ability of grassroots organisations to participate in the decision-making process. The scope of the study did not allow us to verify whether the initiatives achieved their stated goals.

A key finding of this part of the study concerns the non-trivial degree of technical expertise required for the deployment of these platforms. In all three cases, the organisations adopting these technologies enlisted the help of intermediary actors, technology companies and members of the open source

technology communities to effectively incorporate these tools in their work.

b. New actors and innovation processes: bridging technological and development realities

Mapping and information crowdsourcing platforms are taken up by organisations to serve a variety of goals. As in the case of Map Kibera, they are also actively promoted by technology actors who set out to explore the relationship between technological capacity and positive social change, open source values and local needs.

The history behind the third project in Haiti reveals some of these dynamics. The HOT went to Haiti on three missions to support the relief efforts, one sponsored by the World Bank and two by the IOM. The team built upon the momentum of the resources created during the time of crisis to create a local team of Haitian mappers trained in the use of GPS and OpenStreetMap tools and employed by the IOM. These mappers were mobilised to map the hundreds of cholera centres on the island after the WHO failed to produce a reliable map. The HOT mission aimed to support efforts on the ground but also to promote the use of the OpenStreetMap platform through a better understanding of the needs of the humanitarian community. The sense of contributing to local capacity, of creating a community of practice coalescing around technologies and the ideals of information sharing, transparency and reciprocity, was strong among all the four interviewees that were actively involved in the production and implementation side of open ICT community platforms. These individuals saw themselves as proposing an alternative 'ICT for development' model. As in Kibera, the issue of whether a pure volunteer model was sustainable in poverty-ridden settings was a real concern. Project leaders believed that paying locals would signal that this was another aid project and would attract individuals interested only in the short-term benefits of the project.

That's what I mean, that's what is exciting to me about it, and that's what is exciting to me. Sometimes it seems like a rather small world of development technologists and, you know, like the people that you listed, know them personally, they are my friends of mine. Sometimes it feels like we are in a small bubble, where we all have the same values and the same beliefs and I believe in them very strongly, but it still remains kind to convince others like the communities that we are working with or the broader development community, so like you say, it's more interesting perhaps as a contrasts of what say USAID does or, you know very big organisations where they just think we build a computer lab and there all be better, you know?

Grassrooots mapping representative, Lima

The emphasis on learning-by-doing, using the insights from each project to refine the tools, and their methods for eliciting needs and creating buy-in among the local stakeholders were some

I did think was necessary and this was the most challenging issue in this whole body of work, at the beginning I think there were competing ideologies about what was, are we trying to create really good data here or are we trying to put people through the process of creating data? And which one is more valuable, I think it was created somewhere in the middle, the big challenge I think, because what I find in places certainly like, definitely in Gaza definitely in west bank, and in Georgia as well, there's so much aid money, that people expect aid money to be a good job a good salary, so it's really hard to kind of come in and change that mindset, do something that's strictly volunteering, everyone's negotiating, everyone needs to eat to feed their families, so the big challenge is without paying people is kinda hard to get going, to get the ball going to get some work especially if you're trying to do something and finish in a time-frame cause you're expected, but it also kind of inhibits what you're trying to do when you're talking about intellectual comments, ideologies you're trying to bring in, ideally I really thing the best way to do it is also spend a long time work slowly, with very limited funds but from an aid perspective as you're trying to these... but then you're out of timeline so you have to play this balance between what you can do without paying for, that are you gonna be perceived by a community by the way you spend money basically.

Jumpstart International representative, Georgia

other common characteristics between interviewees and GroundTruth. The interview with the representative of Jumpstart International, an organisation that has been involved in community mapping projects in Gaza, the West Bank and Georgia, revealed how the variety of the contexts in which they had worked afforded them with opportunities to refine their vision and approach to community engagement. And yet, the issue of the relationship between the social and technical dimensions of the project remained in most cases unresolved: was the project primarily about generating good data, refining tools, capacity building or engaging communities in the process of their own development? Could technology actors lead all these activities alone, and if not, what types of partnerships could support these goals? Parminder Jeet Singh and Anita Gurumurthy offer the following thoughts on the nature of partnerships that can make open ICTs work for development (2011: 7):

> While obviously needed, neither technological knowledge nor local knowledge and connections are necessarily the most important factors in making open ICTs work for development. What is most essential is a conscious appreciation of the key issue of how to make different actors work together, in a new context which mostly involves breaching and rearranging institutional boundaries and organisational structures. To use a heavy term, it requires expertise in the 'network society phenomenon' as it expresses contextually, at the specific local community level.

> Such specialised agencies should work with all the involved actors to explore issues of power equations between technology and development actors; new contexts for, and means of, organising volunteerism; how to do the necessary experiments while focussing on issues with clearest useful outcomes for the community; how to manage strains on hierarchies in local organisations when open ICTs get applied; and how mission creeps are to be managed, and possible new forms of development processes and outcomes collectively agreed upon and planned.

The findings indicate that, in addition to examining the nature of partnerships that can realise the potential of open ICTs for understanding and action, we need to consider more carefully the character of actors that drive their production and implementation. For example, we know very little about how social technology entrepreneurs that espouse the values of the open source movement operate, how they position themselves in relation to larger players, and how they seek to influence the policies of major institutions. The opens source software movement changed the dynamics of the software industry. Could the same happen in the ICT for development sector?

c. The place of crowdsourcing in data collection

In this section, the discussion is broadened to briefly examine the character of crowdsourced data and the architectures of participation on which they rely. The interviews highlighted two complications around crowdsourcing. The first concerns the *decision-making processes it is meant to inform and the responsibilities of the actors that initiate and manage the process of data collection*. The second complication concerns *crowdsourced data validity and usefulness for decision-making and collective action.*

The uniqueness of information crowdsourcing, including the crowdsourcing of geographical data, compared to other digital tools lies in its capacity to generate seemingly readily quantifiable real-time data in situations where usual communication channels are either compromised or absent. However, its place in the evidence and data collection chain is unclear. It has been argued that information crowdsourcing is not meant to provide systematic evidence, as it does not follow scientific sampling methods or formal standards of reporting, such as those adopted by human rights organisations. Rather, it is meant to provide a first glimpse, to take the pulse of events as they unfold. *Even if one accepts this argument, it is clear that the power to set the agenda, to initiate and guide more systematic investigations, is very important.* Does this imply certain responsibilities on the part of the teams or organisations initiating and managing the process of information collection? Should measures be taken, for example, to ensure the credibility of the reports, besides rejecting the obviously false one by site managers, and their usability by key audiences? How should the goals of the project and norms for reporting be explained to contributors, and is that feasible in crises? Who owns the data and makes decisions about

Actually I would disagree with that. That is the responsibility of the cluster to do that kind of analysis. I used to work in this cluster under OCHA and one of the thing that we talked about is that crowdsourcing is not a replacement for traditional studies. It's not a replacement for assessment. Crowdsourcing is a way to flag interesting trends in issues that should be followed up by more scientific analyses. It should be followed up by something that is well done, a formal kind of assessment.

Ushahidi representative, Haiti

their availability? The ease with which these platforms can be deployed means that marginalised groups may be viewed simply as data sensors, cheap sources of hard to get information.

The credibility of crowdsourced data for decision-making and collective action is regarded by its proponents as an emergent quality of the *volume* of reports: more reports afford a more accurate representation of events and can help weed out false ones (Okolloh, 2009). Technology enthusiasts argue that the value of these tools lies in the ability of those initiating and managing the process of information collection to *mobilise* large numbers of contributors, on the ground and around the world, either directly or through partnerships and connections to broader networks. [11] As in the case of open source software projects, however, for every successful instance of crowdsourcing there exist several failed ones. For instance, the level of volunteer mobilisation around Haiti was not repeated in the case of the Pakistan floods. There are still many unanswered questions with

regard to what factors might influence the successful mobilisation of these types of global and local networks, and the organisational forms that can support such an endeavour.[12]

Moreover, one can easily imagine a scenario where different streams of crowdsourced or other citizen generated data represent conflicting realities, where freely edited maps and map aggregators become another arena where competing interests are represented and negotiated. Equally under-examined are interactions between old and new media; the way that new systems become embedded in existing information and communication landscapes at a local and global level. Discussions of the value of open ICT platforms often focus on positive applications and tend to adopt a homogenous views of communities. However, like any other communication tool, these technologies can also be used for misinformation, propaganda and hate speech, particularly when the stakes are high enough (Aday et al., 2010; Fung et al., 2007). To what extent do technology designers involved in the development of commons-based open source tools have a role in setting the parameters of their use? All interviewees acknowledged the potential negative effects of open platforms but also admitted their inability to control how they are used.

We also know very little about how citizen reporters understand their role, the process of information collection and the expectations that are being created when they are asked to provide information in contexts where the ability to influence decisions might mean the difference between life and death.

Many of the questions concerning the character of crowdsourced data and their place in the evidence chain touch upon fundamental ethical issues of journalism, social science and action research, but involve new capacities, networks and practices that have yet to be systematically explored.

6. Architectures of participation and learning

This section draws together the study's key findings and presents their implications for future research. To recap, the present study asked the following questions:

1. *What kind of values and social and institutional practices are emerging around open data initiatives and open systems for collecting and visualizing information to support and empower the vulnerable?*

2. *What sort of capabilities and infrastructural requirements do their deployment and use require?*

3. *What kinds of risks are involved in connecting local and global publics and making potentially sensitive information publicly accessible?*

a. Key findings

The in-depth study of the Map Kibera project offered some valuable insights on the complications of developing and managing an information commons in the under-resourced and politically contested space of an informal settlement.

In relation to question 1, the Map Kibera study revealed:

- *challenges* emerging from motivating participation in building and governing a new information commons, especially with regard to balancing the short-term, individual benefits of such endeavors with the longer- term, substantive contribution to broad social agendas

- *tensions* emerging from the requirement to share information freely. The capacity to ask for and publish information about the community is contingent on relations of trust and authority and involves responsibilities on the part of those managing the information commons

- *gaps* between information provision, transparency and accountability, meaning that the wider social benefits of the project that would enable Kiberans to use the new information commons to claim their rights and improve their living conditions were slow to materialise

- *overlaps and tensions* emerging from the values and practices of open source technology actors and those of development practitioners, and the social and technical dimensions of the project

The scoping study of similar projets highlighted:

- *the appeal of crowdsourced data for advocacy, monitoring and evaluation, and the variety of strategies underlying the adoption of open ICTs*

- *the complexity of the architectures of participation* supported by these new platforms and the need to consider them in relation to the decision processes that they aim to support

- the role of *open source social entrepreneurs* as new development actors

In relation to question 2, the Map Kibera study revealed:

- *persisting barriers to access* preventing the community from becoming familiar with the new information commons

- *the broad spectrum of skill*s required of the participants and founders to govern the information commons, make it sustainable in the long-run, and translate information into action. The project required stakeholders to assume responsibilities and develop skills that were not evident from the start which put considerable strain on all participants and project founders

On this question, the scoping study uncovered :

- *the significance of the role of intermediary actors*, such as non-profit technology companies and open source technology entrepreneurs *in supporting activists and organisations to incorporate these tools in their work*

- *the importance of partnerships between local organisations, technologists and actors with expertise in the use of information technology in a development context.*

In relation to question 3:

- The Map Kibera study highlighted the *risks of exploitation* of project participants as community gatekeepers through their increased exposure over the internet and the provocation of official action through the increased visibility of informal community resources and hidden dynamics.

- The scoping study identified some of the ethical and practical implications of using *citizens as sources for information*. These include the responsibilities of the organisation initiating and managing the information collection process, including the measures that are taken to ensure privacy, the question of informed consent, the expectations created on the part of the citizen-reporters and the morality of extractive and exploitative information collection processes.

b. Implications for future research

Building upon this initial work, we propose the following questions to guide future investigations:

1. How can participatory technologies be better linked to participatory processes? Can we move from architectures of participation to architectures of learning between technology actors, development practitioners and social scientists?

2. What types of partnerships, connections to local and global networks and governance arrangements does the successful deployment of these platforms and the resources that they created require, especially for collaborative transparency?

3. How can players interested in supporting communities to take advantage of these tools to promote accountability and access to rights, investigate the conditions of openness, the risks and ethical implications of increased visibility beyond the narrow interests of specific technology suppliers?

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Notes

[1] API stands for Application Programming Interface, a set of rules that enable different programs to interact together (http://en.wikipedia.org/wiki/Application_programming_interface). Open APIs enable users to share content between different services.

[2] See, for example, http://www.mobileactive.org/how-useful-humanitarian-crowdsourcing and http://irevolution.net/2010/07/29/crowd-sorcerers-episode2/, last accessed 02.02.2011.

[3] More details on the research activities and ethical guidelines are provided in the Annex.

[4] Musyoki and Skipper's report of their activities can be found in the Annex.

[5] The Map Kibera blog documents each step of the project. Detailed accounts of the project activities, lessons and challenges have been written by Erica Hagen http://siteresources.worldbank.org/WBI/Resources/213798-1278955272198/Putting_Nairobi_Slums_on_the_Map.pdf and http://wiki.ikmemergent.net/index.php/Workspaces:The_changing_environment_of_infomediaries/Map_Kibera last accessed, 01.02.2011.

[6] GroundTruth had received a grant to work in Mathare from Plan International, an international NGO focusing on children's poverty (http://plan-international.org/).

[7] This was more clearly expressed in the focus group with mappers conducted by Musyoki.

[8] See http://blog.ushahidi.com/index.php/2010/08/02/uchaguzi-an-ushahidi-deployment-for-kenyas-2010-constitutional-referendum/, last accessed 03.02.2011.

[9] Details of the profiles of interviewees and their projects can be found in the Annex.

[10] Two recent reports are beginning to shed some light on the impact of crowdsourced information and distributed mapping on the ground. The report from Communicating with Disaster Affected Communities, a group created to bring together communication expects and humanitarians, concludes that (Sigal, 2010:23):

> *For all the press and attention that the SMS short code, distributed translation,*
> *and mapping received, on the ground the impact of new technologies was useful*
> *but not widespread. The largest user of the information was the US military in*
> *terms of search and rescue; most other humanitarian organizations had an*
> *incidental relationship to the new tools.*

The preliminary report on the use of Ushahidi in Haiti (Mock et al., 2011) highlights both successes and failures. Among the successes was the ability of the platform to provide situational information for smaller organisations and individuals. Among the failures was the inability to generate actionable information that conformed to the requirements of the humanitarian community.

[11] Another emerging strategy for ensuring credibility is to define stricter parameters for participation by only accepting the reports of trusted individuals (bounded crowdsourcing) or by distinguishing between different types of informants based on their perceived trustworthiness.

[12] To address this challenge Ushahidi has created a Standby Task Force that was recently deployed to help monitor the situation in Libya (http://blog.standbytaskforce.com/).

ANNEX

Details on research activities

The research, which took place from October 2010 to February 2011, had three components:

1. An in-depth case study of the Map Kibera project.

This part of the study consisted of 15 semi-structured face-to-face individual interviews with three groups of stakeholders and seven sessions of participant observations organised in Kibera as part of the second, action research component of the project.

The breakdown of the interviewees of this part of the investigation is as follows:

• GroundTruth members (five interviews)

• project participants (seven interviews- three mappers, two members of the VoK and two members of KNN)

• local partners (three interviews with representatives of the Social Development Network (SODNET), Carolina for Kibera (CFK) and Kibera Community Development Agenda (KCODA))

Participant interviewees and local partner representatives were identified and recruited with the help of GroundTruth.

2. Action research conducted in the context of Map Kibera.

This consisted of a) participatory reflection and assessment exercises through four focus groups conducted by Dr Sammy Musyoki to inform GroundTruth's approach to community engagement; and b) a three day workshop designed to develop the training skills of mappers, videographers and SMS reporters, and investigate their attitudes in relation to information sharing, organised by Dr Mark Skipper.

Musyoki conducted three groups with GroundTruth members, mappers, VoK and KNN members, and a validation session where all three groups were brought together to validate the findings. Each session lasted approximately four hours. The sessions were recorded and documented with notes by the lead researcher, Evangelia Berdou. A similar approach to documentation was adopted for the workshops organised by Dr Mark Skipper. The action research part of the project was aimed at supporting the training and reflection of Map Kibera stakeholders on key aspects of their involvement in the project.

3. A comparative, scoping study of initiatives similar to Map Kibera.

This study used individual phone interviews with project leaders to identify divergent and common issues and challenges. Seven interviews were conducted in total out of the envisaged ten due to the saturation of the results.

Some of the interviewees were identified in collaboration with GroundTruth. Selection involved a snowballing method. The projects that they were involved in were:

- Grassroots mapping project in informal settlements in Lima, Peru, for educating youth in the production of geographical data using using inexpensive balloons and kites and for supporting the communities to register and buy their land from the government (http://grassrootsmapping.org/)
- The deployment of Ushahidi in Haiti and the involvement of its local representative in crowdsourcing projects initiated by the International Organisation for Migration (IOM) (http://www.voanews.com/english/news/Haitians-Write-Letters-to-Ease-Misery-115927684.html)
- A community mapping project in Georgia, initiated and managed by Jumpstart International, an international NGO (http://omc.ge/)
- Harassmap, a mapping and information crowdsourcing project in Egypt set up by a group of volunteers to raise awareness on sexual harassment in Egypt (http://harassmap.org/)
- A project designed and managed by Digital Democracy, a non-profit technology company to support the reporting of gender based violence in Haiti that involved information crowdsourcing and other digital tools (http://digital-democracy.org/2010/05/01/reflections-from-a-week-among-haitis-women/)
- The activities of the Humanitarian OpenStreetMap team (HOT) in Haiti, a group that was set up to coordinate activities between humanitarian organisations and the OpenStreetMap community (http://hot.openstreetmap.org/weblog/).
- Neighbourhood Diaries, a blogging project created to support youth in BowBazaar informal settlement in Kolcata, India, to express their personal and community stories (http://rising.globalvoicesonline.org/kolkata/)

Interviews were recorded with the consent of the interviewees and transcribed. Interview transcriptions, along with notes from focus groups and training activities, were analysed thematically to reveal persistent themes using AtlasTi, a qualitative analysis software programme.

Ethical Guidelines
Interviewees and participants in meetings attended by the researcher in her capacity as a participant observer were asked for their consent in taking part in the study. As part of this process the researcher's role, the goals of the study and measures to ensure confidentiality were explained. Research documentation (transcripts, fieldnotes and session recordings) were kept confidential and interviewees were given aliases to ensure anonymity.

How-To Guide contents:

1. **Introduction to Participatory Technology and Map Kibera**
2. **Selecting your site and partners**
3. **Staying Flexible**
4. **Introducing the tools to the community - Creating a community event and kickoff:**
5. **Teaching methodology**
6. **Training in practice**
7. **Developing the training into sustainable project, keeping the community involved and making an impact**

1. Introduction to Participatory Technology and Map Kibera

Map Kibera (now incorporated as Map Kibera Trust) is a project that started in 2009 to map the largest slum in Kenya using open source digital tools. In a short period, young people from Kibera mapped their community. Map Kibera then expanded into a bigger information project, including training in video journalism and SMS reporting via the Voice of Kibera website using Ushahidi software. We think that Map Kibera demonstrates that it is possible to train youth in new technology and create community resources in poor and marginalized areas, allowing people to speak and advocate for themselves in ways that were not possible before. Networks with other people around the globe as well as local resources for advocacy and awareness can be created using tools like GPS, mobile phones, and easy to use software. Best of all, the information and stories collected can be shared via open technologies. Map Kibera made use of OpenStreetMap, a crowdsourced world map; Flip handheld video cameras; consumer grade Garmin GPS devices; Ushahidi software; and Wordpress blogging software to create several community news and data resources in Kibera.

We have since received many requests for further projects and therefore we decided to create this guide so that others can learn from our experience. This guide is meant for practitioners who wish to create a technology project for grassroots development purposes. They may either have experience in tech but not community development, or community development but not technology. The primary motivation should be to support local development and local ownership of new tools, not to market a new device to the "bottom of the pyramid", glean information or maps primarily for their own organization, or create public relations material using stories told by beneficiaries of a project (this is complicated, but we rarely see the primary motive for development practitioners and agencies to be local empowerment). It's not going to help anyone who is mostly interested in getting local people to supply them with data, either, even if they are sure they will definitely try to use this data to the benefit of the poor. We imagine that users are small companies or not-for-profit organizations. We aim to extend this guide in the future by providing detailed guidelines on setting up and managing the various tools that we have used on Kibera.

Probably the most important thing that we have learned while undertaking Map Kibera is that technology should be introduced in a participatory way, or else the community will not be able to

benefit. In other words, there are many ways to create a digital map of a community, but to create an actual shared information resource means that there must be ownership throughout the process. Otherwise, it is not likely that the new information will bring actual change to the community. Introducing a new gadget is fun for everyone, but that isn't the point. Map Kibera has always been based on the idea that more people need access to information about their own community, while the latent knowledge they hold collectively can be harnessed to ultimately change the course of development to align more closely with the desires and experiences of community members.

We also believe strongly in the power of people to tell their own story. The crossover points between mapping and data collection and various forms of journalism and media give rise to new ways of communicating these stories locally and globally. Therefore, we emphasize combining tools in ways that best fit the context and suit the objectives of the community. Participatory technology takes its cue from participatory development, including a process of facilitation which allows motivated community members to examine their collective needs and assets, choosing a course of action which is empowering rather than expecting or waiting for outside actors to do this for them. Technology can be deployed within this process, as the tool which the group can use to move forward their agenda. This guide will demonstrate one way in which this can happen.

2. Selecting your site and partners

This section assumes that you have not worked in this locality before, and addresses partnership from the point of view of a small organization like ours.

Three basic criteria can help you select where to base your project and what kind of local partners are the best:
- What is the local demand/need for this technology?
- What infrastructure in terms of technology (electricity, access to computers, Internet availability) and human capacity (familiarity with the computers and the Internet) already exists? It's not necessary for this to be high, but this will factor into program planning and in some cases rule out many tools. It is best to either know the environment well, or come with a variety of tools and a very flexible game plan.
- Is there a local organization or group that you can partner with that can host the project and does it have the resources necessary to support participants? In addition, how do the goals of the project fit with their own priorities and agendas?

Selecting partners: what are the preconditions?
In our experience partnerships are key in ensuring the success of the project, to develop a better understanding of needs and integrate with local agendas. When it comes to selecting local partners (from governmental actors, to large NGOs, to companies) it is a therefore a good idea to spend time thinking and discussing with them what they see getting out of the project and how the collaboration would work.

- Is the potential partner already engaged in local development process and does it have an understanding of what the technology can be used for? Even if you have a great partner that is excited about the project, it is much better (maybe even essential) that the partner is already engaged in the kind of intensive community development process that means that a group of citizens is thinking a lot about how best to improve their own community. They're motivated and have taken on local leadership roles out of their own passion. We found that while many organizations were excited about shiny new technology, the very best were actually those with specific community objectives of their own – in spite of their limited knowledge of technology. Even better, some local community-based groups had already mapped their community assets using paper and therefore knew what maps could do for them. The introduction of video was made easier too, because these people knew they had to document and publicize the issues they cared about. They also knew if they didn't do it, no one else would! Finally, members or participants in such groups had a better balance between self-interest and civic interest, and were prepared to take on leadership roles in mobilizing the wider community, to ensure that they can actually benefit from the information.
- Is the partner interested in developing a joint plan of work, or are they seeking to "hire" you as a consultant to fulfill a project they have already decided upon? Having input in project design is critical. Even if the intention is good, often a potential partner will already have designed their own project from start to finish and aren't really interested in collaboration on that level. If this is the case, then it's possible that your team can contract out services as a chance to get experience in small tech projects. This is a different kind of project that might need to be assessed on a case by case basis.

- It's critical to have a discussion on roles and responsibilities, and determine who will manage the project in the long run. The local partner should be primarily responsible for sustainability in the community while larger funding partners should also have enough buy-in to the main objectives that they are willing to see this through.
- If the partner is bigger than you – i.e. funding partner for instance - are they truly motivated by the same thing you are? Many times, bigger agencies will see what they want in your project and wind up pushing you to perhaps deliver "results" or scale up faster than you would like, in order to fit their agenda. This is probably true in every type of development project.

3. Staying Flexible

In spite of all your planning, you may find that whatever your project is won't really be of use in the community once you start. Luckily, you will be flexible and not too attached to your plan. This is why it's not usually a good idea to spend a lot of time either building something or planning something in minute detail before you start. Many tech projects sound good until they are in the hands of the people and some major snag comes up. It is particularly important in tech projects to grow the project organically following the desires and demands of the context. The best approach is to start small with just a sketch of where things "might" go, but to keep an

open mind and not be wedded to your original idea. We particularly advise against large-scale projects in the beginning, if your goal is sustainability and community buy-in. I can't stress this enough - too much time and effort has often gone into elaborate multi-partner international tech projects and platforms that wind up completely failing. So - start small, have several tools in your kit, and be willing to follow the project where your community members want to take it. This is definitely difficult when most development projects are based on deliverables and outputs that need to be measured and reported on to funders. This is something that technologists face all the time, however, and they are used to finding a balance between persistance in marketing a new idea to an unfamiliar public and knowing when to let go and try another idea. This is also teh benefit of using open source software and keeping platforms and hardware light and easily modifiable.

4. Introducing the tools to the community - Creating a community forum event and kickoff

Once you have selected your key local partners, it's important to jointly plan a larger community event where you can present the possibilities afforded by the technology and begin to refine your understanding of the needs that they can support. This can serve as a recruitment event and also allow community members who won't participate in the trainings to contribute to the project and feel a sense of ownership. Start simple at the beginning and then grow. Present the skills but let people decide how to use them, encourage people to think about the issues and places that need mapping and reporting – this will be, should be, and should stay community driven.

To increase your chances that the event is successful:

- Ask the local partners to advertise the training that will happen and invite participants to a community forum and kickoff. The project must be owned by your partners, and it's best for sustainability if they are in the lead in the community. You may have some informal partners as well who join the recruitment. Keep an eye out for certain natural leaders who will emerge and be enthusiastic about the project from among your partners.
- While advertising the forum, include groups representing various parts of the community not just one segment (especially if you have many tribes or ethnic groups, political opposition groups, etc). Keep in mind that communities are not homogenous and the project should not represent just one group or another. Presenting the tools to various groups who may become informal partners can help make sure many sectors of society are involved. You might meet with:

a. Community health groups
b. Youth groups
c. Water and sanitation activity groups
d. Local media and arts organizations
e. Anti-corruption groups
f. Anyone else you can think of!

1. Liaise with local government or powerful people in the community so they are included in this initial meeting and help to mobilize. It may be a delicate balance to have government involved but not dictating the results and process.
2. Schedule the meeting in a place that is easily accessible, but make sure participants know this is a volunteer activity and not a job. During the meeting, emphasize that the purpose is to add value to existing services and groups not to create jobs. These are skills that can be marketable, but this is a delicate issue. It is best not to raise expectations.
3. If you want to emphasize youth, women, or any other sector in the training you might want to modify the announcement. This is very dependent on the social situation of the location and culture. For instance, in some places women might not participate if men are present and there may even need to be a separate women's meeting. However, often if powerful people are not included in the first event they may become obstacles later on. You might invite them but emphasize that you will be training youth or women only, for instance.

During the launch event:

1. Local partners should lead the day. Foreigners or outsiders can be introduced as partners that have been invited *by* local groups to share their knowledge and introduce new technology.
2. The group should discuss some of their objectives for the community in general prior to talking "tech". We found that there are some nice off-line ways to get discussion going and also have people think locally and spatially. Have them stand in the place where they live – mapping with their feet. This can lead to a discussion of what they see when they walk out the door - do they know how many water points there are? How many health clinics? What is the purpose of knowing?
3. At this point, introduce the topic of information and geography, and how it relates to these issues. Can knowledge lead to change? How? What experience have people had with misrepresentation, or have they lacked access to certain information? Would there be some benefit to knowing what exists and where in order to make changes?
4. Include a discussion of what media exists already – how do people get news? How do they know what's going on around town? Do they watch TV or read papers or listen to the radio? Is there any station that serves them accurately? Are they concerned with the quality of local media? (if there is a local station, they should have been invited to the meeting as well so they can participate – perhaps they are even a major partner).
5. This can lead into a bigger discussion about what are the main challenges they face and what they feel strongly about changing in their neighborhood. It may also be useful to address differences among them – what they can each bring to the table, for instance as youth and as elders or as men vs women.
6. Now there can be an "open house" with each technology. If possible, have local people who you have previously trained introduce each tool separately. They can present in the local language and explain how they learned to use GPS, or video cameras, etc. This

can also be done all in front of the room, but if people walk around to stations and learn what each tool is they can have a more hands-on experience.

After this initial community meeting, it will be necessary to reconvene periodically at key junctures and share with people the outcomes. For instance, large screenings of videos can be a great way to bring people together to discuss the issues filmed. Maps can be printed and covered with tracing paper, and then drawn on to indicate key patterns of behavior and issues. This exercise is covered in detail in our blog. It is also a good idea to hold a forum to specifically reconvene the same people who met during this initial workshop, even if they didn't participate in the training, and get their feedback. The agenda for this meeting can be set and guided by trainees themselves, with help from the local partners. It's also a good time to give out awards or certificates for those who participated in the work, or recognize them publicly in some way. This will help increase their intangible benefits and self-esteem from the project. We've also found that periodically allowing new members into the training or organizing for the more experienced trainees to guide new people allows for flexibility in the group.

5. Teaching Methodology

In training, or training of trainers, we recommend an approach that encourages self guidance and active learning. The technology we use is participatory, the work with the community is participatory, and that especially requires a participatory approach to training. When we believe that we can make sense of the world for ourselves, in collaboration with others, our learning in every part of life accelerates. Most people, especially in communities we're working, don't have a very positive impression of education, schools usually being a place of authority, strict instruction, and judgement. Whereas rote learning reinforces the belief that the learner is subordinate and unable to directly access "truth", "inquiry-based learning" develops a profound sense of one's capacity to create valid knowledge through exploration.

 "Inquiry-lead learning" is a methodology for learning that is based on the skill and habit of inquiry, rather than simply the acquisition of information. There is a large body of theory and practical work on ILL, and here we want to simply present one technique for reflection and redirection after each block of activity.

After 1-2 hours on any particular part of the curriculum, hold a brief 10-15 minute session of reflection on the learning activity. This can be done with a flip chart, and initially led by you the facilitator. Have three quick brainstorms, each on one flip chart sheet. Once the group starts to understand and internalize the process, encourage volunteers to take on the reflection part of the process too.

• *What did you see? What did you do?*

The objective of this brainstorm is to draw out objective observation about process. It is sometimes difficult to remember exactly what happened in a workshop session, particularly if one has been engaged intellectually and/or emotionally in the experience. This brainstorm helps

participants to observe and remember what actually happened.

Guide this section to stick to very specific things ("We asked each other questions" "We tied knots") rather than higher level synthesis of the experience ("We generated team spirit").

• *What did you learn?*

The objective of this brainstorm is to invite participants to reflect on their experience and synthesize their learning, at least to the level where it can be reported in a single phrase or word for a brainstorm. Although there may have been learning in a workshop session, participants may not be aware of it until they consider the question directly. It is one thing to have learned something by from an experience and another to know that you know it, and are able to articulate that learning.

Again there may tendencies to give workshop culture like answers ("Team work can win") rather than specific answers ("Learned something about our partner's skills", "Take a waypoint on the GPS").

• *What would you like to keep? What would you like to change?*

The intention of this brainstorm is to invite participants to consider the processes and activities of the preceding session as tools for them to use in their own learning and facilitation. The questions implicitly draw out what parts of the session the participants consider valuable and which might have value if handled differently in future. The form of the questions is deliberately positive (we deliberately avoid "what did you dislike" in favour of appreciative inquiry learning to positive change).

For this to be cycle of reflection to be successful, the process of learning does need strong guidance from you, the facilitator, and goals for the group (ie learn to map, learn to teach to map), balanced with agility. Do make detailed plans, but don't expect things are going to go that way. Be prepared to changed plans especially in response to the last part of the inquiry.

Start off this cycle right at the beginning of the workshop, before getting into the more technical elements. This is your opportunity to introduce yourself, participants and other people present to one another and to enable participants to bring their attention into the workshop room and the present moment in order to participate fully. You may want to create a "first impression" of the workshop that it would be different from previous experiences of workshops that were purely didactic, or that had a strong authoritative leadership. Activities can be introduction type activities (find the person with matching animal card, interview them and make a name badge, introduce them to the group), and physical activities (screaming, breathing, balloon passing).

6. Training in Practice

Plan out your trainings carefully. This method of community involvement means that you may end up with more people desiring training than you can reasonably fit in your lab space or work with yourself. Therefore, planning in a great deal of extra time is crucial.

Invite participants to begin the mapping, video training, and any other new media skill at different times in the week, devoting no more than a day to each. You may wish to try to finish sooner, but this will allow for maximum flexibility and also allow trainees to pursue other jobs in the meantime.

This training concept is based on learning that it's best to have a period of great openness to new members in the training, followed by closing entry after introductory period. People are likely to be very enthusiastic at first and try to learn each and every technology. It's better to let them self-select, because after time you'll likely have most people drop out or become less reliable. It's impossible to know at the beginning who is going to fit which definition! Of course, this is based on open recruitment – if you've been invited into a community with pre-selected participants this may not apply.

For mapping, it's critical to have participants map their own neighborhood. Therefore you'll need geographic diversity- if you're missing a region, ask participants to recruit new people from that area. Mapping your own stomping ground is absolutely critical.

Specific technical skills will be discussed in another section, but with each component the goal should be to let participants have hands-on access to devices and input all data themselves. They should choose what to map, choose what topics to shoot for videos, edit themselves. If there is not enthusiasm or understanding of a particular technology in the beginning, you may want to re-introduce it later. Something like Voice of Kibera which uses the Ushahidi platform can be harder to understand than video, but once people have created a base map and some videos they will understand how these videos can be mapped.

7. Developing the training into sustainable project, keeping the community involved and making an impact

In order to make a sustainable impact, it will be necessary to continue to reflect with participants and partners, to make adjustments as necessary and plan for the future.

Meetings with key emerging local leaders should be held frequently. After a few weeks of training, hold another larger community forum meeting. Have participants present the videos, maps, and any other tangible products to their community members, and discuss with them the issues that have been raised during the process. This might be the time to introduce a website, blog, or Ushahidi instance in order to help other community members share information. With tangible maps and videos it's often easier to envision how SMS reporting or collaborating with local radio stations might help more people to participate.

The key to sustainability is to not only create ownership by trainees, but to create awareness in the community about this resource and engage other groups who might benefit. For instance, are there local community organizations that are working on advocacy in the area on key issues?

It is also important that by this point, the main skills are transferred to local leaders so that the foreign or external trainers will not be required in the long run.

Reflection on Map Kibera Methodology from a Participatory Perspective
for the project:
"Mediating voices and communicating realities: using information crowdsourcing tools,
open data initiatives and digital media to support and protect the vulnerable and
marginalised"[1]

Samuel Musembi Musyoki
December 2010

Abstract:

In November 2010 I facilitated a participatory reflection and assessment process, commission by the Institute of Development Studies University of Sussex. The overall purpose of the assessment was to draw lessons, challenges and opportunities from the experiences of an Open Source Technology (OST) Pilot Project, "Map Kibera" that was initiated through the effort of a US-based organization called Ground Truth initiative. As a participatory methodologies practitioner my focus was on facilitating a process that would enable a cross-section of those involved in the project to assess how participatory the approaches were used in the project and how they could be improved in the future. In this short article I share the key insights emerging from the focus group discussions and a joint workshop with all the groups involved in the project. I also weave in my reflections based on my experience as a participatory methodologies, trainer, facilitator and research.

It was exciting to be involved in this reflection process. It not only provided me with an opportunity to learn how important it is to invest in building relationships and a shared vision with communities at the onset of any participatory initiative, but also how survival needs could hinder individuals and groups from releasing their capacity and commitment to engage in processes geared toward social change in their communities. This process itself was an opportunity for the participants to interrogate and discover challenges related to personal and group dynamics that were hindering them from conceptualizing their vision for change and how the Map Kibera project would fit in and contribute to this. The reflection process concluded with a joint reflection that saw natural leaders emerge and take the driver's seat in their *"Matatu[2]"* that had been abandoned in the middle of the road. As I put down these reflections I have had the chance to meet the youth from the Map Kibera initiative and it seems like the *Matatu* is back on track and headed in the right direction. This article is only an initial glimpse into the use of participatory methods and approaches in Open Source Technology and any other initiatives using new media and ICT for development.

1. **Introduction**

Around October 2009 two OST practitioners from the Ground Truth initiative, a US- based social enterprise, initiated a Pilot Project by the name Map Kibera. While their interest was in trying out OST in new and more challenging environments, they were also attracted by the vibrant tech

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[1] This is a project funded by the UK Department for International Development (DFID) in cooperation with the Institute of Development Studies, the Map Kibera/Ground Truth initiatives and Aptivate.
[2] Matatu is the term used for a public transportation mini-bus which is the popular means of transport in Kenya. This metaphor was used in one of the focus group discussions making reference to what had happened to the Map Kibera Initiative

community in Nairobi which has pioneered innovative programs such as *Ushahidi's[3]* use mobile phone technologies.

The Map Kibera project developed in two phases, beginning with a rapid 1 month sprint focused on mapping in November 2009. Early reflection during this phase highlighted the need to involve a wider part of the Kibera community and engagement in other media. This led to the development of phase 2, which focused on deep data collection on particular themes (health, water/sanitation, security, education), with community stakeholders in these thematic areas engaged in numerous discussions and map drawing workshops. Incorporation of multimedia journalism was planned in order to increase opportunities for residents to communicate with their community and the world. Kibera is now a total community information project including digital mapping, the Voice of Kibera website, and the Kibera News Network citizen video journalism project. It has put Kibera on the world map and given it a different and positive image, other than simply being known for being one of the largest informal settlements in Africa.

The Map Kibera initiative, though only one year old at the time of this study, has generated a lot of interest. The ICT community, civil society organizations, the donor community and academic and research institutions are have taken a keen interest in it. They are interested in learning from the Map Kibera pilot and to explore opportunities for scaling-up or even replicating the experience in other places. This study is an attempt to capture the experiences and provide knowledge to respond to this learning need. The overall purpose of this reflection was to assess Map Kibera's methodology or approach to community participation. The assessment sought to draw insights from a cross-section of stakeholders who were involved in the project, identify strengths and weaknesses of the methodology as experienced by them and capture suggestions for improvement of the methodology in terms of community participation.

The groups that participated include Ground Truth initiative/Map Kibera core leadership team, Map Kibera GIS Mappers, Kibera News Network, Voice of Kibera, and community opinion leaders. We held a joint session to share the emerging issues and agree on ways forward. About 35 people participated in the entire process. In the sections that follow I share and discuss key points from each group and give my concluding observation and key questions for consideration as the Map Kibera initiative moves to the next phase.

2. Ground Truth initiative team

The Map Kibera initiative had all the intentions of involving the communities. However, it did not have a well thought out systematic participatory methodology in phase 1, and the methodology of phase 2 suffered from lack of experience and partner support. As some of the Ground Truth team members put it, the project employed a process of learning by doing; they learned as they went along. The process was meant to be informal and fun with young people. The methodology had a heavy focus on equipping young people with technical skills and providing them with basic working tools that would enable them to map resources and places within their community surroundings and be better able to communicate their experiences to the outside world. For the Ground Truth team it provided an opportunity for professional development and gaining of experience from using

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[3] Ushahidi is an open source project that provides tools for information collection, visualization and interactive mapping (www.ushahidi.com).

OST is a developing world context. Though the Ground Truth team had an emphasis on people's involvement, it was not clear how this would be realized without a clearly spelled out methodology articulating the key entry points, community preparation and ways of working that would enable different groups in the community to own and participate in the process. While a good deal of thought went into this, lack of practical experience in participatory approaches, especially in the complicated environment in Kibera, led to mixed results. Coming from the OST community, the early assumption was that information would be generated and left out there for whoever needs it to utilize it for whatever purpose. The OST principles, however, were now being applied in contexts outside the Silicon Valley. It would seem that open source principles here were colliding with the context of development practice. More thought needed to be put in to determine what needed to be done differently as OST was being applied in communities that are involved in different social, political and economic struggles. There was need to have a broader vision for change i.e. beyond the democratization of the information generation and flows. A more systematized approach from the start would have enabled participation of the wider community and key institutions in negotiating and developing a bigger vision or purposes for which the information is being generated. While the map and other technologies were always presented as tools for change, the innovative nature of the project could rely on few concrete examples from the past, from which community members could have explored possible uses for themselves, rather than seeing the map as an end in itself. In the practice of participatory approaches we say that behind the map there is a story (situation analysis) and beyond the map there is a vision or desire to change the situation. The responsibility of the facilitator is to ensure that the communities do not just stop at the maps, but that they engage in the analysis of the key issues and develop action plans for changing the situation.

The time committed to preparing the communities was really short. The team, as one of the members put it, wanted to get "something really useful quickly". The open source ethos of 'release early and often' contradicts the ethos of genuine participatory processes. With the *"quick and dirty"* approach genuine community mobilization and participation cannot be realized. The team was of the opinion that it is not good to stay for too long so as not to become embedded. Yet in a genuine participatory process it is expected that facilitators come and live with the people, eat with them, learn about their culture and gain their trust, all of which are useful for genuine participation. The team seemed to have worked with the assumption that people in Kibera would see the value once they understood the technology. Though there was an attempt to broaden the conversation to the community about the usefulness of the information generated through the technology, this conversation did not involve many people in the community. Key institutions such as the City Council of Nairobi, Provincial Administration and village elders though supportive from the start they were not deeply involved in part due to the novelty of the approach. It would have been better to start by obtaining some level of understanding and buy-in from the leadership and a wider segment of the community. The speed at which the process was introduced was an impediment to building rapport with key institutions and the wider community. Despite what Ground Truth thought was clear guidance on the "volunteer" nature of the engagement, those who were involved in the project directly saw themselves as employees of the project. There were mixed messages and lack of clarity on relationships, roles and responsibilities.

3. Mappers

The mappers saw the vision of Map Kibera as creating employment opportunities for the youth. This was contrary to the way the Ground Truth team saw the purpose of the project and their mandate. They did not see themselves as employers but as peers who had OST knowledge which they wanted to pass on to the youth in Kibera. It would seem then that the youth did not own this project. Rather, they saw themselves as helping Ground Truth to implement their project, and therefore expected to be paid. The little pay the youth got as *"volunteers"* was misunderstood to be a wage. Possibly the expectations were not levelled from the onset. Possibly a wider involvement of the community and local leadership structures would have helped in community understanding or even shaping of the purpose of the project. However, as some of the mappers stated, the issue of community participation was not there at the beginning. The local authorities -provincial administration, district councils, chiefs and village elders- were not involved, let alone the wider community. This made data collection difficult as the mappers did not have the necessary authority and support to collect information (e.g. from schools). It was the opinion of the mappers that the Ground Truth team did not have a good understanding of local politics and stakeholders. They had not done good context analysis-community organization, power and leadership structure. According to the mappers the community did not have a chance to identify what issues needed to be mapped and for what purpose the maps would be used. This was done by a small representation of stakeholders. The assumption was that that these stakeholders were the community or true representatives of the community. The thematic mapping, as they put it, happened very quickly- mappers had about one month to cover all four issue areas (health, security, sanitation and education) and then organise the meetings to validate the maps. According to the mappers the use of the maps by the community is still a challenge: the maps are not yet easily accessible to those without access to the internet. They are still waiting for the maps to be printed and even then it is not clear what people on the ground would really use them for. According to the only opinion leader we interviewed the government departments (Provincial Administration and City Council) were not using the maps. Only the Kibera Community Development Agenda (KCODA) organization and the Pamoja Radio Station were using the maps. The opinion leader stated clearly that the ordinary Kibera residents did not understand or see the importance or value of the maps as they knew very little or nothing about the project. He argued that if they (Kibera residents) do not see the value of the maps it [Map Kibera] would be another dead 'white elephant', a euphemism used to describe large failed aid projects. To use the words of Robert Chambers (see *Whose reality Counts* 1997) the big questions in participatory mapping are: W*hose Maps are they? Whose purpose or need do they address?* We sought to understand from the mappers themselves whether they had any idea what the maps would be used for. Their response was:

> "Our role was to collect data and feed it to the computer. What happened after this no one knows" (said one)…"in the meetings that we have to present our work we have to say what the impact of the maps is and we don't have an answer" (said another).

Surprisingly the mappers did not even see it as their role to articulate the function of the maps. They felt that the Ground Truth team should have been more specific about how the maps could be used. This implies a teaching mode as opposed to facilitating a process that would bring out the expectation by the community. Whose role was it to ensure that people see the connection between the maps and their lives? How best could this have been done? The preparatory training of the mappers seems to have been more focused on making the GIS maps and not on mobilizing

key stakeholders and the wider community participate in and own the process. According to the opinion leader, the mapping was done hurriedly, in a short time. He felt that there was need for another edition of the mapping that would be more inclusive and participatory, starting with agreement with the communities from the different villages in Kibera on what information they wished to see included in the map, the purpose for which the information would be used, with a focus on pushing the government to provide better services. He advised that everyone interested in making change in Kibera, should start by first understanding the institutional and community dynamics, and that the Kibera community is not homogenous.

During this reflection session the mappers begun to realize that there were concerns they needed to address as the map was not an end in itself. They begun to think beyond the maps to ask the *'so what'* question. It also dawned on them that there was over dependency on the Ground Truth team and possibly the whole Map Kibera initiative would prove unsustainable if the mappers were to be left on their own. The mappers had not yet become genuine participants in the Map Kibera project. They did not see themselves as owners and decision makers but employees of the initiative. They even had grievances:

"…the decision making processes within the project are not clear. There is no satisfactory information flow between the mappers and Ground Truth team, about the future."

Mistrust seemed to have developed over time between the different groups that had evolved during the process. This is due to the perception that some groups have more information that others, and that some are benefiting more from the Map Kibera initiative than others:

"Voice of Kibera and KNN are working for free (no pay) and they are feeling bad" (a male mapper argued)…"we have to get this information to the community…it's not just about mapping…we need to work with Voice of Kibera and Kibera News Network…the great problem started when they [GT team] introduced KNN and Voice of Kibera…we could have had some consultative meetings. They [GT team] were telling us what was already there. The groups are told different things."

Clearly the weak coordination and communication resulted in the three groups seeing themselves as being in competition with one another. As one of the mappers put it:

"… there is little understanding of how the different groups are working with each other and not being seen as competitors"…the problem was/is communication…there are things that they were hiding from us" (added another mapper)."

There was suspicion due to inadequate openness, transparency, and trust among the key players. Feelings of preferential treatment/valuing more groups than the others were evident. The mappers felt that the leadership was concentrating more on the Voice of Kibera and KNN and leaving them out. So was KNN benefiting economically from their association with Ground Truth initiative or was this a misperception? The mappers seemed more concerned about the economic gains they were making from the project. They did not want any other group to be competing over the scarce resources. It would then seem their participation was no more about adding value to the Kibera community but about their immediate survival needs. If they ever had a bigger vision this had been abandoned midway.

Asked whether the Map Kibera initiative was still on track toward realization of its vision, one of the mappers used the metaphor of a matatu (commuter van) abandoned in the middle of the road. The *matatu* had neither driver, conductor nor passengers. Upon further reflection, the metaphor was elaborated: the journey had started without all onboard agreeing on a destination. The driver and the passengers seem to have abandoned the vehicle as they realized that they did not have clear understanding and clear agreement concerning the destination. My hope was that they had just taken a short break to deliberate and agree on the vision, and that the *matatu* would be back on track. I did warn them that their *matatu* was a good one as it had gained both national and international recognition and if they were not careful someone else would jump in and drive off in it. While some of the mappers thought that official registration of Map Kibera would solve their problem, it was clear that without resolving the group dynamics and coming up with a shared vision this might just introduce another layer of problems.

4. Voice of Kibera and Kibera News Network (KNN)

The Kibera News Network saw their vision as that of enhancing open sharing of information as they embrace new technology. As one of them put it, the purpose of OST is to help make things easier for all of us…its free information for all Kiberians…everyone can be a journalist." As another KNN journalist elaborated, "our vision was to portray a positive view of Kibera. The vision was also to give the marginalized communities in Kibera an opportunity to express their views, direct from the community itself."

Before long however, they were already comparing themselves with another group within the larger Map Kibera. A journalist from Map Kibera stated:

> "Working with KNN has been good, but not with the mappers…we understand that they were there before us…they started things ahead of us…it seems that someone somewhere has fears that the cake will not be shared equally between the three of us... there is little understanding of what we have in common. In anything there is politics…the other thing that is creating problems among us is the leaders…someone is still thinking in the past…the sooner they get over this, the better it will be for everyone. Engaging each and everybody within the three groups to address our fears is important".

It seemed the Map Kibera process had not succeeded in creating a team spirit among the three groups. The suspicion observed with the mappers was also evident with these two groups. They seemed also to be blaming the leadership for having contributed to the tension that now existed between the groups. The fear that the cake would not be shared equally also meant they were more concerned about the benefits accruing from the project and how these would trickle down to each individual member of the group. They had been hoping that at some point they would make a transition from being volunteers to being properly employed and thus earn a proper salary. Or better still, that they would make a decent income from the community journalism work they were involved in. One of the participants put it this way;

> "We don't want to continue being volunteers forever. We have created this business board whose job is to find money for us through grants. How the money is going to be divided is

not clear yet**...i**t has been hard for some members to balance between our work and our volunteer work [Map Kibera Project]...we miss out on a lot of opportunities in order to volunteer for KNN."

Safety and ownership of the products from their work was another concern: the KNN team was concerned that their video clips were being used without proper attribution. They also wondered whether someone else was being paid for the use of the video clips without their knowledge. They felt that the leadership could have been responsible for the cross posting of the clips and had done this without informing them. This was a clear indication that there was mistrust and suspicion which is dangerous for a healthy relationship and genuine participation. It is unfortunate that with all the accusations no-one had tried to cross-check with the concerned parties.

"We have been working together by names and we have not discussed why we are working together" said one of the participants. There was a cross post when some of our stuff (KNN video clips) appeared on Uchaguzi (an election monitoring initiative) without our consent. We want to get credit *(attribution)* and be involved in the decision process about who uses our stuff", said a KNN representative.

On further reflection it emerged that the team was not aware of the laws governing use of OST products. This is a crucial aspect that should have been covered during the training they had undergone with the Ground Truth team. They did not know that once they post their stuff on the net it was available to the world and free of charge.

Though Map Kibera teams were exploring avenues for fund raising, it seems that the main drive for this was salaries or a wage to meet their survival needs as opposed to programme activities. There was still no clear social change vision, and therefore no programme activities that could be marketed to potential donors. We pointed out to them that donors would only give them money after being convinced that there was a clear and viable vision and programmes. There was need to document and package the impact of their work so as to use it to demonstrate what difference it has made in Kibera, so as to convince others that there is added value to using OST. It emerged that the information generated had not even been widely disseminated in Kibera to start with:

"We cannot reach many people in Kibera. Everything we have produced we are now putting into CDs and we are planning to distribute in facilities such as clinics, everywhere where there is a TV, so through that we are trying to reach" (KNN participant).

It was surprising that, though they had expressed the need for an income, they were now planning to distribute the CDs free of charge. They did not see themselves being in a position to sell their product in Kibera as yet and seemed to prefer to distribute the products on a charitable basis. However, there were expectations that free distribution would itself be supported through a grant.

While the KNN and Voice of Kibera were putting a lot of hope in the registration of a Map Kibera Trust, they had not given it much thought beyond seeing it as an opportunity for jobs for the members. How the Trust would attract resources did not seem to be their worry. Perhaps somebody somewhere would connect it to donors and resources would begin to flow. Care needs to be taken that Map Kibera Trust does not become yet another statistic of the many NGOs in *Kibera*. Why it was not possible to integrate the Map Kibera or the OST within existing

organizations and structures such as youth groups and networks and the local NGOs that were involved in the Map Kibera is not clear.

5. Concluding Observations

The Map Kibera pilot project, though technologically driven, has demonstrated that communities in difficult circumstances in the developing world can be equipped with knowledge and skills to harness OST to create knowledge and share information. The project was successful in providing the youth in Kibera with knowledge, skills and communication tools that enabled them to collect data and information and use it to present a positive image of their community to the rest of the world. However, there is need to think beyond collection of data and uploading of the information and leaving it out there in the hope that whoever needs it will find it useful. The use of such tools should be put in the context of struggles of communities in the developing world. There should be a higher vision of change that the knowledge generated through such technology seeks to contribute toward. We cannot collect data for the sake of data collection. Use of OST should be geared towards influencing or bringing about pro-poor development or social change.

The Map Kibera initiative had all the intentions of involving communities. However there was no well thought out or systematic participatory methodology to actualize this intention. There was very little done to ensure adequate community ground work and preparation for a genuinely participatory and empowering process that would guarantee ownership and sustainability. The team was not able to identify appropriate community entry points and as such important tasks such as building trust/rapport with local institutions, analysis of community power dynamics, negotiation and leveling of expectations of different players, developing a shared vision, purpose and agreeing on roles and responsibilities, were approached in a haphazard manner. While it is appreciated that these preparatory processes require time and immersion into the community so as to gain better understanding of the community's social, political and economic context and build relationships and trust, the process was too rushed to achieve this. As a result the team took longer to learn how best to facilitate the community to take a lead role in the process and to handle the challenges encountered.

The Map Kibera initiative seems not to have taken cognisance of the great work done by the *Muungano wa Wanavijiji* (Slum Dwellers Movement) that has been championing for the rights of people living in informal settlements. It is this movement which has brought an end to the threat of mass evictions. The entry point should have drawn and built on lessons from past struggles and involved the movement and its members in agreeing on how OST could be used to enhance the struggle towards improving living conditions and well-being of Kibera communities. This vision still seems not to have come to the minds of all the groups in the Map Kibera initiative, and there is need to see how best the process can be re-engineered to ensure buy-in by key institutions and structures and participation by the communities. As it is now, ownership, support and sustainability will remain a challenge unless this link is made.

While building a new structure (Map Kibera Trust) may seem attractive, there is need to guard against forming yet another briefcase NGO to satisfy the survival needs of a few individuals. There is need for the Map Kibera leadership (all the 3 groups) and Ground Truth initiative to get together and articulate their vision and modalities of working together, along with the broader communities and existing leadership structure to move this initiative forward.

There is more work to be done. As the project moves to the next phase the questions below would be important to consider:

- What is the broader vision that the Map Kibera Trust is contributing to?
- To what extent is this vision shared with the wider community in Kibera?
- How can the youth in Map Kibera be better organized and work together with the communities and the CSOs to harness OST, the data and the information generated to strengthen their struggles for well-being?
- What roles could the OST, international NGOs and academic institutions and other external agencies play to effectively contribute to and strengthen this process?

Aptivate
International **IT** Development

Inquiry-led learning for leaders

A three-day experiential workshop in learning leadership
for participants in MapKibera and associated projects
November 30 2010 (v 1.0)

For the DFID project: *Mediating voices and communicating realities: using information crowdsourcing tools, open data initiatives and digital media to support and protect the vulnerable and marginalised*

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Aptivate

Aptivate is a not-for-profit IT consultancy supporting the international development sector. We work with agencies, organisations and communities, employing participatory agile methodologies to help them use technology to improve people's lives. Our team have expertise in designing and facilitating participatory learning experiences and other social interventions with particular expertise in applying participatory techniques in the domain of information technology.

Introduction

ILLL (Inquiry-lead Learning for Leaders) was a workshop designed and facilitated by Aptivate for participants in three projects initiated by Ground Truth in Kibera in Nairobi. The projects, Map Kibera, VOK (Voice of Kibera) and KNN (Kibera News Network) enable residents of Africa's largest informal settlement to contribute to the creation of information commons in the form of: digital maps of the settlement (created as part of OpenStreetMap[1]), geo-tagged crowdsource SMS reporting (using Ushahidi[2]) and community news reporting (using geo-tagged YouTube videos[3]). Ground Truth intend to spread these activities to new projects in other areas including Mathari, another of Kenya's informal settlements. The participants in the Kibera projects are key to the success of this roll-out, as well as to the ongoing success of their respective local projects. While their participation in the Ground Truth projects has given them skills in the relevant technologies and experience in contributing to information commons, these young people might lack expertise in effective education, and they might not have fully understood what it means to participate in open information sharing projects. ILLL provided opportunity for the map-makers, community reporters and videographers to develop their skills and experience as leaders of effective learning, and also to explore issues around sharing information resources such as their own newly-acquired technical expertise and the resulting digital maps, reports and videos.

This report is part of a set of deliverables that also include the training itself and new media reporting on the project. This report is intended to inform the content of a forthcoming best practice or how-to guide. As such, one might expect the main value of this report to be the details of the workshop together with an evaluation of the event. Since our aim is to create participatory learning experiences, we do not consider that to be adequate value to be considered *best-practice*: good participative process, by necessity, emerges from moment to moment in response to the intention and will of the whole group of participants. We consider best practice, in this context, to be something more like TheoryU[4] than a static lesson plan for a three-day workshop together with some notes on how it might be done better in future. To this end, we intend that this report to be less like an authoritative guide on how to re-create ILLL, and more like a facilitative and thought-provoking invitation to create learning interventions that are open and participative, and which embrace and respond to emergent change.

The first part describes the planning tensions and forces that shaped the planning of ILLL: meeting the clients requirements, anticipating the needs of participants and planning for change and adaptability. The second part describes the processes undertaken in the workshop: our intention, what happened and observations from the review process built into the workshop. We consider that the main value of this report lies in this section which describes the relationship our intention for each session, and what actually emerged. Finally there are some brief concluding remarks drawn from feedback on the workshop.

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1   http://www.openstreetmap.org/
2   http://www.ushahidi.com/
3   http://kiberanewsnetwork.org/
4   http://www.presencing.com/docs/publications/execsums/Theory_U_Exec_Summary.pdf

Workshop design

Inquiry-led learning

Inquiry-lead learning is a highly effective way of helping people to understand any given domain, but it offers value beyond simply the acquisition of information. The most important aspect of inquiry-based learning is the skill (and habit) of inquiry. When we believe that we can make sense of the world for ourselves, in collaboration with our peers, our learning in every part of life accelerates. Whereas rote learning reinforces the belief that the learner is subordinate and unable to directly access "truth", inquiry-based learning develops a profound sense of one's capacity to create valid knowledge through exploration. Studies have also shown, however, that guidance and support are important in framing students' inquiry with useful challenging questions and in providing access to tools and information that students may need to confront those questions. "Pure discovery learning", in which students are essentially left to confront questions without guidance, has been shown to be less effective than rote learning.

At Aptivate, we have found inquiry-based learning to be effective in teaching IT-skills to groups of varying background in different parts of Africa, from young women living in rural Zambia who subsequently built the computers for the internet cafe they now operate, to IT professionals who were themselves developing the ability to provide inquiry-based training within their institutions. Aptivate is not original in using inquiry-based learning for adult education with students who have little formal education or who have had little success within a rote learning environment. Both adults and children in various contexts have been found to learn more rapidly when they are involved in a shared investigation rather than being told (based on a teacher or writer's authority) what to believe. Paulo Freire was able to support illiterate adult foreign-language learners in acquiring functional mastery several times more rapidly than widely believed possible. His primary technique was to initiate a dialogue in which participants explored the learning domain through examples that had direct relevance to their current daily lives. The approach depends on the equality of teacher and learner, in that both are able to judge the validity of truth-claims and sort through such claims by weighing evidence in conversation.

Designing to meet objectives

The three-day learning intervention was challenging to design as it had to meet a number of requirements, not all of which were strictly aligned with one another.

We wanted to give participants experience of inquiry led learning: following their own learning agendas, experiencing success and the ability to demonstrate new knowledge and skills so as to form reference experiences for their future work as trainers or learning leaders. Where student led learning is a new concept, however, it is sometimes beneficial to introduce and discuss the concept first, and contrast it with previous experience; this gives participants an intellectual framework that helps them make sense of their new learning experiences and helps them not to feel lost or confused during exploration. At Aptivate we prefer, where possible, to create a safe environment and immerse participants in the inquiry led process before offering an intellectual framework. We then facilitate processes that encourage participants to

make their own sense from their experiences. After participants have had a chance to process their learning experiences, we introduce vocabulary and conventional models to help them retain their learning through storytelling and sense-making. Our preferred approach works best with small groups (fewer than approximately ten participants, with small group dynamics) so for ILLL, where we would have up to thirty participants and only one trained facilitator, we adopted an approach that introduced a little foundational theory followed by some constrained experiential work. The foundation comprised an investigation into the conditions for, and qualities of good and poor learning; followed by an experiment that entailed changing the conditions of a simple learning experience.

We wanted to give participants the opportunity to learn from their own experiences as learning leaders. Our preferred way to achieve this is to allow them plenty of practice and to set up an effective and trusted feedback system. Practising might mean giving each participant multiple opportunities to be involved in designing, planning facilitating facilitating and assessing group learning for others. Our preferred feedback system is based on the retrospective process from the Agile approach to software development: a short process after each session that encourages participants to step outside their experience and identify what they learned from it. The idea here is to give participants the chance to experience a process of learning and improvement: they get to try something out, review the process, identify what they want to change and then repeat the whole cycle while enacting that change. Since not all changes necessarily lead to improvement, this works best when there is time to repeat the cycle at least three times. Once again, the group size and dynamics in the ILLL meant this approach was not the most appropriate choice. Instead we set up the feedback loop by using the retrospective review process after every session, and included an opportunity for all participants to be involved in planning and leading one learning process.

We also wanted, in response to suggestions from Ground Truth staff, to create space for the participants to explore their feelings and issues around becoming generous sharers of information (their own learning and the information commons they have been creating together). Part of the research value of the ILLL intervention as part of the research project into MapKibera and the related projects is that it might illuminate some of the issues held by the Kibera residents participating in the project, and reveal some of the social processes that might enable inhabitants of informal settlements to engage with the culture and practices of open information sharing. We anticipate that for inhabitants of an informal settlement where access to resources and other needs satisfiers is considered to be limited, there might be inhibitors to a culture of generous sharing which we understand to underpin some open-source and crowdsource community projects. We wanted to direct participants of ILLL to learn about themselves, and their relationship to the work of sharing their skills and knowledge, as part of the workshop. We achieved this by making such issues the subject-matter of an inquiry-led learning process that also served to introduce a model for the inquiry-led learning process.

Adapting to circumstances

Throughout the design, facilitation and evaluation of an inquiry-led learning intervention on this kind there is an underlying tension of which we should be

constantly mindful. This is the tension between authoritative and facilitative intervention[5], or "who is the leader"? As facilitator of such an intervention, one may perceive oneself as an authority on the subject matter and, in addition, one hold a plan or agenda for the learning. On the other hand, inquiry-led learning is, by definition, intended to enable learners to follow their own curiosity and passion. This tension constantly throws up questions that impact each stage of the process. For example, at the design stage, we find ourselves asking: how much planning is appropriate?, to what extend may we guide learners towards a particular domain on inquiry? to what extent may we guide them towards a given outcome or conclusion?, etc. During the event we find ourselves asking: are participants engaged in an activity that is relevant to the day's agenda? If not, is that a good or a bad thing? What kind of intervention might be appropriate? During evaluation we find ourselves asking: was the learning successful if participants have not demonstrated that they achieved our anticipated outcomes? Have they learned something else? If so, are we aware of what it is? This tension is always present when one attempts to 'lead' another in inquiry-led learning. It is all the more contentious with group interventions where the possibility of individuals or sub-groups following their own lead in different directions poses a risk of fragmenting the group with consequences for group dynamics and process cohesion.

A facilitator of inquiry-led learning must be able to internalise this tension and constantly ask themselves these questions with a willingness to adapt to emergent circumstances. It is necessary to hold in mind the goals of individual learning and group process and make choices that respond to, and steer the group without dominating or oppressing them.

In the following sections I present the planning process, observations from the workshop itself and some evaluative comments from each session. It may appear that a daily agenda was created for the whole workshop in advance, and that this agenda represents the core value of this report. This is not the case, on either count. For ILLL, we planned an outline in advance together with an agenda for the first day, and then adapted our plan and created an agenda for each day in the preceding evening. The success of ILLL is as much a product of this willingness to adapt and respond to emergent events as it is of careful planning. The core value of this report is not the details of the workshop plan but the intentions and techniques used in this planning process.

Day 1

Session one

Intentions for the first session included:

•to introduce facilitator, participants and other people present to one another and to enable participants to bring their attention into the workshop room and the present moment in order to participate fully;

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5   John Heron, *Helping the Client*, SAGE 1990

•to create a "first impression" of the workshop that it would be different from previous experiences of workshops that were purely didactic, or that had a strong authoritative leadership.

To achieve this I used a process of mutual introduction where participants worked in pairs, each creating a badge for the other. In addition, they each identified by appreciative inquiry[6] a positive quality (I asked them to identify a gift, talent or skill) of their partner. We did this sitting in a circle and then each participant introduced their partner by name and shared their talent or skill with the group. They also presented them with their badge as a gift at this moment. The blank badges for this process were prepared in advance from white card and double-sided sticky tape.

The badges had silhouettes of animals on them which I intended to use to create groups (e.g., by asking them to find two other people with the same animal, or to work in groups of five with everyone having a different animal). I used this for the initial pairing exercise: having collated the animals so that when given out in order everyone was sitting next to someone with a different animal, I asked them to form pairs with someone having the same animal as them. Anticipating that people would normally sit with their peer-groups, this encouraged some mixing during the introduction exercise.

In fact, the very first intervention in the workshop was that I, as facilitator, stood in the middle of the circle of chairs and made a loud, long vocal scream as a way of calling the attention of the participants and challenging their expectations of behaviour in workshops. I then invited everyone to join me in an exercise of deep breathing that ended with everyone invited to make a loud noise together. This creates sharing and focusses our senses into the current environment.

The penultimate activity in the first session was a game that got everyone physically involved, standing up, passing a large balloon between one another and shouting. The rules of the game are designed to create an escalating level of volume. The objective of of this is to create an active level of energy in the workshop and set a president for physical activity as well as the usual writing and talking.

The session ended with a retrospective review. The intention of the review is to demonstrate the potential of closed loop feedback to enhance learning. The review is a met-process, that is to say the ILLL workshop itself is the subject matter of the process. Meta-reflection processes are valuable in Training The Trainers workshops to learn from the learning process itself. The review consists simply of three brainstorms:

•**What did you see? What did you do?** The objective of this brainstorm is to draw out objective observation about process. It is sometimes difficult to remember exactly what happened in a workshop session, particularly if one has been engaged intellectually and/or emotionally in the experience. This brainstorm helps participants to observe and remember what actually happened.

•**What did you learn?** The objective of this brainstorm is to invite participants to reflect on their experience and synthesize their learning, at least to the level where it can be reported in a single phrase or word for a brainstorm. Although there may have been learning in a workshop session, participants may not be aware of it until

6   http://en.wikipedia.org/wiki/Appreciative_inquiry

they consider the question directly. It is one thing to have learned something by from an experience[7] and another to know *that* you know it, and are able to articulate that learning[8].

•**What would you like to keep? What would you like to change?** The intention of this brainstorm is to invite participants to consider the processes and activities of the preceding session as tools for them to use in their own learning and facilitation. The questions implicitly draw out what parts of the session the participants consider valuable and which might have value if handled differently in future. The form of the questions is deliberately positive (we deliberately avoid "what did you dislike" in favour of appreciative inquiry learning to positive change).

What did you see? What did you do?

Some ILLL participants were keen to give answers to these questions that suggested deep understanding or high level synthesis of the experience. Answers like ""We knew each other" or "We generated team spirit", suggest the exercise was perceived as asking about the outcomes of the processes. After being encouraged to give objective observations, their answers were more along the lines of: "We laughed", "We wrote each others names down", "We found out our partners' skills", etc.

What did you learn?

Once again, there seemed to be a keenness to answers that sum up the experience as an aphorism like "Team work can win", "We need each other to progress", or "Active participation is exciting". Other answers were more objective: "Learned something about our partner's skills & gifts". These "clever" answers might reflect that our participants have prior exposure to a "workshop culture" where such aphorisms are valued. In facilitating this session, and several of those that followed, I tried to indicate that I held simple objective answers in higher value.

What would you keep? What would you change?

Without the practical experience of putting these changes into practice, the exercise can seem abstract. If participants don't envisage themselves ever running this kind of training themselves, then the exercise may seem pointless. Some participant's "keep" and "change" responses might have indicated what they enjoyed or did not enjoy in the session ("change screaming to singing", "keep jumping around"). The last part of the session was the balloon game and many of the change suggestions were, alterations to the rules of this game. This felt like a successful application of the process to a limited safe domain (a good outcome for a first session) and I made a point to refer back to, and to enact some of these suggestions later in the workshop.

Session two

The intention for this session was to investigate the topic of what makes the difference between good and bad learning and, in particularly, to challenge assumptions that learning is something that happens in workshops and school. The process had four phases: a small-group directed brainstorm directed towards expansive thinking; a plenary summation activity to condense ideas and draw

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7 Experiential knowing, http://www.new-paradigm.co.uk/epsitemology.htm
8 Propositional knowing, ibid

observations; an evaluative phase where participants expressed personal judgements about good and bad learning; and finally a structured discussion to draw out the qualities of and conditions for good and bad learning.

We used the animals on participants' badges to form the groups for the first phase, in this case asking them to form groups where everyone's badge had a different animal. Each group was given three cards (prepared in advance) each with a heading and a number of blank fields for them to fill in. The groups were given clear instructions to fill in at least four fields on each card with concepts under the card's heading; they were given a short time (ten minutes) to complete this so as to create a sense of urgency and work. The headings were:

•Places we learn

•People we learn from

•Experiences we learn from

The first four fields on each card were numbered (to reinforce the rubric of completing at least four fields per card), the remainder underlined spaces to write in to support the idea that the groups were encouraged to provide more than four answers.

The intention of this small-group process was to draw out diverse ideas under the three headings. All groups managed to provide more than four answers on most of their cards.

For the plenary phase we prepared three flip-chart pages with the same headings as the cards from the first phase, and stuck them separately on the walls. We then used these to gather and collate the group's ideas under each section, together with some facilitated discussion. A fourth flip-chart pad served to gather insights into the qualities of and conditions for good (or bad) learning.

The specific outputs of this phase of the process are not important and can be expected to vary from group to group. Some answers were expected: School, Church and Mosque as places where we learn; Parents, teachers and mentors as people we learn from; and mistakes and meeting new people as experiences. The objective of the process, however, was to go beyond these to participants personal experiences. Examples from ILLL included: "Kibera", "prison" and "swimming pool" (places), "drunkards", "rappers" and "kids" (people), and "walking in the slum barefoot when it's raining"(experience).

In the third phase of the process, participants made judgements about whether the the people, places and experiences on the flip-chart pads connoted good or bad learning. They indicated their judgements by sicking coloured dots on top of the words: green dots for good learning, red dots for bad. We had to take care to differentiate good and bad learning experiences from merely good and bad experiences and the subtlety of this distinction may be a potential weakness of this process, though the activities in the last phase are likely to give good results even if some participants have not internalised this distinction.

After this process some of the learning contexts on the flip-charts had a number of both green and red dots on them. We used these as the basis of the fourth process in this session. Voting with dots is a fun and mainly anonymous process that entails

movement and mingling, but the judgements are personal and internal. In order to externalise the thought processes behind these judgements we used a process of spacial voting as the basis for a structured discussion.

At ILLL, the two learning contexts that seemed to have attracted the most contentious mix of red and green dots were *job seeking* (experience) and *school* (place). Taking these in turn, we invited all participants to position themselves in the room according to their personal opinion of whether they entailed good or bad learning: one end of the room signifying good learning, the opposite bad and the middle for *both* or *I don't know*. From these positions we held a facilitated discussion inviting people from each position to explain why they had positioned themselves where they did. From this we gathered, on the fourth flip-chart, some conditions and qualities for good and bad learning.

The lists below indicate the results from this session from ILLL. Note that this is a directed process since I, as facilitator, decided what to pick from the discussion for inclusion in these lists.

Bad learning

•Waste of time
•Following things you have no interest in
•No skills based learning
•Punishment-fear
•Focusing on grades

Good learning

•Reward/Praise/Acknowledgement for doing well
•Understand basics first
•Relations/networks
•Working because you are inspired/interested
•Perseverance and dedication
•Stimulate and encourage to take on new challenges
•Encourage critical thinking
•Share and discuss
•Allow for different styles for learning

The final activity in this session was a retrospective review following the format outlined above. Results suggested that the group enjoyed the physical aspects of the processes in this session (mingling and voting by position), and a mixture of writing and speaking (anticipating that not all participants would necessarily feel confident in written English, we planned all processes that entailed writing in such a way that participants could choose who would write and support one another).

Session three

The intention for the third session was to ground our discussion about what makes for good and bad learning in some practical experience, and also to introduce an action learning model of making small changes in real situations and observing the results. The afternoon consisted of three contrived learning experiences, each with similar content but with small differences conditions that we introduced in the spirit of experimentation. Working in groups of three, each group was given a length of rope

and a set of pictorial instructions on how to tie a certain kind of knot (the subject matter). One participant was given role of learning and another teacher. The third participant had the role of observer: responsible for enforcing the *rules* that created the unique conditions for each experiment, and for evaluating the quality of the learning experience.

In the first experiment, the teacher was given both the instructions and the rope with which to demonstrate how to tie the knot. The learner was required only to observer and not even to ask questions. The teacher was also prohibited from showing the instructions to the learner. For each subsequent experiment the roles rotate among the participants. In the second experiment, the teacher was given the instructions and the learner given the rope. Teacher and learner were allowed to communicate but the only the teacher was able to see the instructions. In the third experiment the roles of teacher and learner were abandoned: both were learners, both were allowed to use either the rope or the instructions as they wished. After each experiment we invited the observer was comment on the quality of the learning that had taken place. We used this to draw out some ideas about how to judge good and bad learning.

Some results from this session are presented in the list below. The point about being able to demonstrate a new skill or ability came out after the first experiment and we asked if someone in the group could demonstrate the ability to tie the knot after each subsequent experiment.

How can you tell good learning from bad?
•(in good learning) there was understanding
•Student and teacher tie the knot correctly
•(in good learning) Both (teacher and learner) were involved
•The teacher was not prepared/did not have practice
•(in bad learning, there was) No clarity, communication
•These are not good instructions
•After a good learning experience someone (the teacher or the learner) can demonstrate a new ability or skill
•Everyone was able to understand and follow. You need to make this happen.
•(in good learning, one is) Inspired to try harder
•Facing a challenge is good for learning

The afternoon closed with a retrospective review following the format outlined above.

Day 2

The intention for the second day was to introduce the cyclic inquiry model for inquiry-led learning[9] and then to road-test the model during the rest of the day. Furthermore, it was our intention to lead the day as in inquiry into what it means for our participants to help others to learn what they themselves have been learning through MapKibera and the other Ground Truth projects. Having planned a set of processes to meet these intentions, the day started with a spontaneous deviation from plan, as described below.

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9 http://edutechwiki.unige.ch/en/Inquiry-based_learning

Session one

We wanted to demonstrate throughout ILLL the behaviours we wanted to share with participants. One of these is learning from and building upon previous work from the workshop. Participatory workshops in development often generate mountains of flip-chart paper which is sometimes transcribed into unread emails or wiki pages, and often discarded unread. While the process of sharing ideas through writing is sometimes useful in its own right, there is often real value in summary notes from a plenary session, especially those from the retrospective reviews where participants get to make constructive suggestions for improvement. These often have the additional benefit of being written in the participants' own words and, if presented from the original papers, conveying additional cues of group ownership and through the the familiar colours and layout of the pages. In other words, it's often a good idea to refer back to earlier flip-chart pads to show how their content is relevant and informs the rest of the workshop. I wanted to do this during the first session of the second day. Due to the room layout, the easiest way to do this was to abandon the traditional circle layout in the centre of the room and move the chairs near to one of the walls. This gave me the idea of recreating a school-like layout with chairs in rows with a centre aisle. Having made this intervention well before the start of the session, I withdrew and observed how participants reacted to the new layout. I expected that that the front row of seats would not be used at all. I was right.

Participants filled the seats starting from the back row in what I imagined was a re-creation of school-like behaviour. I began the session by moving to the front and behaving as much like a school-teacher as I could without laughing too much. I asked the the participants to list what they took to be the rules of school. The results suggested that the participants took this as a "setting the ground-rules" exercise for our actual session. I intervened to challenge this perception by questioning the rules. For example, when they suggested that "raise your hand when you want to speak" should be one of the rules, I asked if this applied equally to the teacher as well as the students. I observed that the front rows of seats were empty and suggested that this must be as the result of an implicit rule that we should make explicit by writing it down. We used the opportunity to explore together some more common assumptions about educational process in school.

During this session I took the opportunity to share my personal experiences of school education (being a bright kid with dyslexia, I fell outside the group that my schools were best prepared to help). The intention of this self-disclosure was two-fold. I wanted to use my story to illustrate the premise that formal school-based education might not be the best approach for all learners. I wanted to set an example of personal disclosure and trust. The processes planned for the day include role-play: a form of personal storytelling and I wanted to prepare the way for this to help the participants feel safe and supported when their own opportunity for storytelling came.

When I invited the group to move their chairs into an arrangement they felt comfortable with, they created a semi-circle around me and my flip-chart, though one lady moved her chair to the front — in the middle of the semi-circle — in apparent defiance of group-mind.

In this configuration I introduced the steps in the cyclic inquiry model. The five steps are typically presented in circular arrangement. There is no strict starting place, nor is it required to enact the phases in the given order, but explanations often begin with Ask:

•**Ask:** when the learner's curiosity is aroused, they may find a question to which they would like to seek an answer

•**Investigate:** seeking an answer, one begins by gathering information or raw data

•**Create**: having gathered data, one begins to synthesize meaning in the form of theories or stories

•**Discuss**: working as a group, learners share their stories or theories and learn from one another's evaluations

•**Reflect**: a personal review of the process during which learners may choose to evaluate whether their question has been answered, or whether, for example, its assumptions have been revealed, this is the time when questions are formed or rephrased, priming the cycle to repeat

I introduced these phases by writing them on large cards and placing them on the ground where I could walk between them to demonstrate typical alternation between the phases. This physical metaphor was well received by the group and a lively debate followed during which they proposed modifications and amendments to the process, creating and moving cards to illustrate their suggestions and press their points. The card based approach seems to be a good vehicle for structured discussion. A risk here was that the debate might turn into a power struggle among sub-groups. To prevent this I intervened.

In the discussion many issues arose. One interesting one had to do with where the question (in the Ask phase) came from and its presupposition that there was something that the student wanted to learn. Following a suggestion from one of the participants, we switched from a theoretical discussion about the learning model to concrete questions about the participants' own personal inquiry agendas. Everyone responded to the question: *What brought you here, what do you want to learn?* The answers given are listed below.

•How do I go about participatory learning?
•What skills do I need to engage different groups?
•What can we do best as a team?
•How do I become a good trainer who can allow my trainees to take part actively?
•How tools and materials do I need to become an effective trainer?
•How can I learn different techniques to apply with different groups?
•How to merge different opinions from different people to meet their interests?
•How to react to both positive and negative ideas
•Communication skills necessary for training
•How do we come to a conclusion?
•How to bring out a question in a participatory way?
•How to be a good listener
•What do I gain here that can help the community?
•How to make different groups work comfortably together?
•How do I plant an idea for it to grow?
•What is inquiry led learning?

•How can I support other people to become better learners?
•*How to tackle a question?*

The lively debate about the stages of the model — and how to handle it as a facilitator — is an example of the authoritative/facilitative tension described above. On one hand, some participants appeared to be demonstrating their own engagement with the process already: asking questions, gathering answers, creating alternatives (by writing new cards, or moving existing ones) and debating the results. This is just the sort of inquiry-led process we wanted to be able to facilitate. On the other hand, the discussion risked becoming an argument about the definition of words and whose suggestion was the best. This situation required an authoritative intervention to prevent the participants losing trust in the process and falling back on normal behaviour patterns which, if they serve the role of defending intellectual territory (who is right) almost certainly do not support effective learning.

The session closed with a retrospective review following the standard format. I asked volunteers from among the participants to lead this in order to hand over ownership of the, now familiar process. (I was careful to ask for volunteers who felt confident writing on the whiteboard to support the facilitator, rather than risking forcing a confident speaker automatically into the role of scribe).

Some feedback from the review suggested participants were aware of the group's tendency to slide into circular debate: "I learned that when we start talking politics we miss the point", "Different ideas can lead to endless discussions". Another point that arose from the review was the idea that while the group was debating and re-inventing the learning model, some of the active participants in that process appeared to be working towards a structure more suitable for project management. This might reflect prior learning from other NGO workshops with a slant towards community mobilisation and setting up projects. A clear distinction between project management and learning methodologies might be useful for similar interventions in future.

Session two

The rest of the day roughly follows the cyclic inquiry model beginning with with some directed investigation to focus on issues arising from knowledge sharing that are meaningful and relevant to the lives of the participants. The process for this directed investigation used prepared question cards in a similar way to the previous day's process but where the intention of the questions about learning was to encourage broad, creative thinking, the intention of this process is to encourage deep, reflective thought. The cards contained a number (about fifteen) of very similar questions. They were phrased to probe the same issue — *What does it mean for you to become a trainer?* — with different modes and presuppositions. Some examples follow, starting with the summary question:

•What does it mean for you to become a trainer?
•Why are you excited about sharing your skills with others?
•What are you afraid will happen if others learn what you have learned?
•What is the worst thing that could happen if you help someone else learn what you have learned?
•What will happen if others learn what we have learned?

As the issues around sharing skills and knowledge may be associated with group dynamics as well as personal qualities, it seems important that some of these questions should be phrased in *group language*, using words like *us, we* and *others* in place of *me, I* and *someone else*.

These questions were used as the script for an interview carried out as a partnered exercise. Taking turns, one partner asks the other each question, and allows the the other to answer. When all questions have been answered the process repeats, starting, again, with the first question, until a set time (five minutes) has elapsed. The intention of this process is to *drill down* beyond easily accessible answers to the deeper meaning for the interviewee. The benefit is less for the interviewer, who might learn something from the answers given, but more for the interviewee who may learn something about their own feelings. The process creates an apparent need for the interviewee to provide a satisfactory answer to the barrage of questions, as they listen to the subtleties of the questions — in order to divine how to answer them — they reach deeper into their unspoken subconscious awareness for the answers. Some questions have presuppositions (e.g. that the interviewee is excited or that they are afraid about becoming a trainer) that might be true or false for different participants. Responding to those that are true for themselves, an interviewee may make meaning of their own feelings and put them into words.

Asking, and answering, the same questions repeatedly for five minutes can feel uncomfortable and it might be hard for participants to trust an unfamiliar process like this. Furthermore the process has strict rules: the interviewer may not say anything that is not written on the card. To help them feel comfortable, I warned the group before the process began that this was likely and spent some time after the process giving them space to speak about their experience of the process. Some participants reported that they repetitively gave the same answers to the questions each time, others said they found new answers each time.

After the paired interview process, pairs joined with other pairs to re-form the groups based on the projects: MapKibera, KNN and VOK plus a group for Ground Truth staff. Working in these groups, they discussed the issues that arose from the interview and identified an issue with particular meaning or significance for their group. Naming the issue to explore corresponds roughly to the *Ask* phase in the cyclic inquiry model.

Having chosen an issue, the groups were tasked with preparing a two minute role play to illustrate their issue. This corresponds roughly to the *Create* phase in the cyclic inquiry model. The groups create a depiction of their issue together. Using role play in place of more traditional kinds of creation (written work or artwork) has some benefits for this type of workshop: the whole group can work together and contribute on the creation, resulting in a creation with joint ownership. The role play does not exist for scrutiny except when it is performed, avoiding issues of fear of being judged. The risk with role play is that is may exclude less confident or assertive group members. Cultural sensitivity is also important. Kenya has a history of using role play and community theatre to deal with sensitive issues so we felt it would be appropriate for ILLL and indeed it seemed to work well.

Session three

In this session we entered the *Discuss* phase of the cyclic inquiry model, using the role-play performances as a way to share ideas and stories and to stimulate discussion. Each group performed their role-play in turn without first introducing the issue. The audience was then invited to discuss what they thought the issue was. Then the performers were invited to describe the issue from their perspective. In this way, the performers got to hear their issue reflected through the eyes and minds of the audience. This feedback loop can, itself, provide a valuable learning opportunity for the actors. Unless the actors have a high degree of self awareness, however, the rest of the group are unlikely to benefit directly from this learning since it would require the actors, when it is their turn to speak, to describe both their original understanding of the issue and what they have learned from listening to the audience speak.

At the end of the session we held a retrospective review of everything since the start of session two (the session breaks didn't strictly line up with catering breaks and this is the logical place to review the process so far). Once again volunteers from among the participants led the session. The review process provides opportunity for participants to *reflect* and, thus, to complete one full iteration of the cyclic learning model.

Session four

In the final session of the day, we entered another, much quicker iteration of the cyclic inquiry model:

•**Ask**: how might things be different in the scenario you created in your role-play
•**Create**: an intervention or alternative version with a small change in the behaviour of one player
•**Investigate**: by enacting the role-play again with players improvising their response to the modified behaviour
•**Discuss**: the group discuss their observations
•**Reflect**: a final review enables participants to process their learning

The form of this session is inspired by Augusto Boal's theatre of the oppressed[10]. The audience and players are given the opportunity to co-create an emergent alternative scenario based on the original role play as a way to investigate alternative ways to make sense of the underlying issue. Each group were first invited back to perform a one minute summary of their role-play to remind the audience what happened. Then the whole group discussed possible interventions and I, as facilitator, tried to choose one that was a small change in the behaviour of one player.

The interventions suggested by the audience at ILLL generally tended to diffuse tension present in the original role-plays by, for example, suggesting that one player should ask for more information before making a judgement. The interesting exception was the suggestion that one group who had performed their role-play in silent pantomime should try speaking. Though not a single change to the behaviour of one player, this seemed a small change and its effects were difficult to predict. The

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10 http://en.wikipedia.org/wiki/Theatre_of_the_Oppressed

result was a richer interaction and the action proceeded differently than in the silent version as the group responded to the requests and responses voiced by the players.

The medium of drama and role-play appeared to enable the group to express and enact issues of importance to them. Ground Truth staff suggested that the scenarios we saw enacted were not fictions but, in fact, specific occurrences from the history of the group. Interestingly, the discussions that followed these presentations did not appear to engage with the content at the same level as the role-plays themselves. This suggests that role-play as a medium may be a useful tool for dealing with topics that might otherwise be hard to work with through the medium of debate.

Day 3

The intention for the third day of ILLL was to give the participants experience in leading a learning experience for their peers. In practice this would mean that the some or all of each group would plan and lead a short training for the other participants into some aspect of their work in the Ground Truth projects. With a large group and a short time, it is hard to create an environment where everyone in each group can be actively involved in preparing and leading the learning process. The tensions in planning the day was between lots of very short sessions with one-to-one or small group learning, or fewer, longer sessions in which, necessarily, fewer participants would be actively involved in the planning and leading tasks. We decided to engage the whole group in planning the day and chose to create three training sessions of one and a quarter hours each, being led collaboratively by the whole of the knowledgeable sub-group in each case. This might not be the most effective way to give participants experience of learning leadership, but it has the advantage that it was arrived at with the whole group's buy-in.

Before tasking the groups with a short planning phase to choose what they would share with their learners and how they would do so, we revisited the assets from the previous day's processes including a list, on a flip-chart pad, of the qualities of and conditions for effective learning. Anticipating that the groups might, in their excitement for the training, fall back on established educational process, we reiterated some of the key conditions and qualities. I invited participants to create two *tableaux vivants*, one depicting two learners sitting side-by-side collaborating with some material between them (reflecting the third experiment with knot tying from the afternoon of the first day), and another depicting a teacher, standing, pointing out something on a board to a student, seated, looking up (reflecting our mock school experience from the morning of the second day). I asked the group to consider which picture their learning would look like. I also drew a picture on the flip-chart of the video cameras used by KNN and enacted a sing-song school-lesson about the naming of parts[11] of such a camera and asked them to consider what skill or ability their learners would be able to demonstrate if their learning were successful.

The groups spent a short time making a plan for their sessions and the rest of the day comprised delivery of each session followed by a retrospective review, following the established form and led by volunteers from the groups.

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11 http://www.solearabiantree.net/namingofparts/namingofparts.html

We understand that this may have been the first occasion on which the three groups actively engaged in sharing their areas of expertise with one another. ILLL provided a safe environment with context of learning excellence in which this took place. It also provided the closed feedback loop of peer review, giving all participants to state what they noticed, what they learned and how they might wish to improve on the sessions they experienced.

In the feedback from the review sessions at least some participants reported learning key skills from the other groups.

VOK:

•"Learned how to submit a report via SMS and demonstrated it - because it's on the site MapKibera."

•"Everyone tried as much as possible to understand about the map."

•"The (GPS) tracker was making a drawing of your movement, [in] the lift it didn't show anything (it didn't see that direction)."

KNN:

•"Give youths a way to tell their own story, want to go wide and give others a chance to tell their story, dream."

•"Want to burn videos on CDs so can give out to the people in Kibera, working on plan to sell to big media houses."

•"After recording news, it can take time to edit it and take some time to do that."

We also heard a number of sound-bite learning experiences, such as:

•"If you are willing to learn you can learn a lot of things, but if you aren't you won't get anything."

Two groups experienced difficulty arising from using unfamiliar computers for the training. The software needed was not installed. Though we might consider this to be a failing of ILLL, in so far as we, as organisers, might have anticipated this and ensured all technical requirements were met, in fact it also serves as a valuable learning experience for the participants. Technical failure is a common problem in any workshop and planning around it (making sure the technology is in place and working, as well as having a backup plan for what to do if it fails anyway) is an important thing for a learning leader to have experience of. ILLL offered a safe place for our participants to experience this difficulty and to gave one another feedback on how they might have improved their own learning sessions.

Some general observations on the trainings may prove useful in planning future workshops similar to ILLL. But it is important to bear in mind that the success of ILLL lies not necessarily in the quality of the learning experiences that the participants created for one another during the workshop, but in the learning they experienced themselves *as leaders*. If all the learning sessions passed perfectly, little learning would occur. Each stumbling block encountered by the participants in the safe environment of ILLL, and which was fed back to the groups during their reviews, was a learning opportunity. That being said, facilitators of future workshops might benefit by being aware of the following:

•All three groups did allow time for their learners to work in small groups and to work together interactively. This might not have been actively planned — it might have followed as a result of the ratios of active leaders to learners involved, but it is an important and valuable part of the process that is worth drawing attention to where it occurs (whether by intent or accidentally);

•Some groups already had some experience in training and this was visible during these sessions. They led their sessions along the lines of the other training sessions they have been involved in in the past (effectively re-using the prior planning);

•Much of the learning was improvised and not actually planned in much detail in advance. This was particularly in evidence when one group split into two to work on two laptop computers. The two sub-groups proceeded along different scripts. Whether or not it had been the intention of the leaders to create equivalent learning experiences for the two sub-groups, the feedback reflected that this had not been the case;

•It's a good idea to check equipment (e.g.: to check the necessary software is installed, etc.) before starting. This being said, we recommend that participants learn this for themselves, by experience, rather than being instructed round the issue by more experienced leaders;

•There is a tendency for skilled practitioners to demonstrate their skill, for example, showing learners what to do with a computer program. It is valuable for a learner to have the opportunity to perform the required tasks themselves and the ability to balance demonstration with giving space for practice is an important skill for a learning leader to develop;

•Despite an emphasis throughout ILLL on student-led learning, none of the groups obviously created a space for their learners to express what they were keen to learn. Practically, with the large learner groups, it would have been difficult for them to tailor the experiences for individual needs, but there is value in both following and leading (facilitative vs. authoritative) when creating a learning experience.

Open ICTs and Development : A Marriage of Inconvenience
(Where there is a meeting of hearts, but not of outlooks)

Comments on the Final Report of the Research Project

Mediating Voices and Communicating Realities

Using information crowdsourcing tools, open data initiatives and digital media to support and protect the vulnerable and marginalised

by Evangelia Berdou

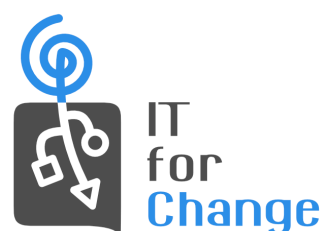**Parminder Jeet Singh & Anita Gurumurthy**
IT FOR CHANGE
March, 2011

Table of Contents

1.Open ICTs and Development – Is There a Match?

What are open ICTs?

As a question of principle, it is not difficult to answer the question of whether open ICT models have a role in furthering participatory development . Perhaps, for the first time ,a set of technologies have such an inherently social character; for ICTs are being continuously made and remade in the hands of users. Being 'intelligent' technologies, they can interact iteratively with human intelligence and can be employed in a range of human actions in almost unlimited trajectories towards very different ends. Also, each of the new emerging forms of ICTs, essentially the information contained in them, is a non-rival good, in that its use does not diminish it for others to use it. The closest analogy to such collaborative non-rival construction of a technology is 'language'. It is however different with ICTs in that unlike language they are tied to some machines or implements outside of the human body, and thus dependent on their availability.

To make the analogy more apt, we can imagine a situation where we may need a simple device to make the sound for constructing spoken words – say, a flute-like thing – and require another simple device to 'hear' it. These two end-devices would be personal and proprietary, but the sounds, words and language between them, would be something of reiterative collaborative production and for common use and sharing. New ICTs can be approached from a similar principle, though the manner of their functioning and the possibilities they open up are infinitely more complex.

In the context of ICTs, the term 'openness' has been used with many different meanings. At one level, fundamentally new levels of connectivity and interactivity that they afford, can in themselves be considered to render them open. In this view, *all* new ICTs are considered as promoting openness, and thus in some way to be open technologies. Somewhat more restrictive is a definition whereby ICTs are open if they follow open standards. In this definition, various restrictions on access and use of ICTs can legitimately be placed as long as they are interoperable along some key interface elements. What these key interface elements are, and how seamless should the interoperability be, is still judged differently by different actors, providing different definitions of 'open standards'.

What would, however, be completely and really open are those ICTs where all intangible aspects of ICTs (information tied to or carried upon such ICTs) – i.e. not including the hardware part – are open to access and use by anyone. Such an open regime of use and access should only be constrained by restrictions that contribute to the common good : for instance, open source software licences that allow free use only if further modifications of the used intangibles are themselves free for all others to access and use.

It is in this sense of full openness that we speak of the relevance of open ICTs to development. It should be obvious that communal appropriation of important (non-rival) intangible resources would help the cause of equity and social justice. A collaborative mode of production based on common sharing should also increase the net intangible assets of the community, because open access to these resources greatly facilitates further production. A shared access to non-rival intangible resources and a collaborative mode of their production then leaves a level playing field for people to compete for rival tangible goods through a market mechanism (though there are of course many such goods that too have to be provided as public or common goods, like a sufficient quantity of

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food for everyone, and other basic requirements for a decent and dignified life). As ICTs become a significant resource base of our societies, open ICTs enhance the community sector vis a vis the market sector.

The preponderance of ICT-based intangible resources today only provides the possibility for the emergence of a strong community sector, it does not guarantee it. Even if we were to brush aside an unthinking reliance on the wisdom of the 'tragedy of commons' in the new situation, effectively managing the new community configurations and systems is the real challenge. Undoubtedly, ICTs themselves enable new forms of management of large decentralised systems, as we have seen in the case of FOSS. However, things can become considerably more complex and difficult to manage when we move beyond systems or community configurations dealing with core technology production to more social areas. It is the challenge of managing open ICT systems in these social contexts that requires urgent attention and considerable research. We find that the final report of the research 'Mediating Voices and Communicating Realities' treats this challenge as a central issue, to which our comments are also mainly addressed. Firstly, however, we will offer some practical comments on the relevance of open ICTs to development.

It is should be obvious that more information and better communication   is useful to development practice . Indeed, even in the research report (mentioned above), the uses and benefits of local mapping, micro-reporting and micro-media seem to be largely taken for granted, and that aspect is not much inquired into. In a context of very poor information availability and undeveloped local media, providing an ICT based powerhouse of such new, extremely potent possibilities can be justifiably pursued without much self-doubt. However, at some stage, a strong connection between actual uses and impacts of these experiments in the local context and further development of open ICT systems will need to be established. When and how can such a connection be established, has been a key question in the area of ICTs for development.

On one hand, there is the 'productivity paradox'. Real benefits of using ICTs, with demonstrated positive cost/ benefit equations, often take quite some time to be visible. While the possibilities of introducing ICTs look tantalisingly large, the initial costs of investing into new individual and organisational habits, let alone the direct technology related costs, can be huge. Using ICTs therefore , requires a considerable leap of faith initially. In that sense, one is often required to proceed on informed assumptions. Anecdotal evidence therefore helps to show the dots that have then to be connected by imaginative reasoning and extrapolation by the involved actors, with reference to the specific local realities.

Another, major issue, quite connected to the above, is the fact that ICTs are general purpose technologies, and once they are used effectively ,they find uses in almost all lines of activities pursued by an organisation. Correspondingly, the cost-benefit equation is best served if open ICT systems start to be used for a variety of purposes, simultaneously or in relatively quick succession, rather than in stand alone application. One of the most important lessons of a decade of ICTD experience is that such stand alone applications, even when they often provide a spectacular vision of new possibilities, have almost always failed to sustain. However, even if an organisation adopts open ICT systems in a large array of its activities, the extent of use of ICTs in its ecology (much less, use of open ICTs) can significantly limit their usefulness.

 Experimentation is a very significant element   in the process of adapting open ICT systems to development practice ;this factor needs to be kept in mind while devising any such intervention. In

any case, the starting point has to be an appreciation of generic new possibilities offered by open ICTs for development; some of which are discussed below.

It may be worth mentioning at this point that while there are different visions of development, the connection we are trying to establish is between open ICTs and participatory development. Many understand development to be contingent on making quick and deep connections with external mature markets (national, global). In this vision, local enterprises are best developed around such linkages, which spurs all-round development of the community. For those who subscribe to this vision, appropriate commodification of ICTs seems useful both for incentivising outside players and enabling profit-motivated local entrepreneurial activity.

While it is not possible here to go into the relative merits of different visions of development, we do consider that even local entrepreneurship is much better served by open ICT systems rather than closed ones. A lot of literature available on FOSS and local enterprises provide us with demonstrable evidence in this regard.

Below are discussed briefly some new possibilities offered by ICTs for participatory development practice. Participatory development focusses on community based processes. For the sake of the present discussion we can classify them into two kinds- processes of community reflection and that of community action.

Open ICTs for community reflection

Community reflection is important for developing community norms, and for shaping community action. The local public sphere can greatly be reshaped by the use of open ICTs, like community radio, participatory video and internet based crowd-sourcing of news and opinions, including in the form of local audio-video material.

In a context that is overwhelmingly dominated by homogenised national/ global media, there are innumerable instances of community radio and participatory video setting up powerful eddies of local counter discourses. For instance, the women's organisation *Anandi* locally produced a video film on the experiences of women accused of witch craft and ostracised by the communities they belonged to, in parts of Gujarat. When such a video about the travails and experiences of 'real and known' women is played back to the community, something shifts in the collective consciousness. A similar impact has been caused by community radio broadcasts by women's collectives in Mysore, in an intervention facilitated by the *Mahila Samkhaya* programme and IT for Change's Centre for Community Informatics and Development. In these radio broadcasts, women of the village discuss issues of 'wife-beating' (a much more direct and locally meaningful expression than 'domestic violence') and men hear the broadcasts at a village shop, with the name of the village being highlighted and the voices on the radio recognisable. When an issue of common tacit knowledge in a village community is presented in such a powerful, ICT enabled fashion, to the convened collective consciousness of the community, it becomes that much more difficult for the community to continue to leave the issue politically unacknowledged

Audio-video uploads to open spaces on the Internet greatly democratise, and also expand, such counter spaces of community discourses in the public sphere. If systematic work is done in this area including the incorporation of more 'interesting' stuff like local news and entertainment, it can open up a whole new robust local media space, enabling the articulation and emergence of new local identities and collective empowerment. (This is not to romanticise a 'homogeneous local

community'. It is of course possible that these new spaces are used for separate identity assertion and empowerment of different groups within the local communities.)

Open ICTs for community action

When something has been collectively taken note of, it is more difficult to not do anything at all about it. It is true even when the 'truth' was always largely known. In a village of Gujarat, where the *Abhiyan* Collective works, village household data was collected and analysed by community volunteers. This was presented back to the community. The advantaged castes were 'shocked to learn' that the educational status of girls from their group was worse than that from the much poorer disadvantaged castes. This of course had to do with more strict patriarchal norms among the more advantaged castes. However, when this data was presented at a collective village meeting, village and caste leaders immediately begin to take steps to ensure that more girls went to school, and if possible, to college. Similarly, community action was triggered when a local voluntary organisation in Haryana, which has a very low sex ratio (834/ 1000) due to female foeticide practices, conducted the simple act of putting up a blackboard at the village bus-stop with the village sex ratio written on it. Every time a baby was born in the village, the statistics changed on the blackboard. Soon, the village elders and the local self governance body decided to arrange a local awareness campaign on this issue.

Community generated data can be used effectively for micro-planning, as the data is more reliable and also covers fields that are in line with local community priorities. Two examples from the work of *Abhiyan* Collective in Gujarat State may be useful here. Often, official data sets do not have data fields most relevant to local communities. In some villages where *Abhiyan* works, there was large scale land acquisition for industrialisation. So, when community generated data gathering was planned, it included fields like, whether someone has lost land to such acquisitions, who was the first person to approach them to acquire their land etc., which provided very insightful and, potentially, politically volatile facts. At some other villages, in order to encourage local communities to engage with community generated data, *Abhiyan* not only helped in developing such data but also offered incentives to the villagers to use it for micro-planning. *Abhiyan* came up with a Village Development Fund scheme whereby villages were to present a well-supported plan for local development activities. Those with the most well-developed plans, *inter alia* using community generated data, were awarded an annual support from a local charitable fund.

A working group of the Ministry of rural self-government of the Government of India has recommended that village self government bodies collect their own local data and do their planning using it, apart from using official data made available by government agencies. It is however difficult to collect and manage such data without good ICT applications. Over open ICT platforms, it should be possible that such data is presented along with official data, so that they can be compared on a dynamic basis. Also, it should be possible for community members to annotate the data on an ongoing basis. Such open annotated public data can become a powerful means of local community empowerment and self governance. It also provides the basis for local intra-community political contestations.

It was a movement of labourers employed in public works asking for officials records of payments made to them, which they sought to contest, that gave birth to the right to information legislation in India. This process of challenging official data by testimonies of local people has been institutionalised through the process of 'social audits' in India. Most new development schemes have provisions for some such social audits. Regular and effective social audits however require

open access to all the required public information at all times; and also capturing the 'alternative information' on open ICT platforms so that they can effectively challenge official records. Open annotated public information maintained at the local community level can thus transform governance and development activities at the community level.

2.Open ICTs for Development - Getting the Act Together

The differences run deep

As mentioned earlier, it is much easier to argue that open ICTs can greatly help processes of participatory development, and thus benefit the marginalised groups. It is much more difficult to suggest the best pathways for application of such technology to, or its integration with, development practice. We have already alluded to some issues involved in any such endeavour; the necessary experimental aspects of any intervention (at least early on), the productivity paradox, and the need for developing new individual and organisational habits.

The dynamics of the organisational setting of any open ICTs for development intervention is perhaps the single most important issue that requires to be focussed upon. Almost all such interventions are in the form of some kind of partnership between an ICT actor and (by contrast) a 'traditional' development actor. Appropriate structuring of the relationship between these two kinds of actors is very important. Furthermore, open ICTs require some kind of distributed community or volunteer contribution. Therefore, we are looking at exploring the dynamics of relationship between at least three kinds of actors. (Since ICTs enable systemic linkages, a fourth category of public sector actors may also be relevant to most interventions). We find the research report (mentioned earlier) most useful with respect to the insights regarding this all-important dynamic among different kinds of actors involved in open ICTs for development projects. , While the report provides important tips for application of ICTs in practice, it also opens up significant new areas that require continued research.

It is the nature of ICTs to structurally reconfigure most systems that they get applied to, over time. As mentioned earlier, We are speaking here of a new community system (or a vastly expanded one, depending on how we see it) – which can be defined as a system of actors where the incentive for action is not profit, or direct material benefit, but the 'common good'. The real issue is how to appropriately manage this new system of actors, who are motivated to work for the 'common good'. Some may say, it is basically about managing a new technology commons. In this regard, insights from the path-breaking work done by FOSS communities comes to mind at once, which is indeed rather useful in the present context. However, what we are dealing here with, in terms of new development practices, are techno-social or simply new social commons, and their contexts may be quite different from a typical 'technology commons'. Use of open ICTs can greatly increase the extent of social commons[1], since most 'new resources' associated with ICTs are inherently of a non rival nature. As importantly, these new resources are also continually enhanced by the transformed

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1 We understand that the distinction between 'technology commons' and 'social commons' is not quite strong, as is indeed between a technical process and a social process. In any case, the distinction made here refers more to the nature of actors involved than the substantive content of the respective commons. We could have used the term 'informational commons' instead of 'new social commons' but we think that while information is large part of it, the new commons include a bigger set of capabilities than is covered by the term 'informational'. Also, ICTs may provide new ways of managing existing, pre-ICT, commons of different kinds.

nature and extent of horizontal interactivity. ICTs also provide new possibilities for managing these new commons (as also old, existing ones), which could come into a possible tension with traditional ways of managing commons, such as management through the institutions of the state, through professional NGOs/ charities organising voluntary activity or common ownership.

The technology actors in these emerging systems of communal activity are almost always from the outside. They often have the 'technology expertise' chip-on-the-shoulder, and also mostly are the ones who bring in the funds. This generally tips the power equation to their side. The development actors, on the other hand, 'own' the local development space – in terms of the right connections and knowledge or expertise. It is generally the external technology actors who are most keen to do the technology experiment, and not so much the local development actors. Very often the latter are likely to see it just as an opportunity for some extra funding support for the work they may already be doing. Working in the extremely resource starved contexts that most development actors do, apart from perhaps the expected technology scepticism, there are more real issues of externalities involved with ICT related processes, that extends over time and space. Most real benefits look like they will emerge only too much into the future, and it also seems as though there is ground that needs to be covered beyond the areas of work the actors may already have chosen to focus on. Unless the development actors involved make an informed and conscious choice of contributing their efforts towards some new benefits to the community, or to development practice, there is mostly not enough meeting-of-minds and common ownership for a successful ICT for development intervention.

Working together

Even if such an initial meeting-of-minds and a set of common objectives could be attained , it remains difficult to manage an ongoing relationship during the phase of project implementation. Since there are no explicit hierarchies between technology actors and development actors, it becomes difficult to prioritise and organise work. Indeed, not only are open technology actors typically very averse to hierarchies, and rely on informal p2p relationships, application of open ICTs in the host development organisation itself, to some extent, tends to strain its hierarchies. This could become a problem because most development agencies are used to working in some clear hierarchies, even if they employ participatory development practices.

Technology actors typically want things to move faster, and are more interested in the experimental and spectacular outcomes part. They may even over-apply technology. Development actors do not want their existing activities and methods to be disrupted, and prefer to focus on slow but abiding impacts and changes. They also remain very concerned about what happens when the external technology support is withdrawn.

Most development organisations do organise local volunteers as a part of their traditional activities. Volunteering for open ICT projects has a strong additional incentive of 'playing with technology', building new skills, and, as one goes along, perhaps, in the manner of typical FOSS contributors, to be able to 'show off' one's specific contributions to the community which can bring new status. However, material gains remain a strong incentive, especially if one is sourcing individual volunteers. Most traditional development work, while often involving paid local voluntarism, tends to leverage existing organised community based groups, whereby a different set of incentives can come into play. This is especially so if the proposed work can be aligned with the existing priorities of the group.

Most successful ICT for development initiatives focus on some specific activity important to the local community, which can show a real impact. Making such connections to real community action is very important, because once some benefits are foreseen,the stakes of both the involved intermediary traditional development agency and the community in doing ICT based experiments can increase greatly. In seeing the specific benefits, they are now able to interpret open ICTs in their thought processes and language; they can make sense of it. Beyond a point, just talking about 'possibilities' is of limited use. The local groups will need to see and know what it really means, in a meaning and idiom of their own, and not just of the external ICT actor.

In South Africa, even as most stand alone telecentre initiatives failed to take off in many better-off communities, one such initiative became a huge success in a poor fishing community of Struisbaai, a coastal settlement in South Africa's Western Cape Province. This was because the telecentre managed to emerge as the hub of activities of small fishermen resisting the large fishing trawlers. This centre served to provide them the necessary information on all aspects of the issue :for making applications to obtain fishing licenses, sending representations and complaints to governments and so on.

Among different kinds of ICTs, it is the open ICT models that can most easily resonate with the ethos of traditional development actors. However, the real practical meaning of 'openness' is something they will understand only from real instances of use and impact emerging from their work with the technologies, and not just from the formulations of the external actors, however well translated and simplified. The external actors should in fact be looking out for the local idiom and sense-making with regard to open ICTs that they can employ, to further evangelise them.

Do we need a mediator?

While obviously needed, neither technological knowledge nor local knowledge and connections are necessarily the most important factors in making open ICTs work for development. What is most essential is a conscious appreciation of the key issue of how to make different actors work together, in a new context which mostly involves breaching and rearranging institutional boundaries and organisational structures. To use a heavy term, it requires expertise in the 'network society phenomenon' as it expresses contextually, at the specific local community level.

ICT actors and development actors have to be both trained in understanding the emergent new phenomena and working with it. It may be required to have specialised agencies, rooted in the traditional development sector, to develop expertise and capacity building skills in this new area. The discipline and practice of the new area called 'community informatics' may be a useful peg to hang this new requirement on, although, in our understanding, this discipline may need to be more centrally informed of the emerging networked social phenomenon than it may be at present. It may still be too 'social application of ICTs' centric.

Such specialised agencies should work with all the involved actors to explore issues of power equations between technology and development actors; new contexts for, and means of, organising volunteerism; how to do the necessary experiments while focussing on issues with clearest useful outcomes for the community; how to manage strains on hierarchies in local organisations when open ICTs get applied; and how mission creeps are to be managed, and possible new forms of development processes and outcomes collectively agreed upon and planned.

It will also be useful to make clear distinctions between projects that employ a specific community

context to test out a socio-technical application, even if it is supposed to be a non-profit effort towards improving the ICT-development interface. Other projects may be more specifically oriented towards capacity building of local organisations in respect to generalised ICTs based possibilities, which they can leverage contextually in the work they are doing, and the outcomes they seek to achieve. Such clarity of the overall nature of the techno-developmental project greatly helps in defining the dynamics of the interventions, including the relationship between different actors.

Many conditions that determine the success of open ICT projects lie in the external ecology of the directly involved development agencies. For this reasons, one good place for such projects to start with may be to establish ICT-enabled open interactive networks of different actors involved in various development activities at the local level . While it is not at all easy to establish and sustain them, such networks can help collective ownership and considerably mitigate the many adverse factors being faced by most 'ICTs for development' interventions. This is one instance of using ICTs to shape a community process, that may not have immediate spectacular outcomes (in fact there would just be too many doubts expressed about everything at these interacting spaces, at least initially), but can help root ICT interventions much better in the community. Such a platform ,of course, will not replace the more important,regular ,face to face meetings with all the involved actors;but to the extent some of the involved actors may start accessing this platform, it can trigger many positive dynamics. This may include better managing of power equations and issues of hierarchies, and initiating a process of collective sense-making.

3.What is 'Openness' in a Development Context?

In the Map Kibera project there was an interesting disagreement on how should the effort of, and the platforms for, open mapping and open micro-media be sustained. Undoubtedly, the real development impact of these socio-technical platforms or processes can only come through their appropriation by organised and sustained community efforts. In all likelihood, this will take place through local community based organisations and/ or NGOs like the Kibera Community Development Agenda that the Map Kibera project partnered with. The chief of Kibera Community Development Agenda seemed to be disappointed that Map Kibera set up an independent trust to own and run these socio-technical platforms/ processes. He says that it was his understanding that the project was undertaken to build capacities of organisations like his, and therefore, by implication, such processes which came out of the project should be carried forward by them. Those driving the Map Kibera project probably thought that the involved socio-technical platforms/ processes were most useful as well as sustainable if they were 'independently' maintained and managed as a common resource for all groups to use.

So, we are back to what we earlier identified as the key issue; what is the best way to manage a common resource in a particular condition? Both views above have their merit. We ourselves earlier proposed a more networked local system of ownership, where a deliberative platform can help smooth out many rough edges of different views and approaches. Such a 'solution', however, is not easy and ready-made, and it will still require many questions of core ownership, power and hierarchies to be sorted out.

In the end, we will try to link this discussion of how best to manage community ownership to the issue of what does openness mean to development in the new techno-social context of an

information society or a network society.

For 'techies', the term openness is naturally attractive, as meaning no restraint from technological exploration and use. In development, the positive rights of actual enablement are more meaningful. Openness to development actors will be a real, realisable, right to equal participation; in its socio-political meaning. We therefore suggest that openness in the context of ICTs for development means a democratic manner of managing the new commons that are made possible by the network society phenomenon. Local situated innovations using ICT platforms should be employed to 'open up' ownership, not just of the technical elements of the project, but of the whole local development project. It goes back to the point that the technical part of the intervention should always be *in situ*, completely located, and driven from, within the larger local development ecology. Making such abiding connections take time and energy, and perhaps a different kind of orientation and expertise. However, there may not be an easier route around this imperative.