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Digital Media (ICT) for development

**The use of crowd sourcing maps as a tool for
citizen empowerment and engagement**

Case study of *Map Kibera* Project

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Table of content

Abstract.....	4
Acknowledgement.....	5
1. INTRODUCTION.....	6
1.1. The aim of the research and research questions.....	7
1.2. The relevance of the research and possible further elaboration.....	8
1.3. Delimitations.....	10
2 PRESENTATION OF RELEVANT THEORETICAL BACKGROUND.....	11
2.1. Historical preconditions of the emergence of participatory communication approach.....	11
2.2. “A call for participation”.....	11
2.3. Participatory communication approach.....	13
2.4. The concept of social change.....	17
2.4.1. Information equity and access.....	18
2.4.2. Inclusion and participation.....	19
2.4.3. Accountability and local organizational capacity.....	19
2.5. Critique on participatory approaches.....	20
3. LITERATURE REVIEW AND CONTEXTUALIZATION.....	21
3.1. ICT for Development and Social Change.....	21
3.2. The concept of crowd sourcing. Crowd sourcing mapping/community mapping	22
3.2.1. New media.....	22
3.2.2. Crowd sourcing and mapping.....	23
3.2.3. Citizen journalism/community mapping	24
3.3. Critique on ICT	26
3.4. Media regulations and ICT position in Kenya.....	28
4. RESEARCH METHODOLOGY.....	30
4.1. Introduction to the case and directions of research.....	30
4.2. Qualitative semi-structured interviews.....	31
4.2.1. Respondent selection process.....	33
4.2.2. Limitations of the method.....	34
4.3. Quantitative content analysis.....	35
4.3.1. The choice of the sampling.....	36

4.3.2. Limitations of the method.....	37
5. EMPIRICAL DATA. ANALYSIS.....	39
5.1. Process of the analysis of the data.....	39
5.2. Analysis of data. Research question Nr.1 - Participatory communication approach.....	40
5.3. Analysis of data. Research question Nr.2 – Indication to social change.....	46
5.4. Analysis of data. Research question Nr.3 - Challengers/Barriers for engagement.....	50
6. CONCLUSIONS AND DISCUSSIONS.....	54
6.1. Conclusions.....	54
6.2. Further elaborations.....	61
References.....	63
Appendixes.....	77

Abstract

Map Kibera project and its *Voice of Kibera* reporting initiative present an example of new media applying the principle of crowd sourcing to foster social change and provide voice to community of Kibera, Kenya.

The aim of this study was to analyse, firstly, how the concept of participatory communication has been applied during the implementation of the project. As a basis for this approach an Integrated Model of Communication for Social Change was applied during the analysis of articles being produced on two project blogs to identify what steps have been implemented and what new aspects could be brought. Secondly, it was important to understand what social change the implementation of such project could bring to community it serves for. Finally, in order to develop a strategy for sustainability possible barriers/limitations of citizen/actor engagement were identified. Research tools used for this analysis were qualitative semi-structured interviews with project team members as well as participants/non participants of the project combined together with quantitative content analysis applied on articles produced on *Map Kibera* and *Voice of Kibera* blogs.

Most important findings indicate that the application of IMCFSC took place almost fully but was applied on a particular community – project team. At the same time the use of crowd sourcing platform and reporting gave citizens of Kibera an opportunity to create their own agenda and provide a real picture of the area thus gaining a “voice” and possibility to speak out loud to broader communities. Nevertheless it is important to mention that the access to information created during the project was possible mostly in the offline form (printed materials, maps) and via mobile phones thus indicating to such barriers as the lack of such ICT tools as computers and also to the need to co-operate more closely to broader community of Kibera to avoid possible misconception of the work of the project. These findings are important to consider when planning implementation of similar projects in other communities located in different geographical, political and social settings.

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“Knowledge is power!”

Sir Francis Bacon¹

1. INTRODUCTION

Today the application of Information and Communication Technologies (ICT) is widely associated with the concept of new media and emerging forms of the combination of two. Being broadly introduced in 2006 by Jeff Howe² in his book “The Rise of Crowdsourcing” (Casey, 2009, par. 21) the concept of crowd sourcing or collective, voluntary knowledge production is applied in various areas of human activity such as business, education, trade and other including also the development field.

Starting its work in November 2009 *Map Kibera* project presents a case of implementation of such ICT and new media tools as *OpenSourceTechnology* and the principle of crowd sourcing in particular, in engaging citizens in the development of their neighborhood. Derived from a need to address the issues of the lack of publicly available information about the Kibera, a division of Nairobi Area, Kenya and one of Africa’s largest slums³, the grant received from a non-governmental organization Jumpstart International⁴ by the project team was initially used to “provisioning of such information [that] would provide the basis for better coordination, planning and advocacy within the community and between Kiberans and the government” (Berdou, (n.d.), p.12). As a result a unique ICT project was developed and operates up to today in one of the countries’ deprived areas aiming to improve the lives of local community and its people.

Today *Map Kibera* project has three initiatives providing each citizen of Kibera an opportunity to express their opinions, report on the issues of particular interest or share

¹ Quote provided by *Internet Encyclopedia of Philosophy*, retrieved May 15, 2013 from <http://www.iep.utm.edu/bacon/>

² Jeff Howe is an editor at Wired Magazine, the author of the book „The Rise of Crowdsourcing” (2006), a practicing journalist covering topic of the concept of crowd sourcing, retrieved April 5, 2013 from <http://crowdsourcing.typepad.com/about.html>

³ Information provided by Kibera UK - The Gap Year Company, Charity organisation, retrieved May 15, 2013 from <http://www.kibera.org.uk/Facts.html>

⁴ JumpStar International is a U.S. based non-profit organization, started its work in 2003, works with marginalised and deprived communities to foster social change with the help of new technologies, retrieved April 4, 2013 from <http://jumpstarinternational.org>

their stories. This is possible by the broad scope of project activities that include such initiatives as mapping opportunities using *OpenStreetMap* technology (*Map Kibera* project, www.mapkibera.org), *Voice of Kibera* – a crowd sourcing mapping and reporting tool (SMS or online) in a form of digital map of Kibera area (*Voice of Kibera*, www.voiceofkibera.org) and *Kibera News network* – “a citizen video journalism program [...] showing the real Kibera - not what you see on the mainstream news channels!” (*Kibera News Network* website, section *About us*).

The specific interest in the research is devoted to the exploration of the work of *Map Kibera* project’s program *Voice of Kibera*. The choice of the project and program is justified firstly by the innovative combination of the use of new and “old” media - an online tool like digital map of Kibera - www.voiceofkibera.org that is being created by the help of local citizen combined together with traditional information dissemination strategies like the distribution of printing material produced during the project. Secondly, *Map Kibera* project is a collaborative work of not only external experts, but also local citizens and actors representing an interesting case of participatory communication strategies being applied in practice. Finally, analysis of the work of application of new technologies in specific conditions such as poverty allows providing arguments for or against the effectiveness of such projects.

1.1. The aim of the research and research questions

The effectiveness of traditional ICT such as radio or televisions has been widely acknowledged as accessible media providing core knowledge and therefore wider opportunities to community and its members. However the rise and global spread of new media tools, especially in their digital format and dependence on the connection to Internet raises several concerns. As Gumucio-Dagron (2008, p. 77 in Servaes) eloquently states: “It is almost boring to repeat what we all know [...] [that] 80% of the world’s population never made a phone call; only 6 % uses Internet; 90% of all Internet users are in industrialized countries”. It is important to keep in mind that participation of local actors in projects like *Map Kibera* is crucial as they ensure that the content of “community media” is constantly being updated and continues to function. At the same time application of the concept of crowd sourcing provides actors with valuable, easy to

perceive and apply, locally created information may play the crucial role in the life of local community. Thus it is important to understand how such ICT projects operate in areas with specific status, what changes can they bring to local community and what barriers can be identified that may restrict or complicate the engagement of local actors in projects activities and reporting.

An important concern is also devoted to the issue of sustainability of activity outcome, especially in projects of international background being implemented in particular areas outside of project origin. As stated by many scholars in order to ensure the sustainability and further development of idea it is important to engage local community in the initial stages of project implementation thus stimulating the sense of ownership and belongingness to project. Therefore another important aspect proposed for research is devoted to the analysis of the application of participatory communication approaches during project activities.

Basing on the previously stated three research questions are to be investigated during the research:

- 1) In what ways the concept of participatory communication is implemented in crowd sourcing *Map Kibera* project?**
- 2) How such concept of project contributes to fostering social change?**
- 3) What are the main challenges/barriers that restrict or limit citizen engagement in the project activities?**

The proposed research questions are being investigated with the application of two research tools - qualitative semi-structured interviews with *Map Kibera* project team as well as engaged and not engaged in project activity citizens of Kibera and Kenya in general in that way ensuring the multidimensional approach to the field of interest of research, and quantitative content analysis of the articles produced during the activity of *Map Kibera* project with each tool supplementing the core findings.

1.2. The relevance of the research and possible further elaboration

As stated previously Information and Communication Technologies have long been acknowledged as not only media *per se* but also as tools providing opportunities for

social change by opening access to information. Therefore the emerged new discipline – ICT4D presents a broad field of interrelated concept such as ICT, communication, participation, co-operation that are incorporated together to achieve a certain level of development or to foster social change in diverse areas, communities and countries.

The concept of ICT4D has been widely applied on not only regional, but also international level in projects being coordinated by such organizations as World Bank, ActionAid (United Kindgdom) and others continuing to invest money in promotion of ICT as a tool for minimizing the gap of the digital divide or the lack of technology and a as source of fighting poverty, social inequality, underdevelopment and other issues. At the same time the emergence of new media and more sophisticated technological devices provides broader and more innovative opportunities how the social change and development may be achieved if looked from the technological perspective. But in order to be applied successfully such projects should also be studied from communication, participation and other development aspects to achieve better results in future projects.

My personal interest in the research - the application of crowd sourcing platforms and projects using this concept lies in aspiration to understand how the process of participation and collective knowledge production functions from the inner perspective, what aspects are important to consider when planning to implement such project and what are the possible pitfalls that may restrict the provision of successful outcomes. In Latvia, the place of my origin, none of the existing local or international projects and initiatives applies the principle of crowd sourcing in a broad scale aiming to facilitate change. At the same time my strong believe relies on the notion that the fostering of social change and development of a particular community lies mostly in the hands of local people as they possess the core knowledge of what is needed to change the existing situation within their particular community. Therefore the thorough application of new technologies with the consultancy of external expertise may provide the optimal combination for a successful project or initiative aimed at achieving the higher level of development of a particular community.

1.3. Delimitations

The research conducted provides an overview of the application of the concept of participatory communication within project using the principle of crowd sourcing, stressing possible barriers of citizen and actor participation in the project activities as well as examples of achieved change as a result of project activities. However it is important to stress that one part of the empirical study – semi-structured interviews were conducted only with a particular group of population due to several specific limitations. More precisely, target group included citizens and actors that, firstly, had access to the Internet and could be achieved by E-mail, social network *Facebook* or in other online formats and secondly, could be communicated in English. Due to the limitations it is not possible to produce generalized statements about the whole population of Kibera, Kenya, but my strong believe is that the study conducted indicates on important aspects and findings that can contribute to future research and application of projects working on similar concepts.

2. PRESENTATION OF RELEVANT THEORETICAL BACKGROUND

2.1. Historical preconditions of the emergence of participatory communication approach

Linkage between the access to technologies, spread of urbanization, industrialization and achievement of development that fostered economic growth has been one of the dominant paradigms of the Modernization theory of 1950s-1960s (Schech & Haggis, 2000, p.11). Later on this approach gained critique as not fulfilling its target introducing a notion of dependency theory that criticized the promotion the Western understanding of the concept of development and strong dependency of “developing” countries where the extreme form as according to Pieterse (2010, p.6) was characterizes as “dependent accumulation which led to the ‘development of underdevelopment”.

Huesca (2002 p.182, in Servaes) describes this process as a protest again the historical inequity and “a call for the invention of humane, egalitarian and responsive communication theories”. He further elaborates on the emergence of new paradigm in the communication filed that resulted as a shift from linear communication model to the emergence of a dialogue that was introduced by Latin America scholars. Shift in perceiving the main actor in the face of the state and nation to society and its culture, as well as the growing level of inequality within countries introduced the notion of Alternative development and within it early signs of the importance of local culture and individual as the core element of the process of development. Servaes (2002, p. 93 in Hemer and Tufte) justifies it as stating that there is no country or community that can function completely independent as well as that “there is no country whose development is exclusively determined by external factors”.

2.2. “A Call for Participation”⁵

In order to acquire the potential of local knowledge holders of it must be engaged in the processes of development and strategies of participation must be designed „emphasizing

⁵ „A Call for Participation” is a name of the chapter in a practical guide *Participatory communication* (2009) produced by Thomas Tufte and Paolo Mefalopulos that most accurately names the content of the proposed section.

the role of the communities as a central venue for collective action” (Wilkins, 2009, par.7). Servaes (2002, p. 93 in Hemer and Tufte) also emphasizes the role of community naming it as a starting point as the local, community level discusses problems of everyday life of this community. The effectiveness of acknowledgement and further elaboration of local knowledge in development projects is impossible without the right approach to communication and cooperation. In the 1970s Brazilian adult educator Paulo Freire brought a new understanding of the concept of development and communication, stressing that a two way dialogue is crucial for one to escape the “vicious” cycle of the oppression aiming at re-estimating and changing one’s position as “dialogue, as essential communication, must underline any cooperation” (Freire, 2005 ed., p. 168).

The concept of participatory communication or participatory model holds specific features that distinguish this model from other approaches to development. Huesca (2002, p.188-190 in Servaes) discusses this notion in, firstly, the acknowledgement of the concept of multiplicity. This concept calls for the strong participation on a grass-root level at the same time abandoning the one-fits-all approach in how participation has to be ensured. In other words there no universal approach that exists but each situation deserves a unique strategy in order to ensure the successful engagement of diverse audiences.

Huesca (2002, in Servaes) continues by stating that the role of power in participatory communication approaches should be emphasized as it is represented in the power of institutions and organizations that can be transformed by social agents. At the same time power relations and transfer of power and therefore a tool for change is being perceived as a potential obstacle in implementing participatory communication strategies (Servaes (2002), Huesca (2002) as “transfer of control from officials to beneficiaries [is] often met with resistance from experts whose power is being jeopardized” (Huesca, 2002, p. 192 in Servaes).

Mobilization is the next concept that is strongly associated with the implementation of participatory communication strategy. Huesca (2002, p.190, in Servaes) connect the rise of social movements as a result of acknowledgement by society of the existing

inequalities that further stimulates them to mobilize together and change the current situation. At the same time some scholars have noted that the call for participation and social mobilization emerged within specific political and social situation that stimulated these movements therefore raising concerns that in order to face a shift and willingness to change a specific, mostly unfavorable social or political background has to prevail.

The importance of further use of information and experience created by co-operation and participation has also been acknowledged as an important aspect (Chambers (1994), Raftree (11.02.2013). When implementing a participatory approach in project it is crucial to understand what is the aim of participation and in what ways experience and information produced will be used further on. Raftree (11.02.2013, par.7) connects this dilemma to ethical issues arguing that the further use of information being created should be considered beforehand in order not to “waste time of those being involved”, while Chambers acknowledges this issue as a thorough and ethical sharing of this information (1994).

The core principles of the concept of participatory communication forms a basis of understanding the work of *Voice of Kibera* reporting initiative and is being tested within the empirical part of the research.

2.3. Participatory communication approach

Servaes (2002, p. 95 in Hemer and Tufte) describes participatory model as a process of democratization and participation at all levels from individual, local to international that understands the importance of cultural identity and multiplicity. At the same time Tufte and Mefalopulos (2009, p.17) defines participatory communication approach as “based on dialogue, which allows the sharing of information, perception and opinions among the various stakeholders and thereby facilitates their empowerment”. They continue by emphasizing that in order to be effective communication should be practiced on all levels and among all stakeholders therefore ensuring that each party engaged has an equal ability to influence the outcome of the process. Many scholars identify two main components of participatory communication namely access and participation that

facilitate empowerment but the concept itself is broader providing greater social changes and is being discussed in more details further on.

Several approaches to the concept of participatory communication can be identified. Introduced in 1960s by Colombian sociologist Orlando Fals Borda Participatory action research has later on been reworked by Robert Chambers developing a Participatory Rural Appraisal (PRA) that allowed community members to estimate and analyze their own action and identify local knowledge (Tufté and Mefalopulos, 2009, p.3). This approach is of particular interest as its methods included non-traditional participatory and knowledge identification tools such as participatory mapping, modeling, visualizing and others. Assessing the implementation of PRAs Chambers (1994, p.1255-1266) firstly notes that local people or “villagers” possess more ability to model, map, score or observe than external experts expected them to. Secondly, he stresses the importance of ensuring rapport as a key prerequisite that facilitates participation. Finally, Chambers (1994, p.1257) compares the traditional survey-based approach to visual and concludes that when producing a common map or diagram “triangulation takes place [...], the learning is progressive. The information is visible, checked, verified [...] and owned by the participants”. Moreover, in his paper “Who counts? The Quiet Revolution of Participation and Numbers” (2007) Chambers discusses the correlation between the production of quantitative data and participatory approaches such as participatory mapping, linkage diagramming and others stating that such methods may contribute to production of reliable statistics that later on can be applied for the benefits of the community involved in data production. Basing on the previously stated these findings are specifically important in relation to research questions as they stress the importance of participation and common knowledge production using non-traditional tools therefore reinforcing the ownership of the outcome of common activities by participants themselves.

Diversity in management of participatory communication strategies provides an opportunity to combine various methods and approaches. As a core approach an Integrated Model of Communication for Social Change (IMCFSC) is being analyzed and discussed for the research of the academic questions proposed (Figueroa *et al*, 2002, p.iii). According to Figueroa *et al* (2002, p. 5) IMCFSC “describes an iterative process

where “community dialogue” and “collective action” work together to produce social change in a community that improves the health and welfare of all of its members”.

IMCFSC provides an integrated and multi step approach start starts by identifying the *Catalyst* of the project. According to Figueroa *et al* the catalyst or stimulus is the first step that fosters the dialogue that later on leads to collective action and identification of a solution to existing problem. Potential catalysts are 1) *An internal stimulus*, including a specific event in a community or a case of the disaster, for example; 2) *A change agent*, often referred to e.g. external experts, international organizations; 3) *An Innovation*, for example in medicine, technologies or other; 4) *Policies*; 5) *Availability of technology*; 6) *Mass media* (Figueroa et al, 2002, p.6).

Next step fostered by the presence of catalyst is Community dialogue. Community dialogue consists of ten consistent steps, including 1) *the recognition of a problem*, that is crucial step in order to ensure the clear vision of the possible outcomes of the process; 2) *Identification and Involvement of Leaders and Stakeholders*; 3) *Clarification of Perception* in order to establish the common understanding of the problem; 4) *Expression of individual and shared needs*, combined with the inclusion of all possible and most marginalized representatives of the community; 5) *Vision of the future*, clarifying the desired outcome and the status of the community in the future; 6) *Assessment of current status* to be able to set objectives and achievable goals; 7) *Setting objectives*; 8) *Options for Action* to achieve the objectives; 9) *Consensus on Action* that is necessary in order to divide tasks and ensure the commitment of participants to start the action and finally 10) a production of common *Action plan* (Figueroa et al, 2002, p.8-9).

After the Community dialogue a Collective action of community members and involved actors takes place. This process has also been divided into several steps as follow 1) *Assignment of responsibilities* 2) *Mobilization of organization*; 3) *Implementation* of the action plan and *monitoring*; 4) *Outcome* phase or achievement of set goals and objectives and 5) *Participatory evaluation* that leads to analysis of the achieved outcome as well as the reassessment of the current status of community in order to set new goals (Figueroa et al, 2002, p.10). Model provided presents a thorough and well

planned strategy that describes the process of not only how to achieve a particular objective and aim but also an approach helping to evaluate the work of a community participating in a particular development project. The application of the model as well as possible outcomes is presented in the methodology presentation section.

The need for close co-operation between the stakeholders and local actors and directly aimed use of information being produced within *Map Kibera* project has been identified in previous research applied on the outcomes of the initiative. In her report “Mediating Voices and Communication Realities: Using information crowd sourcing tools, open data initiatives and digital media to support and protect the vulnerable and marginalized” Berdou (2010, p. 29) stresses the need for stronger co-operation and identification of possible partnership between various actors such as NGOs, policy makers and community representatives that would foster the further deployment of such crowd sourcing platforms. She also identifies the need to explore in more depth the process of transformation from “participation technologies to participatory processes” aiming on learning and experience sharing between involved parties – technology actors, social scientists and development practitioners.

Project’s *Map Kibera* one of the studied initiatives – *Voice of Kibera* reporting platform works on a basis of a crowd sourcing that’s main objective is to sustain the flow of information in order for the project to work as a “media”. Goodchild (2007, par.34) mentions self-promotion as a possible motivator for Internet activity although in many cases this requires the identification of the author. He further continues by stating that the aspiration of making information available for the broader public may also stimulate the contribution of information. At the same time Hudson-Smith *et al* (2008, p.9) mentions the sense of a pride that a person is exposed to when contributing to the improvement of a content, specifically addressing it to bottom-up creation of maps. Casey (2009, par. 8) continues by providing a broader explanation addressing that the target audience of such ICT tools are “the post -boomers” and “post X-Gen under 25’s” who’s environment is highly technological and cyber-connected therefore stimulating to explore things around them.

2.4. The concept of social change

The outcome and possible impact of the application of participatory communication strategy may foster several changes within a community and individual level such as but not only empowerment, sense of ownership and other. Figueroa *et al* (2002, p.7) proposes a distinction of the personal and social change referring to the first as changes affecting specifically individual such as the modification of a behavior or intention for further activity and latter as broader changes that may have an impact on the whole community.

Despite the possible diversity of outcomes of participatory process most researches connect the process of engagement with the concept of empowerment. In her book “Empowerment and Community Planning” (2004) Elisheva Sadan explains that in order to understand what does the word “empowerment” entail one must discover the multiple and even contradictory discourse of power. With reference to work of John Gaventa, Elisheva provides a definition of power as “the production of obedience to the preference of others, including an expansion of the preference of those subject to it so as to include those preference” (2004, p. 36) in that way uncovering the complex interconnectedness between the notion of resistance as the results of acknowledgment of the unequal relations. Acknowledgement and possession of information is strongly tight to the idea of power. Thus Paulo Freire calls it a critical consciousness or ability to critically assess and analyze one’s history and present (2005 ed, p.36), whereas Michel Foucault (2004, p. 55, cited in Elisheva) connects it with one’s possession of information that may change his status and provide “freedom”. Thus the access to information possesses one of the main positions in order to achieve empowerment and will be discussed further on.

Turning to the discussion of the concept of empowerment Elisheva identifies two dimensions – individual and community empowerment. Individual empowerment then is an active process that requires from a human an initiative, a willingness to change his environment and a belief in his power to achieve it. (2004, p. 84). Thus the concept of individual empowerment is to be understood as person’s willingness to make change, an active process and not something that can be imposed on someone by someone. At the

same time community development provided by Elisheva corresponds to one proposed by Narayan (2002, p. 11): “development is the expansion of assets and capabilities of poor people to participate in, negotiate with, control, and hold accountable institutions that affect their lives”. The exploration of the cases of individual empowerment is not investigated in this research as it requires deeper interaction with each individual in order to understand his inner motives and social preconditions.

Narayan (2002, p. 14) provides four strategies of how the empowerment can be achieved: 1) Access to information 2) Inclusion and participation 3) Accountability and 4) Local organizational capacity. Each of these strategies will be discussed more broadly justifying their importance in the complex process of empowerment.

2.4.1. Information equity and access

As stated previously, possession of information is vital in order for one to acknowledge his position, opportunities and abilities offered. Access to information especially in less economically advantaged areas provides local actors with a chance to change or affect their lives as they understand that there exist tools that can change the way things are ordered in the current situation. Cadiz (2002, in Hemer and Tufte) addresses the access to information as one of the important elements of communication for empowerment as actors should access information that can influence their decisions and activity. Her argument is shared by Servaes (2002, p. 98, in Hemer and Tufte) who states that “the right to inform and to be informed, and the right to communicate, are thus the essential human rights”. It has to be mentioned that in order to fulfill this important condition one has to ensure the access to this information in the way that is the most appropriate and adapted for this community, such as, for example, free community radio or bulletin boards. In case the communicative tool is not adapted to local conditions any project working to achieve empowerment may fail as it does not fulfill its aim to provide community and actors with vital information.

2.4.2. Inclusion and participation

In order to ensure the sustainability of the process and adaptation to local environment the participation and inclusion of local and least advantaged and excluded people (Narayan, 2002, p.15) must be ensured. Tufte and Mefalopulos (2009, p.4, original italics) connect the importance of participation and inclusion to the outcome of empowerment process such as increased *feeling of ownership* of an existing problem and implication for further activity. Figueroa *et al* (2002 p.7) shares this argument analyzing the scope of established sense of ownership as one of the outcome of participatory communication. The importance of participation has also been stressed by Cadiz (2002, p.150, in Hemer and Tufte) that names it as shifting power from external experts to local people by putting the second in control. In that way participation and empowerment are concepts that are interconnected – one is not impossible without another and one derives from another under the certain circumstances.

2.4.3. Accountability and Local Organizational Capacity

Narayan (2002, p.16) understands accountability as an obligation and responsibility of political, administrative institutions and other public organization to protect the rights of the people, especially the least advantaged, to ensure the access to information and thorough use of resources. A need for accountability also connects with the previously discussed need for an administrative and governmental support of participatory process, a political and social environment that stimulates the successful engagement and participation.

Finally, Narayan (2002, p. 17) concludes that ability of local community and its members to mobilize, to organize itself to take a collective action is an important aspect in achieving empowerment. Social mobilization has previously been discussed as an outcome of participatory communication but is refereed here to the inner need of a community to start the action. This may be also referred to Elisheva's concept of individual empowerment as a primary source of change.

2.5. Critique on participatory approaches

Participatory approaches have gained not only appreciation among scholars but also critique and negative assessment. Wilkins (2009, par.8) starts the discussion by stressing that “participation” being introduced as a “remedy” to dominating paradigm of dependency and modernization theories has been overused and has lost its meaning. Huesca (2002, p.187, in Servaes) with reference to Diaz Bordenave (1993) and Dudley (1994) continues this argument stating firstly that the implementation of participatory communication was seen as a passive collaboration or even as a manipulative strategy aimed at achieving predetermined objectives of mostly external, international organizations.. This view is shared by White (2000, p.143, in Pierce) stating that the concept of participation may be exemplified on different levels in that way achieving different outcomes. The participation or a simple *presence* does not ensure that the already established order of things or more specifically – power relations will be somehow affected and that the outcome of participation – shift of power from a possessor to local people will take place. White (2000, p. 143, in Pearce) also argues that in the process of participation interests of the involved actors must be considered in order to understand what is the general aim of the participation.

Huesca (2002, in Servaes) with reference to White (1994) summarizes that the participatory approach has also gained a critique of overly emphasizing the role of the “local” and excluded people thus supporting the naïve and romanticized view that local, deprived people can determine their own development. Firstly, it is no longer possible to determine who “the locals” are taking into account the impact of globalization, secondly as stated by Pieterse (2010, p.69) one has to keep in mind that putting the national/local culture to the centre may end up in too radical forms, such as nationalism or ethnic fundamentalism.

3. LITERATURE REVIEW AND CONTEXTUALIZATION

3.1. ICT for Development and Social Change

Today Information and Communication Technologies (ICT) are dominating not only in such fields of human activity as business, education, government and other but have also become central players in the field of development (Granqvist, 2005, p. 285 in Hemer and Tufte). According to statistics, ICT development rate in Sub-Sahara African region has increased twelve times from almost 0.6 of Internet users per 100 population in 2001 to 12.6 in 2011⁶. The role of ICT towards stimulating and supporting development and social change has widely been acknowledged by many scholars (e.g. Narayan, 2002) and implemented globally in large- and small-scale projects by many international organization and programs such as DFID, ActionAid, World Bank and others emphasizing the impact and contribution of ICT especially in developing countries as a tool of fighting poverty, social inequality and contributing to citizen empowerment, education and sustainable development. According to the ICT Regulation Toolkit (a collaborative work of *infoDev* – a global partnership program within the World Bank Group and International Telecommunication Union - United Nations agency for ICT)⁷ well planned and research-based implementation of ICT can contribute to successful achievement of the Millennium Development Goals, stimulating economic growth and the reduction of poverty specifically if used to support empowerment, efficiency in service delivery and to enhance the livelihood (*ICT Regulation Toolkit*, <http://ictregulationtoolkit.org>).

Dambisa Moyo's⁸ critique of the effectiveness of foreign aid addressed to “stimulate” development (Moyo, 2012) from the outside has been shared by many researches (e.g. Warah, 2009; Easterly, 2003). Despite the criticism complemented with remaining contradictions concerning the outcome of implementation of ICT within the still

⁶ According to statistics of *International Telecommunication Union*, Section of Millennium Development Goals, retrieved March 23, 2013 from <http://www.itu.int/ITU-D/ict/mdg/>

⁷ According to information from *ICT Regulation Toolkit* web site, retrieved May 15, 2013 from <http://www.ictregulationtoolkit.org/en/Page.About.html>

⁸ Dambisa Moyo is an international economist, author of many well known and disputed books and publications covering among many themes the analysis the efficiency of aid in Africa, in 2009 was listed as on of the „100 Most Influential People in the World” by TIME Magazine, according to Moyo's biography, retrieved March 14, 2013 from www.dambisamoyo.com/biography/

remaining notion of digital divide one of the strongly supported strategy in the field is directed towards the continuation and even increase of the amount of financial resources addressed to ICT project as stated by Ilari Patrick Lindy, Senior Operations Officer at the World Bank, on Euro/Africa ICT/P8 summit: “[projects implemented now] are piecemeal, rarely transformational and are only a fraction what could be achieved” (2012, “*The Transformational Use*”, slide 5).

Within the still ongoing debate on the effectiveness of aid the ability of ICT to provide information and effective communication that can become a key component that “enables people to become active participants in the development of their community” and therefore their lives has been widely acknowledged and applied in practice (Beardon, 2003, p. 4).

3.2. The concept of crowd sourcing. Crowd sourcing mapping/community mapping

3.2.1. New media

The concept of ICT is understood in broad terms incorporating “components” such as equipment or hardware, programs and installations as software as well as connections and networks (Cisler, 2005, p. 147 in Lovink and Zehler). The concept of ICT correlates with the notion of the new media, that according to Manovich developed as “a convergence of two separate historical trajectories: computing and media technologies” (2001, p.20). The complex notion of new media is further developed by Lievrouw in her book “Alternative and activist new media” where the author specifically emphasizes that new media are, firstly, being developed as a hybrid technologies that combine innovations of both old and new media and programming; secondly these media represent a “network of networks of technologies, organizations and users”; thirdly new media form an integral part of every human’s life as well as that new media is highly interactive thus supporting various forms of participation (2011, p. 8-15). The concept of new media forms a basis of understanding the work of the crowd sourcing systems.

3.2.2. Crowd sourcing and mapping

One of the activity of *Map Kibera* project – *Voice of Kibera* initiative works on a principle of crowd sourcing using crowd sourcing internet platform – online map of Kibera city produced on the *Ushahidi* platform⁹ and serving as a media that represents the output of commonly contributed knowledge of local actors. Doan, Ramakrishnan, and Halevy discusses crowd sourcing systems as involving larger groups of people willing to help finding a solution to a problem that is defined by system owners (2011, p.87). Together with Casey (2009) they provide a broad range of examples of projects using the principle of crowd sourcing such as a well-know Wikipedia, Amazon.com, eBay.com and others stressing that crowd sourcing systems may be categorized under many principles including the nature of collaboration and type of target problem, a role of crowd sourcing system in recruiting users, a degree of user activity and many others (2011, p. 87-89).

Despite the broad scope of application of the concept of crowd sourcing in his work “Citizens as sensors: the world of volunteered geography” Goodchild introduces this concept by referring to the beginning of mapping process and first and most known example in a history - the naming of the continent of America (2007, par.1). Connecting the concept of volunteered geographical information with technological specifications of Web 2.0 such as geotags, sophisticated graphics and availability of a broadband communication author confirms that today it is not only possible to deliver content to Web sites (including maps) but also to edit, update and share unique information (2007, par.15) for broader purposes. Batty *et al* (2010, p. 2) continues this discussion by stating that technical opportunities presented by Web 2.0 provide access to production of spatial information and related data to almost everyone interested or willing to “invest” his knowledge, time and energy without the previous experience or specific education in

⁹ The Ushahidi Platform means “testimony” from Swahili and is an internet-based platform (online map of the specific geographical area with reports shown under particular category) that helps to collect, visualize and spread the information of various content produced by the citizens, volunteers. The data is free and open, reports can be made using mobile phone or through accessing platform online. The platform itself is free and can be installed on various devices such as computers, mobile phones, iPads and others. Up to today it has been used to spot and report on cases of flood, corruption and other activities in Europe, Asia, America and elsewhere. Information retrieved March 16, 2013 from <http://ushahidi.com/>

such fields as for example geography. This contributes to democratization of the process of creation of such data as well as broadens the further application, as expressed by Turner (2006) cited in Batty *et al* (2010, p.2) stating that: “methodologies of Neogeography tend towards intuitive, expressive, personal, absurd, artistic or maybe just simply idiosyncratic application of “real” geographic techniques”. Despite the fact that the wide spread and multi-purposed application of spatial information hinders efforts to systematize this fields, with reference to Anderson (2007) Batty *et al* presents six most identified characteristics of web mapping and Neogeography naming them as 1) individual production and user-generated content; 2) application of the power of the crowd; 3) massive data produced; 4) principle of participation; 5) the effect of network; 6) openness (2010, p.2). However Buckingham (2013, p. 3) even more broadens the understanding of the concept of digital spatial data referring to Crampton (2010) who suggests the idea of a New Spatial Media. This concept would fit between the diverse frameworks as it summarizes and covers all previously presented principles of work supplemented with the need to be implemented “either on the web, through mobile device or both” (ibid.)

Integrating below discussed interrelated concepts in this research a definition provided by Hudson-Smith *et al* describing crowd sourcing as “a creation of data by volunteers which is then accessible and sharable as a web-based service”, being characterized as an uncoordinated process, working on the law of “large numbers” in relation to the number of contributors and thus dependant on the creation of social networks (2008, p.6) forms a core understanding of the principle of the work of *Voice of Kibera* platform and reporting system.

3.2.3. Citizen journalism/community mapping

Voluntary created and “reported” information of specific interest and issue can be related to what is called “citizen journalism”. Lievrouw identifies this genre as a form of alternative media emphasizing that such journalism is mainly grassroots created, open-sourced, independent in the notion of the context and mainly but not always oppositional to the dominant paradigm of the mainstream media (2011, p.120). Citizen journalism calls for participation as news “reporters” are to be considered the actual

viewers of the action reporting the real but not “edited” version of what happened. Lievrouw also stresses the direction of such journalism that is aimed at shading light on issue that “are overlooked or marginalized by the mainstream press” (2011, p.125) emphasizing for example locally oriented problems of a particular community. *Voice of Kibera* initiative serves interest of a particular community – a community of Kibera, largest slum in Africa thus becoming a community media in new, digital format. Howley (2008, p.2) defines „community media” as a “grassroot or locally oriented media access initiatives” that are based on the “dissatisfaction of the content and the form of a mainstream media and that support the freedom of expression and participatory democracy”. The main target audience of a community media on a local level is community itself, its members and involved actors. As Hintz precisely noticed: “(Community media) focus on issues which are directly relevant to a specific community and involve that community in all aspects of media production” (2007, p.245 in Cammaerts & Carpentier). It has to be mentioned that *Map Kibera* project started in 2009 not only as a solution to a lack of publicly available information about Kibera, it also played an important role of local media showing the real situation and presenting a grassroots coverage of process taking place during the Kenya General Elections 2013.

Despite the role of citizen journalism in “spotting” news from alternative reality Erica Hagen¹⁰ draws a strong distinction between community mapping – a case of *Voice of Kibera* initiative and citizen journalism or citizen mapping describing the later as an act of individual whereas the prerequisite for the first is to engage community in the creation of the content. Mikel Maron¹¹ underlines this precondition emphasizing the outcome of the process of engagement stating that “..the excitement of community mapping [...] is the possibility of a fundamental shift in the power dynamics of how

¹⁰ Erica Hagen is a journalist and international development practitioner working on the issues of community and citizen participation in relation to traditional and new media, one of the co-founders of *Map Kibera* project and GroundTruth Initiative, author of many articles and publications related to citizen engagement and information democratization. Information retrieved March 16, 2013 from <http://groundtruth.in/about/>

¹¹ Mikel Maron is a programmer and practitioner of the use of the open source and open data for community and humanitarian needs, one of the co-founder of *Map Kibera* project, GroundTruth Initiative and the President of the Humanitarian OpenStreetMap Team. Information retrieved March 16, 2013 from <http://groundtruth.in/about/>

development is practiced. If people know the facts about their own lives they have more power to call to account those institutions which are supposed to serve them, and ultimately, to improve their lives themselves” (2012, par. 5).

At the same time the use of crowd sourcing and community mapping has also raised questions of ethics. Linda Raftree¹² (11.02.2013, par.6, 8, 9) summarized main ethical problems that are facing the field today. Thus when applying the digital mapping principle one has to avoid the use of such innovative technologies for the sake of technologies *per se* minimizing the role of the collaboration with community in the process. It is important to deliver considerable amount of time training the local people to use these technologies in order to ensure the sustainability or in other words giving citizens all the necessary tools to ensure they will own the process. Questions of open data should also be considered dealing with the dilemma of what information can and can not be published and shared to the others.

While these considerations are to be taken into account Casey (2009, par.80) precisely notice that “We are shifting from top-down controlled production and distribution to bottom-up crowd sourced production and open sourced distribution”.

3.3. Critique on ICT

Despite the positive impact that the implementation of ICT may have on the enhancement of the lives of communities within different countries, the debate about the effectiveness and cost of this implementation still remain. Pieterse (2005, p.11 in Lovink, G. and Zehle) argues for the digital capitalism and spread of ICT driven by the market expansion and not the fostering of development. He continues by stating that the digital divide that is often being associated with ICT and promoted by international organization is not digital but socioeconomic also stressing that in fighting problems like poverty with technological solutions one “lacks awareness of social development”

¹² Linda Raftree holds a degree in anthropology, is a practicing expert with international background working on issues of community development, ICT, participatory media, apart from other works as a special adviser to the Rockefeller Foundation’s Evaluation Office, consults mEducationAlliance, manages New York City Technology Salons. Information retrieved March 15, 2013 from <http://lindaraftree.com/about/>

(2005, p.11). For example the research on the open-source software and its localization in South Africa has revealed that one of the barriers of acquisition of ICT is the low level of English proficiency of local citizens and the lack of knowledge of ICT terminology (Dalvit *et al*, 2008). This view has been previously introduced by Rao (2005, p.278 in Hemer and Tufte) who identifies 8 C's of the implementation of ICT namely connectivity or the technological capabilities of the country, content of such ICTs, community or the end-users of ICT, commerce, human resource capacity, culture of use and further sustainability of ICT, cooperation and capital.

Pieterse's argument on ICT being designed to the requirements of the prosperous markets (2005, p.17 in Lovink, G. and Zehle) has also been shared by Heeks (2002, p. 154) cited in Cisler stressing the more technological side of the problem: "ICT designers represent the world view of the stakeholders who plan the project rather than the target audience or participants". This viewpoint incorporates the broader understanding of the importance of, firstly, thoroughly planned and adopted technical specification of ICT projects ensuring that the technology being implemented and embedded has a sufficient and well-thought-out ground otherwise ICT projects and tools being implemented may appear as too „mature” for the area they are designed for (Cisler, 2005, p. 154 in Lovink and Zehler). In other words it has to be ensured that the program or equipment will be installed successfully because other technical requirements such as wires and internet connection have been provided. Secondly, the design and implementation requires the involvement of the actual end-users of these technologies in order to ensure that all the prerequisites have been taken into account. Granqvist (2005, p. 292, in Hemer and Tufte) identifies the importance of involvement of local actors in the initial design stage in order to ensure that the project will actually serve the interests of the community it was designed for.

The importance of the adaptation of ICT to local content as well as the need for participation forms a core understanding of the implementation of ICT in projects aimed at development.

3.4. Media regulations and ICT position in Kenya

Map Kibera project's initiative *Voice of Kibera* plays the role of the digital community media in Kibera as well as in corresponding geographical area such as Nairobi. In their study "The Media We Want" Oriare, Okello-Orlale and Ugangu (2010) stresses the importance of minimizing governmental control over the production, operation and regulation of media. This stand has also been shared by Linus Gitahi, CEO of Kenya's Nation Media Group (2010, proceedings from Regulation Stakeholders Conference) and supported by field practitioners such as Haron Mwangi, CEO at the Media Council of Kenya, stating that media in Kenya must be free, with minimized commercial interest, trained personnel, basing on the well-planned regulation system delivering crucial information to citizens of Kenya including the governmental decisions (14.03.2013., lecture at Ørecomm Festival).

Debates about the development of ICT and digital media in Kenya are also rising. In their study on the role of ICT in sustaining of developing countries Kasigwa, Williams and Barymureeba (2006) explore the possible impact ICTs may have on developing areas, stating that such technologies among other can stimulate the empowerment of rural communities or marginalized groups, stimulate decision-making with preconditions that they are placed within local culture and the global economy, are operating under the framework of stimulating governance and legislation. The emerging role of ICT has also been acknowledged on the governmental level of Kenya, with National ICT Master Plan 2017 being produced and enacted. The main vision of the plan is to achieve that Kenya becomes leading ICT country in Africa by 2017 with the objective to provide main areas such as education, health sector, environment with access to ICT that is accessible, affordable and stabile (14.02.2013., Kenya's National ICT Master Plan 2017). The rise of ICT in Kenya can be supported by statistics reporting that from over than 43 million people population of Kenya about 12 million citizens have Internet access that makes 28% compared to approximately 200 000

Internet connections in the year 2000¹³ and the rise of mobile phone usage from almost zero in 1990 to 52.90% per 100 population in 2011 in Sub-Saharan Africa¹⁴.

At the same time Pieterse (2005, p.14 in Lovink, G. and Zehle) indicates that in order to stabilize the discussion about the implementation of ICT for development within the notion of digital divide there is a need to balance the use of Internet and ICTs like radio, mobile phone and television. Prevailing position of “traditional” ICT media has also been acknowledged by Oriare *et al* (2010, p.8) stating that the most popular media in Kenya is radio, following by television and newspapers.

¹³ Statistics retrieved March 17, 2013 from <http://internetworldstats.com>

¹⁴ According to statistics of *International Telecommunication Union*, retrieved March 17, 2013 from <http://ITU.com>

4. RESEARCH METHODOLOGY

4.1. Introduction to the case and directions of research

The empirical part of the research is aimed at analyzing *Map Kibera* project and its initiative *Voice of Kibera* from several perspectives. Representing the case of co-operation with local community it nevertheless is important to analyze in what ways project team of *Map Kibera* and its initiative *Voice of Kibera* implemented strategy of participatory communication. Therefore firstly *Map Kibera* project and *Voice of Kibera* initiative will be analyzed from a participatory communication strategy perspective analyzing what steps of IMCFSC took place during the work of the project.

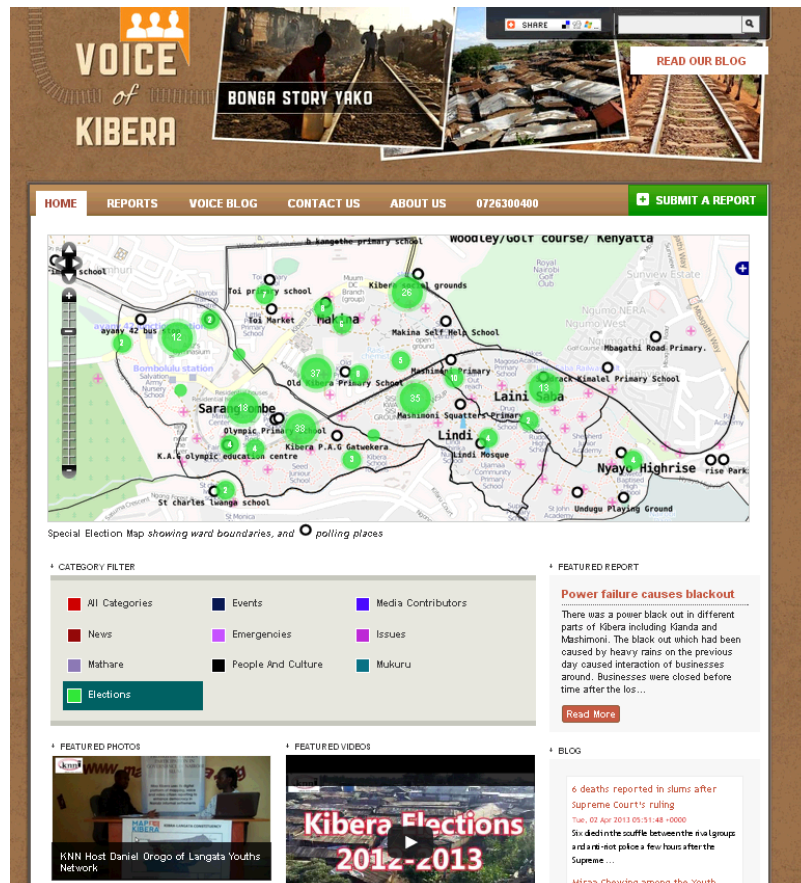
As stated previously *Voice of Kibera* is a reporting system that allows all local citizens, actors and anyone interested to report on various activities happening around them via sending low-cost SMS or by online interaction with *Voice of Kibera* Internet map – www.voiceofkibera.org. To provide some statistics it can be said that, for example during August 2011, 24 web reports were submitted to platform¹⁵, during the period September-October 2011 – 66 web reports were submitted¹⁶ while during General Elections 2013 that took place in March 2013, 68 web reports and 191 SMS was submitted to platform¹⁷. As the outcome of such initiative a common online visual map is being created that represents those cases being reported, displaying them under various categories such as “People and Culture”, “Emergencies”, “Elections” etc.

It is therefore crucial to ensure that reports are being submitted by local people and actors continuously in order to provide the sustainability of the project and its outcomes. Basing on this a second perspective applied specifically on *Voice of Kibera* initiative is aimed to explore what could motivate people, actors to report and what are the barriers that restrict citizens, actors from participating in project activities.

¹⁵ Bary, Fredrick (16.08.2011) *Kibera in the last two weeks*. Retrieved June 5, 2013 from <http://blog.voiceofkibera.org/?p=97>

¹⁶ Bary, Fredrick (15.11.2011) *Kibera at a glance*. Retrieved June 5, 2013 from <http://blog.voiceofkibera.org/?p=204>

¹⁷ Maron, Mikel (04.03.2013) *Election day closes in Kibera*. Retrieved June 7, 2013 from <http://www.mapkibera.org/blog/2013/03/04/election-day-closes-in-kibera/>



4.1. photo, *Voice of Kibera* platform

Finally *Map Kibera* project and *Voice of Kibera* initiative is being explored from a perspective of an initiative fostering social change in project applying such ICT tools as crowd sourcing maps. It is crucial to understand what impact creates the crowd sourcing and Internet media like *Voice of Kibera*, does its application create any social change on individual or community level.

4.2. Qualitative semi-structured interviews

In order to explore proposed research questions and analyze identified perspectives a combination of quantitative and qualitative research methods is applied. Quantitative research methods are seen through the paradigm of positivism where facts and figures are used to confirm a certain theory or hypothesis. At the same time as Deacon (2008, p. 93, in Pickering) observes “cultural studies is oriented to the deconstruction of meanings, whereas statistics are fundamentally about the construction of meaning”. This indicates that the use of research methods from both fields of quantitative and

qualitative research study will supplement each other providing the fuller picture of data conducted.

During the empirical part of the research a combination of qualitative semi-structured Skype and e-mail based (including *Facebook* group) interviews was applied. According to Pickering (2008, p. 17) experience constitutes the main category within the field of cultural studies, it is therefore important to investigate those experiences derived straightly from the data providers in order to apply researcher's own perspective and not to work with the data that has already been "categorized" or interpreted before. This is being ensured by applying a method of semi-structured interviews as this tool provides the opportunity to derive new categories and meanings based on the material extracted during the interview thus allowing to cover the field of interest or meanings that otherwise would be missed or not identified.

The choice to conduct Skype and e-mail based interviews was based on several considerations. The use of asynchronous online communication such as e-mail interviews provide an opportunity to interact with respondents that are geographically distanced therefore possessing challenges to make an arrangement (Bampton & Cowton, 2002). Such type of asynchronous communication provides each respondent an opportunity to arrange his own time, elaborate on the own way of thinking producing a well-thought response in what way "allowing for a thoughtful and personal form of conversation" that is not in any way hindered or affected by the presence of the interviewer (James & Busher, 2009, p. 24). This argument has also been supported by Meho (2006, p.1289) who states that the actual absence of interviewer during the e-mail communication may reduce a possible affect that may result due to social inequalities such as class, gender or other between the two sides of a communicative process. This is of high importance in communication processes where the possible status and position of the interviewee may be assumed basing on the information available regarding the location of the respondent as in the situation with Kibera area.

James and Busher (2009, p.24) continue by stating that the informality of communication that appears during the online interaction facilitates deeper relations between the interviewer and respondent as allows to precise details that were identified

in the text message that otherwise could be lost in other forms of communication such as synchronous. At the same time e-mail based form of interview allowed respondents to participate in research with less personal contribution also in terms of, for example, finances as identified during the interview with one of the respondents who indicated that the use of Skype application will lead to additional financial complications as well as will require additional time that usually is devoted to gain some income therefore indicating that additional efforts like the use of application such as Skype may not always be effective and appropriate.

4.2.1. Respondent selection process

The application of semi-structured interviews served several aims basing on the specifics of target groups. From the *Map Kibera* and *Voice of Kibera* project team perspective it was important to understand how the engagement of local actors and citizens was ensured during the initial stage of project implementation as well as what barriers could project team identify and in what ways these barriers could be overcome. In that way the official, institutional side of the projects was covered that was of high importance to the aim of the research.

The cooperation with actual participants and non-participants of *Map Kibera* project and *Voice of Kibera* initiative provided a crucial perspective of the citizens of Kibera community. Interviews conducted with residents of Kibera and Kenya in general ensured the more objective side of the data extracted as it was not biased and was based on personal opinion and experience.

It is important to identify that for my research selection of the respondents was based on several criteria. Firstly, it was important to contact those respondents that could be achieved via such ICT tools as e-mail or social networks such as *Facebook*. I acknowledge that this has limited the broadness of the target group and resulted in fewer responses therefore minimizing the possible scope of the research outcome, but my intention was to cover the main target group of the research and present the overall perspective on proposed research questions. Secondly, the importance of trust between the interviewer and respondent was strongly identified during the recruitment process.

This was shown in response of one of the respondents (whose participation in the online communication was interrupted) who indicated that she trusts the person who gave her contacts for the conduction of the interview. Therefore a snowball sampling was chosen as a respondent selection method in combination with the dissemination of invitation to take part in the research using *Map Kibera* Facebook group.

Basing on the established criteria interviews were conducted with several target groups, more precisely:

1. *Map Kibera* and *Voice of Kibera* project team.

Interviewees:

- **Erica Hagen**, project *Map Kibera* co-founder (The GroundTruth Initiative, *description at p.15*);
- **Mikel Maron**, project *Map Kibera* co-founder (The GroundTruth Initiative, *description at p.15*);
- **Joshua Ogure**, initiative *Kibera New Network* coordinator, resident of Nairobi.

2. Kibera, Nairobi and Mombasa based citizens, participants/non-participants of *Map Kibera* project and *Voice of Kibera* initiative.

Interviewees:

- **Caroline Ambwere** (currently living in London,UK, place of origin - Kitale, Kenya);
- **Cliford Otiento**, resident of Kibera, currently unemployed;
- **Raphael Omondi**, resident of Nairobi, co-founder of *Pamoja Youth Foundation*;
- **Mombasa resident**, female, administrator (remained anonymous).

4.2.2. Limitations of the method

One of the most important limitation of the use of this research tool is time resources. As Bampton and Cowton (2002, par.7) indicate, the delay in e-interview may last from several seconds if both respondents are presents at the time of conversation, to several hours and even days. Meho (2006) supports this observation stating that the time delay

may also be a result of follow-up communication and exchange of clarifying e-mails in order to grasp the fuller perspective of the respondents.

At the same time the asynchronous type of communication was also criticized as not allowing the production of instant, spontaneous responses in that way not only reducing the emotional feedback but also facilitating the adjustment of responses by the interviewee that may result in the loss of significant data. However, James and Busher (2009, p. 27) provide a counter argument elaborating on the reflexive nature of correlation between two sides stating that “a carefully considered reflexive response is just as credible as a spontaneous one, and can provide a more sophisticated understanding of the discourse that participants construct”.

Finally, online communication approach was critically assessed by providing access to the limited population, specifically those respondents that have access to Internet. At the same time this characteristic may be connected to the already mentioned benefit of the use of asynchronous online communication as it gives an opportunity to contact those respondents that are geographically distanced from the researcher.

4.3. Quantitative content analysis

As a second research tool a quantitative content analysis was chosen to find answers to research questions. This research tool provides an opportunity to apply a systematic analysis of the content of communications and other data by applying a specific framework that helps to uncover, identify categories and specified characteristics and by counting their occurrence to be able to make statements about the message and its meaning in a wider social context (Cottle *et al*, 1998, p.91, 95).

The main concern within this research methodology is the correlation between the frequency of the characteristics and their meaning and significance within the material studied. The number of appearance of the particular character may indicate to a specific role this character holds within the given text but crucial is “to place what is counted in context analysis within a theoretical framework which articulates, in the form of a model of communication influence, the social significance and meaning of what is

being counted” (Cottle et al, 1998, p. 96). This indicates to the need to apply more qualitative research methods as within this study the data extracted within the quantitative content analysis is being analyzed through the findings derived during the application of qualitative interviews.

The aim of the application of this research tool was first to analyze in what ways participatory communication approach was applied in *Map Kibera* project and *Voice of Kibera* initiative from a perspective of project team. Justification of the chosen method is based on the assumption that communication material being analyzed was partly produced by project team in that way representing the inner perspective. Second, the analysis of produced articles on *Voice of Kibera* and *Map Kibera* blog provided evidences aiming on the possible barriers that may restrict or reduce the level of citizen and actors participation in project activities. Finally, quantitative content analysis of the text helped to understand what if any social change was fostered by project and initiative activity.

4.3.1. The choice of the sampling

The choice of the material for applying a quantitative content analysis was based on several criteria. It is important to mention that there exists the known limit of reports produced about the work of *Map Kibera* project; therefore after analyzing all the existing documentation several types of data were chosen. Firstly, basing on the need to represent the inner perspective of the *Map Kibera* project articles produced on *Voice of Kibera* blog (<http://blog.voiceofkibera.org>) were chosen as being produced by project team – Sande Wycliffe, Ibrahim Abdi Hussein and Fredrick Bary who are the actual residents of Kibera. Respectively, articles produced on *Map Kibera* blog were chosen as representing the inner perspective of the project team but from the international perspective as articles are being produced by Mikel Maron, Erica Hagen, Jamie Lundine (representative of *Ushahidi* platform) and Primož Kovacic (Slovenian mapper, technical support).

Secondly, all articles appearing on both blogs were scrutinized in order to identify the connection to proposed research questions either in the heading or in the text body of

articles. Articles on *Voice of Kibera* blog were chosen of having either a direct indication of *Map Kibera* project or *Voice of Kibera* initiative, or containing connection to the work of the project or program in indirect way, for example containing words “maps”, “Kibera”, “elections” etc. with time period April 2011 – April 2013 starting with the first article published in April 2011. For *Map Kibera* blog articles a different strategy was chosen due to the fact that the blog was managed by the two initial co-founders of the program – Erica Hagen and Mikel Maron describing the process of the development of *Map Kibera* project and its programs and further continued by Jamie Lundine and Primoz Kovacic. Therefore a selection criterion was the identity of the author of the article as posts being produced/re-posted by other actors working in co-operation with *Map Kibera* project were not selected. Time period for *Map Kibera* blog was chosen as October 2009 – April 2011 starting with the first article published in October 2009 and continuing with time period April 2011 – April 2013 therefore corresponding with the same time period of the first blog.

According to Krippendorff (2004 p.119) such data sampling refers to relevance sampling method where: “Relevance sampling [...] aims at selecting all textual units that contribute to answering given research questions.”

4.3.2. Limitations of the method

The application of quantitative content analysis may also have several limitations in relation to approaches to text and its interpretation. Thus it is important to precisely identify what is the aim of structural and systematic analysis of the chosen text in order not to “follow the temptation to count things for the sake of counting” (GAO, 1989, p.26). At the same time an important consideration deals with the coding and interpretation of the chosen material. Basing on the need to create specific categories that are firstly to be applied on texts and later on used to interpret data a possible bias between the researcher and coding process may take place in relation to what can be counted as valuable and significant to the research. As Bryman (2012, p. 306) indicates the coding of the material is based on the personal experience of coder derived from the everyday knowledge that surrounds them thus affecting the interpretation of the material. Finally, being perceived as a quantitative research tool content analysis may

not be efficient in providing answers to question “Why?” that suggests the examination of more complex social structures and motives. In this research a combination of quantitative and qualitative research tools is being applied in order to overcome this limitation.

5. EMPIRICAL DATA. ANALYSIS

5.1. Process of the analysis of the data

In order to identify answers to proposed research questions data extracted from both articles of *Voice of Kibera* blog, *Map Kibera* blog and conducted interviews was analyzed and the outcomes were compared. All together from *Voice of Kibera* blog –22 and from *Map Kibera* blog – 42 articles respectively were analyzed compiled with 7 qualitative interviews. Quantitative content analysis was applied to both articles of two blogs being identified eligible for the analysis as well as the data extracted from the interviews in order to compare the outcome and provide an option for comparative analysis. Table 5.1.1. indicates the number of articles chosen for the analysis out of the total number of articles produced on *Voice of Kibera* and *Map Kibera* blogs.

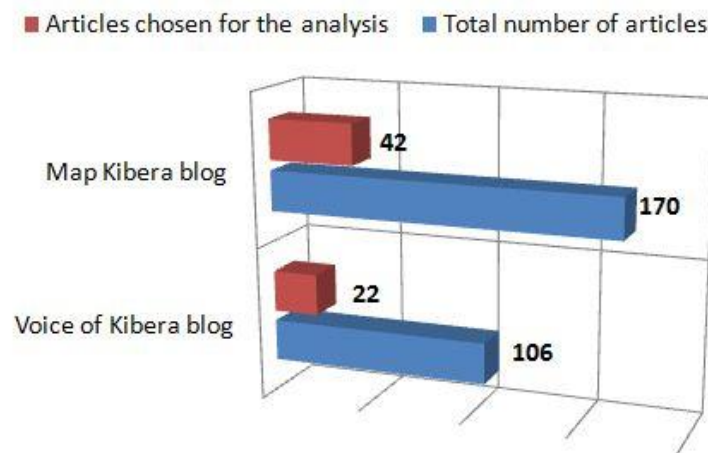


Table 5.1.1 Number of articles chosen for the analysis

The analysis of the articles being produced on *Voice of Kibera* and *Map Kibera* blogs consisted of several analytical stages. After being selected as eligible each article was coded applying a coding schedule (Appendix 2) as according to Cottle et al (1998, p. 91). A coding schedule contained analytical categories designed and units chosen to extract data that would identify possible answers to research questions and were therefore divided into three sections according to the number of research questions. During the application additional categories were identified that differed in each article and are highlighted in blue in the coding schedule. The same coding schedule was applied on the data extracted from the interviews. After each article and interview material was coded the number of units identified in each section was summarized

producing three summary tables - *Indication to the process of participation and engagement*, *Indication to social change* and *Indication to barriers restricting/minimizing the engagement of actors* (Appendixes 3, 4 and 5 respectively).

5.2. Analysis of data. Research question Nr.1 - Participatory communication approach

As stated previously in order to ensure the project is serving its community and is being adapted to local specifics the community itself must be involved and engaged in the early stages of project initiation. In order to explore the scope of community engagement and collaboration in this process an Integrated Model of Communication for Social Change (IMCFSC) was applied during the analysis of chosen articles and material derived from the conducted interviews. During the research each step of the model was analyzed in order to understand does the sampling material of articles and interviews provides indication or represents the particular example of application of these steps.

Analysis of all sampling material strongly indicated the presence of such steps of IMCFSC as *Identification and Involvement of Leaders and Stakeholders*, *Clarification of Perception* and *Implementation of the action plan and monitoring*. Table 5.2. represents 5 steps of the IMCFSC that were identified in sampling material most.

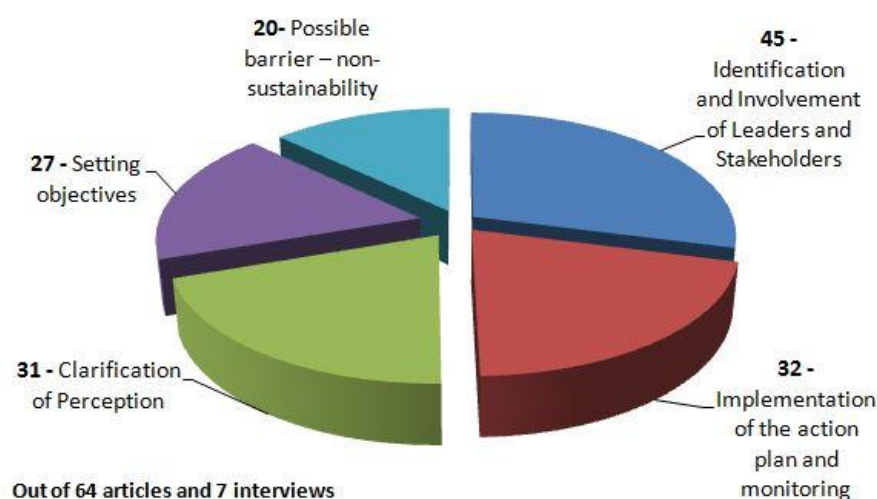


Table 5.2. Frequency of identification of each step – Top 5

As it can be seen step *Identification and Involvement of Leaders and Stakeholders* was identified in the sampling material most frequently. In articles/interviews analyzed this step was identified by counting the number of times key words or key phrases were mentioned such as, for example „These community media [Kibera Journal, published by KCODA, and Pamoja FM community radio] are the only outlets that cover Kibera from within and are a vital source of news” (Wycliffe, *Mapping Kibera*, 04.06.2012., Voice of Kibera blog) or „[One emerging theme in] discussions with various community organizations and international development folks” and „we’re involving community groups who work on media and technology” (Hagen, *It’s only been one week?*, 29.10.2009., Map Kibera blog). Important fact is the number of articles in each blog where this step was mentioned the most – 5 against 13 articles of *Voice of Kibera* and *Map Kibera* blogs respectively in addition to one interview.

Even though the international part of the project team initially estimated the „Map Kibera” as „*not beginning as a participatory development project as [...] local leaders, including administration were consulted but not necessarily engaged in the process*” (Lundine, *Whose map?*, 24.01.2011., Map Kibera blog) the process of identification of local leaders and communities (even not so broadly) is visible. The identification step was followed by the “consultancy” and engagement in the process of feedback and awareness creation of identified leaders and stakeholders. This is a very vital step in the implementation of the project where the catalyst of the community dialogue and action is “a change agent” as according to *Figuerola et al* (2002), in this case an external change agent not coming from the community itself. During the research it was also identified that the engagement of leaders and stakeholders was implemented in two steps where the first one took place during the initial process of project design and the second one came after the project team has identified that the data being produced during the mapping was not fully used by other communities: “[...] apart from a small number of individuals, mostly foreign, [...] the data stayed untouched” therefore indicating to the need of the change of direction: “*Because of this [the wrong sequence of project implementation] we have now backtracked to make a new action plan for community engagement*” (Kovacic, *Doing the other 90% in Kibera*, 31.05.2011., Map Kibera blog).

The need to develop a new community engagement plan derived from the process of participatory evaluation that in the case of the *Map Kibera* project was not a final step but a midterm evaluation that took place almost one and a half years after the project has started.

Frequency of next identified steps *Implementation of the action plan and monitoring* and *Setting objectives* (33 and 27 respectively) is justified by the aim of the articles – to represent the process of project design and implementation that can also explain the absence of identification of these steps in the conducted interviews. It should be noted that the monitoring process was not clearly visible but was expressed in the form of participatory evaluation during the ongoing project activities. At the same time implementation of the action plan was identified in sentences like „We have successfully managed to do Map Distribution, Community screenings..” (Ibrahim, „*Map Kibera Trust awareness creation*”, 12.02.2013., Voice of Kibera blog) and „The Map Kibera team wants to make sure that the local community is part of discussions about the challenges facing slum residents around the word”(Lundine, „*Help Map Kibera*”, 16.08.2011., Map Kibera blog). It is important to indicate that before the actual realization of the plan a community firstly has to agree on a production of such plan in common discussions therefore ensuring that the interests of all involved actors are being considered as important. In case of *Map Kibera* project such common discussions took form of a close collaboration between team members that consisted of not only international experts but also local citizens – 13 youth volunteers of Kibera as well as project’s *Voice of Kibera* and *Kibera News Network* local representatives. In addition broader Kibera community was invited to give feedback to the process of project implementation. This step of participatory communication concept was identified only in *Map Kibera* blog articles - in 7 out of 42 articles.

Setting objectives stage of the model is also important in order to understand what activities should be taken in order to achieve project’s aim. This stage was identified in 11 articles of *Map Kibera* blog compared to only 2 in *Voice of Kibera* blog. Examples of objectives being set during the project included “putting these existing streams of information together in one place”, “to link together stories and facts from various community media” as well as „to make sure the world is listening” (Hagen, *Maps and the Media*, 01.12.2009., Map Kibera blog). Important stage is the *Recognition of a*

problem where an existing problem has to be solved during the community engagement project that further determines what objectives have to be achieved. As stated by both Wycliffe and Lundine the initial idea of the Map Kibera project was to introduce the *OpenStreetMap* technology in the community of Kibera basing on the fact that “*Before October 2009 Kibera [...] was a blank spot [...]*” and “*The lack of basic information [about geography and available resources] made it much more difficult for residents [...] Kibera community to carry on an informed discussion about how to improve the lives of citizens there*” therefore “[the project has been widely embraced as] the realization of something previously missing, yet clearly fundamental: the right to exist on a map” (Wycliffe, *Mapping Kibera*, 04.06.2012., Voice of Kibera blog). As it can be seen the initiation of a project together with the proposed *problem* or challenge needed to be solved came outside of the Kibera community. At the same time during the interviews when asked what outcome from *Map Kibera* activities could be achieved in case the initial idea of the project itself would originate from within the community two of the respondents – Joshue Ogure (*Kibera News Network*) and Mikel Maron (project co-founder) indicated that the outcome would be different. More precisely, Joshue Ogure stated that “...if all other conditions are kept constant then a local Kibera would even do better since he or she understand the people and know what problems are there with the real issues around them” (Personal communication, 04.04.2013 – 26.04.2013). This indicates to the importance of local knowledge that will be discussed further on. At the same time international origin of the project ensured the financial flow that was used to cover costs of project activities that otherwise might be restricted due to specific financial status of Kibera community.

The next crucial step of the IMCFSC that was identified in 25 articles (1 in *Voice of Kibera* and 24 in *Map Kibera* blog respectively) and in 5 interviews was *Clarification of Perception*. In case of *Map Kibera* project clarification of perception played a very important role influencing the outcome of the project. The importance of reaching a consensus was identified on the early stage of mapping process. As indicated by one of the project co-founders even the process of mapping and choosing the objects to be put on the initial map of Kibera raised questions as perception of each person towards what is and not important differed. Here the specific point is that each of the project team members, more precisely – local volunteers-mappers and initial co-founders of the project had different background that determined how the same object or situation was

understood by each. A particular challenge of common clarification was identified also when the objectives of the project were being shaped. As stated by Mikel Maron “*It’s difficult to explain the abstract concept of Open Data*” (17.05.2010., “*How can Map Kibera help*”, Map Kibera blog) indicating that the idea that information is being produced collectively and openly serving the community itself by providing it freely, easy to access and open to everyone was not easily accepted. Moreover not only the project team faced problems in order to understand the possible benefits. The analysis of the articles also indicated the possible misconception from the perspective of the broader community as Maron continues „We were often asked “what good is a map in a place like Kibera? We know where everything is! What we need is clean water and health care, not another survey!” (ibid). Clarification of perception as an important aspect was also strongly identified in conducted interviews – in 5 out of 7. Most eloquent indications covering also the work of *Voice of Kibera* included the correlation with the upcoming elections (on the date of interview – 13.12.2012.) stating that more people will report as “more people will get the idea of the project” (Hagen, personal communication, 13.12.2012.) as well as the further strategy on sustainability indicating that the project team “would work more with the communities letting them understand that the reporting they do is for their own advantage” (Ogure, personal communication, 04.04.2013 – 26.04.2013).

Finally, the last identified step with the highest frequency - *Possible barrier – non-sustainability* was not included in the initial model of participatory communication but was brought out during the analysis. This step plays an important role in the cycle of a project as is closely associated with the possible and desirable outcome of participatory communication and dialogue – an ownership of the whole initiative and its activities by the community. In case of *Map Kibera* project the importance of ensuring sustainability of project results was associated with the further work of the whole project after the initial co-founders would have left the project. Moreover, due to specific and even “too innovative” idea – the incorporation of the principle of Open Data it had to be ensured that the local project team will not only understand the original idea but will also operate on it further on with their own help. The problem of possible non-sustainability was identified in such examples as “*Without some organization or network to keep the torch moving, the work Map Kibera started in October-December 2009 would stop there*” as well as “*They needed to take the lead, to take ownership, and we would help*

support them in the process” (Maron, *Organizing Map Kibera*, 19.01.2011., Map Kibera blog). The problem of non – sustainability was later solved by common discussions and production of a common decision to start a new entity - a Trust that would operate further on without the help of external experts. This common decision was an important step in the operation of the whole project as it ensured that such crucial decision was considered and carried out by the whole project team (in contrast to the initiation of the project). Important to mention is that in the case of Map Kibera project the *community* here is referenced to „a group that share a common interest and [...] is bounded geographically” (Figueroa *et al*, 2002, p. 15), more precisely a project team with involved in project activities residents of Kibera, and is not considered a wider population of Kibera.

Finally, there is a need to indicate steps that were not identified in articles being analyzed. Those steps included: *Expression of individual and shared needs* and *Assessment of current status*. According to Figueroa *et al* (2002, p. 8) first step is crucial in order to ensure that the interest of all community members including the most disadvantaged are taken into account. As it will be presented further on some of the specifics of project activities such as language barrier or the lack of ICT technology posed a certain limitation to be engaged in. At the same time an assessment of the current status may be combined together with the identification of the existing problem – the lack of publicly available information about Kibera while might also include the analysis of the current status in relation to, for example, the number of households/individuals having an access to Internet. The later analysis was not identified during the research.

Additional category identified during the research was the importance of local culture and its specifics. This category was identified only 13 times in 5 Map Kibera blog articles but had a strong role in interviews being mentioned in 4 out of 7 conducted interviews. This aspect is very crucial as the failure to recognize local specifics may result in the failure of the whole project as it is not being adapted to the local situation. In case of Map Kibera project the establishment of trust was identified as a precondition of successful implementation of the activities and can be associated with the role of community dialogue. This was visible in examples such as “We are working on having more trusted people in the community” (Hagen, personal communication, 13.12.2012.)

and “*The interplay of ethnic, religious, and spatial stresses here [in Kibera] are complicated*” (Maron, 01.11.2009., “*Solidarity with Kibera*”, Map Kibera blog).

5.3. Analysis of data. Research question Nr.2 - Indication to social change

Second research question that was answered during the study was aimed at identifying in what ways crowd sourcing project that incorporated the mode of participatory communication fostered social change. During the analysis six most identified examples of social change were indicated and are presented in Table 5.3.

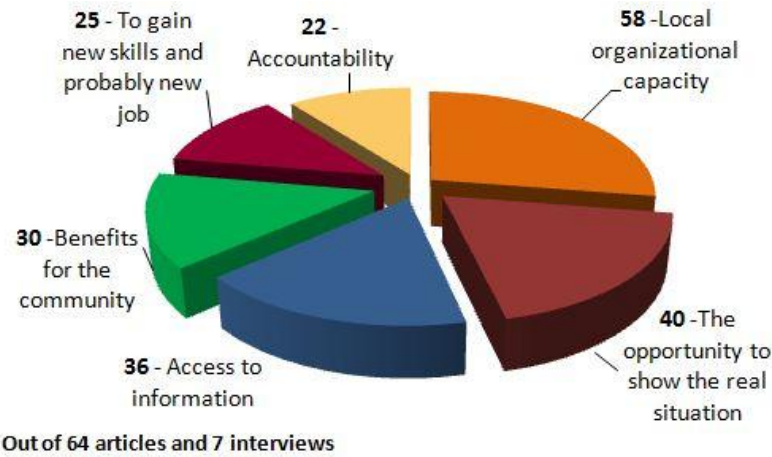
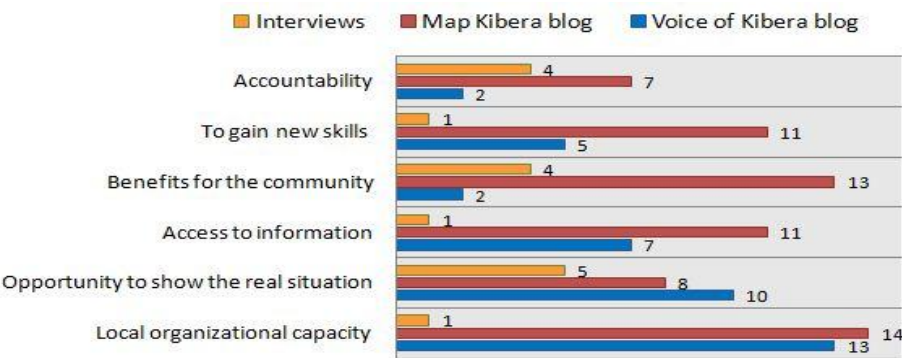


Table 5.3 Frequency of identification of examples of social change – Top 6

It is important to precise that this priority list has been derived not only from the total number of times each example of social change was mentioned but also from counting the number of articles/interviews that mentioned these examples at least once as shown in Table 5.3.1.



As discussed previously the concept of social change as a desirable outcome can be viewed from individual and community level. During the research most identified

examples of social change (Table 5.3.1.) could be related more closely to a community- in this case *Map Kibera* project team and not individual except of gaining new skills and/or new employment. This could be explained by the fact that each team member identifies himself as a part of a whole project team as well as that the initial aim of articles was to represent the processes happening within the project community.

Local organizational capacity as an outcome of project activities was strongly identified in both *Voice of Kibera* and *Map Kibera* blogs - in 13 and 14 articles respectively. As stated by Narayan (2002, p. 18) “Local organizational capacity is key for development effectiveness” referring that only self-organized groups/communities can ensure they have been heard and counted as equal actors in the development process. In case of *Map Kibera* project this outcome can be associated with the importance of ensuring the sustainability of project results and referred to the ability of local project team and volunteers to organize itself independently not only during the project but as well as (and most importantly) after the leadership from external experts was passed to them. Most visible examples of such capacity included organization of *Voice of Kibera* team meetings, participation in organized events and happenings taking place in Kibera as well as later on taking part in meetings and conferences on the nation level such as the Global Voices Summit. Also as previously stated a decision was made to organize a new entity – a Trust, thus becoming a *Map Kibera Trust* that continues its work even today. Finally, *Voice of Kibera* team members by taking the role of local community reporters highlighting the most important events at Kibera played an important role during the General Elections 2013. As stated by Wycliffe “we actively participated in the Party primaries nominations [...] and organized a VOK presentation to bring the community onboard in terms of monitoring and reporting” (“Taking VOK Platform”, 06.02.2013., *Voice of Kibera* blog). Most important, *Map Kibera Trust* gained a national recognition sharing its experience with representatives of Kenya government during the design of a new legislative document: “Map Kibera Trust recently facilitated a 3 day training [...] to target staff at Plan Kenya [...]to introduce participatory digital mapping theories, techniques and tools that Map Kibera Trust employs in its work” (Lundine, 04.07.2011., “Documenting a participatory digital mapping workshop”, *Map Kibera* blog). This also indicates to the ability of project team members to share its gained knowledge and experience with other community members and even new

communities. Most significant examples of such process was indicated in articles covering the process of mapping next slum – Mathare, where *Map Kibera* project team participated as consultants and supporters: “*Map Mathare is a 4 month training programme in Mathare led by the Map Kibera team*” (Lundine, 24.01.2011, *Whose Map?*, Map Kibera blog).

Even though this particular example of possible social change – *To share knowledge* was identified only in 6 *Map Kibera* blog articles, combined together with such outcome as an opportunity to gain new skills and possibly new job (scored fifth the most identified outcome) it takes a strong position and indicates to a very important process – a capability of a project team, a project community to operate on its own and most importantly – to share the gained knowledge and teach skills further thus becoming a knowledge holders and “teachers” themselves. Important to mention here is the process of learning that took place during the implementation of the project.

As it will be discussed in next section, the technical knowledge and operation with computer and other ICT tools constituted an important challenge therefore a constant training and consultancy to enrolled youth of Kibera was necessary and has been provided at full scale adapting to existing situation and adjusting project implementation plan according to needs of project team members. These both achieved outcomes are strongly connected to the concept of empowerment as indicate the process of gaining new knowledge and skills that further on can have an impact to decision being made. Even though it can be argued that technical skills like the ability to operate with computer or GPS (for mapping) may not have such a great impact, it provides each member an opportunity to explore new reality that can stimulate to make change. Such outcome of project activities can be referred to both individual and community empowerment.

The next most visible indication of achieved examples of social change covers the issue of providing tools for change. Compared to other identified units this outcome was identified more frequently in *Voice of Kibera* blog - 10 articles compared to 8 articles in *Map Kibera* blog thus indicating to a special role this achievement plays for local project community members. Being negatively perceived and viewed by various actors including broader international community, citizens of Kibera needed a tool to change

this “misreporting and propaganda” and *Map Kibera* project mapping activities as well as *Voice of Kibera* reporting platform played a tool to “do away with other mainstream media propaganda which has in the past tarnished Kibera name” (Wycliffe, “*Taking VOK Platform*”, 06.02.2013, *Voice of Kibera* blog). This outcome can closely be associated with opportunity to *provide a voice to community*. Being separated as additional unit this example of social change was identified in 1 *Voice of Kibera*, 7 *Map Kibera* blog articles and in 2 interviews and together indicates to a special role *Map Kibera* and *Voice of Kibera* platform played to community and its members. By gaining new skills (reporting, blogging, managing the media) combined together with the ability of crowd sourcing platform to represent the knowledge produced by the whole community at one place, local community gained tools of how to change the way they were perceived by becoming reporters themselves and creating real coverage of what is happening, creating their own agenda. This is a very crucial aspect as trained reporters communicating with local less technologically savvy and most disadvantaged citizens have an opportunity to represent their voice in that way making them visible and countable. As indicated by Hagen: “*community becomes engaged in telling the story of who they are and reporting their own facts and their own news*” continuing with linking this aspect to understanding of the concept of empowerment that “*comes from self-representation and local production of information*” (01.12.2009, *Maps and the Media*, *Map Kibera* blog). The ability to present the real situation using crowd sourcing platform and reporting system played a significant role during the elections as firstly helping to prevent the violence by dismissing reports containing misleading information and secondly helping to report the whole process of elections in that way showing the real and not “fabricated” coverage.

Next important example of social change being identified represents the ability of community members to access information. This unit combined together with *Information equity* forms another identified outcome and entity of the concept of empowerment as stated by Narayan (2002). Referring to *Voice of Kibera* platform as a source of free information sharing it nevertheless should be stated that access to information to Kibera community citizens was represented more in printed and visual forms and not in digital. Such sentences as “[*Map Kibera Trust*] was on the road to ensure that the maps that were produced reached the community which in-turn would put them to use” (Wycliffe, 29.11.2012., “*Map Kibera Trust on a map distribution*”,

Voice of Kibera blog) and “Map was painted on a prominent wall in Kibera demonstrating the likely places for insecurity and safe spaces” (Hagen, 02.03.2013., *Map Kibera: Ready for the Elections!*, Map Kibera blog) provide a good example. This could be explained by the fact that not all citizens living in a deprived area have access to computers therefore being able to access digital information. At the same time visualization of information on one platform gave the opportunity of Kibera community to centralize information that further could be used by other organizations and NGOs operating in Kibera thus becoming a central local community driven media.

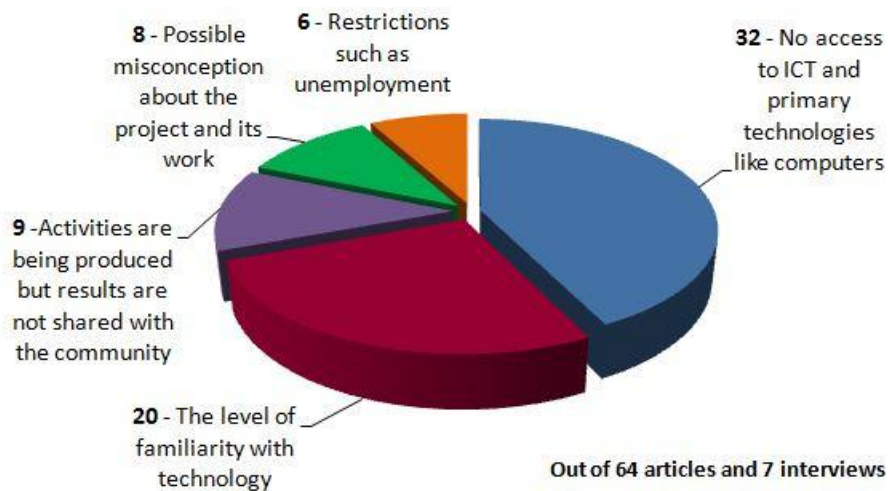
This opportunity to play the role of community media is associated with *Accountability*. In case of *Map Kibera* project this could be related to co-operation with local institutions and organizations responsible for the provision of services to Kibera residents. For example during General elections 2013 by producing printed maps and distributing them to District Commissioner’s office in Kibera it was ensured that „in response, security organs and emergency service providers enhanced their presence in these areas highly reducing chances of violence” (Ngito, 21.03.2013., „*How slum communities came together*”, Map Kibera blog).

Finally, category *Benefits for the community* include example of *Voice of Kibera* platform being created and driven by and for the community as well as being used as a platform for early warning signs and a tool spotting problematic areas for the safety of the community in addition to rising up discussions of questions of high importance that are being identified on the map.

5.4. Analysis of data. Research question Nr.3 - Challengers/Barriers for engagement

Finally, in order to understand in what ways the project team can ensure the constant flow of information and citizen engagement it is important to identify what factors are that restrict or limit the opportunity to take part in project activities.

Table 5.4 represents five most identified in articles and interviews barriers for participation.



Interesting to mention that no access to ICT and computers perceived as a possible barrier was identified equally in both *Voice of Kibera* and *Map Kibera* blogs - in 6 articles each in addition dominating in interviews conducted being mentioned in 6 out of 7 interviews.

Map Kibera project and *Voice of Kibera* initiative being analyzed in this work represent the case of digital ICT tools such as community mapping using OpenStreetMap technology and crowd sourcing platform named Ushahidi. It is therefore necessary that in order to access information being produced by these technologies one has to have access to technologies like computers. Nevertheless during the research it was identified that no access to ICT tools such as computers was identified the most and present in such sentences like “*Cyber Cafes where people can access the internet [...] have really helped a lot as it did not use to exist 2-3 years ago*” (Ibrahim, 12.12.2011., *Entrepreneurship among dwellers*, *Voice of Kibera* blog) and „*access to computers in Kibera is still limited and relatively expensive*” (Maron, 17.05.2010., „*How Can Map Kibera Help*”, *Map Kibera* blog). At the same time after introducing a mobile phone plug-in system for *Voice of Kibera* platform more residents of Kibera could now report, access and monitor events taking place on the platform as Douglas Namale indicates „*micro-reporting model is designed for mobile phone reporting, which is a key tool for Voice of Kibera reporting*” (28.02.2013., „*Radar trains citizen*”, *Voice of Kibera* blog). This leads to a conclusion that initial digital version of *Voice of Kibera* platform represents community media for co-operation with local and national organizations and NGOs as well as international organization interesting in exploring the experience of crowd sourcing that can access its online version. At the same time by producing only

online version of such reporting tool project might restrict the access to most marginalized residents of Kibera community that have no opportunity to be engaged due to this restriction.

Next identified barrier - *The level of familiarity with technology* is closely related to the previous one and deals with restrictions of using ICT tools. This barrier was identified mostly in *Map Kibera* blog articles – in 7 compared to only 2 articles of *Voice of Kibera* blog and can be explained by the fact that the first blog represented more technical issues of implementation of project activities. Some of the examples of such barriers are: „*Our criteria was [...] experience with using computers [...] that was hard to find*” (Maron, 17.05.2010., „*How Can Map Kibera Help*”, *Map Kibera* blog). This possible limitation is directly related to the lack of access to technologies as computers and may be as well related to such primary needs as education and knowledge capacity.

Further identified barriers *Activities are being produced but results are not shared with the community* and *Possible misconception about the project and its work* deal closely with the co-operation with local community. As stated in one of the articles *Kibera slum* has been over-researched by not only local and national organizations but also heavily by international, abroad institutions. Despite the fact of being under the „magnifying glass” local community benefited only to a small extent as results being produced are not shared with community being researched. This can be closely related to another important barriers being brought up during the interview - *The outcome/impact of the reporting is not clear*. The ability to see the actual impact of the reporting could be a very strong motivator for new project community members willing to take part and report. This is also an important aspect for the reporting system – to produce an influence in order to improve the lives of residents reporting otherwise the whole process can be useless, as stated by one of the respondents: „For far it has been a tool for people to be able to report what is happening [...] However it has to be of interest to the people in terms of what it has been addressing, feedback is key” (Omondi, personal communication, 13.04.2013).

Further on, barriers such as *Possible misconception about the project and its work* deals closely with identified steps in participatory communication model – *Clarification of Perception* and *Creating the awareness of the project*. Without the clear understanding

of project activities, its aim and outcomes citizens of Kibera community may not be willing to take part in something that is not understandable to them. Some of the identified example of misconception were: „residents may not initially clearly see all the ramifications of open data” (Maron, 18.04.2010., „*Quick beginning*”, Map Kibera blog) as well as „*As such, even groups such as Map Kibera doing ‘community research’ are viewed with suspicion*” (Lundine, 13.04.2010., “Reflections: Day 1”, Map Kibera blog). The lack of information about project prevents the inclusion of more citizens therefore in order to overcome previously identified barriers awareness campaigns about project and its work should be spread broader in Kibera.

Finally, restrictions such as unemployment combined together with the cost of SMS to submit report show important factors influencing the level of citizen engagement. Considering the specific economical situation that is prevailing in the area this shows that taking part in reporting is not affordable for everyone. This was also indicated in one of the interviews with a suggestion to provide a free hotline that could be used by any citizen in that ways overcoming financial restrictions as well as possible educational barriers as not all citizen of Kibera are literate. This may be also related to one additional aspect – language barrier that was identified in 3 out of 7 interviews. Taking into account the possible educational limitations it is important to provide services to community in most convenient to this community way. In case of *Map Kibera* project reporting as well as maintenance of *Map Kibera* and *Voice of Kibera* platform is run only in English that way restricting the most marginalized citizens of Kibera to possibility take part in project activities. This choice of language was justified by the need to be more accessible to international audience.

6. CONCLUSIONS AND DISCUSSIONS

6.1. Conclusions

In the research proposed *Map Kibera* project and its reporting initiative *Voice of Kibera* were analyzed from three perspectives as an example of the application of such ICT tools as crowd sourcing in projects aiming at bringing change and fostering development to particular community. During the analysis several conclusions have been derived apart from answering the initial research questions.

Firstly, it has been identified that the principle of crowd sourcing or a process of common knowledge production is being implemented in *Map Kibera* project and particularly in *Voice of Kibera* reporting platform only partly. Analyzed from a previously discussed definition proposed by Hudson-Smith *et al* (2008., p.6) of crowd sourcing as an uncoordinated data production by the large number of contributors, *Voice of Kibera* initiative currently is being used by a certain number of Kibera volunteers (local project team) playing the role of reporters submitting data for *Voice of Kibera* platform. This could be explained by the identified need to increase the awareness of project activities and develop closer work with communities of Kibera that could use this platform to represent cases and events taking place around them.

Secondly, the process of report submitting via SMS or online to contribute knowledge to the platform does not take a form of an uncoordinated process. Established Editorial Board of *Voice of Kibera* verifies each message or report being submitted in that way also playing the role of a tool to ensure local security as each suspicious situation can be inspected by project team members. In that way only actual and verified information is being represented that serves for the benefit of the community.

The reporting system has also been used by local citizens during the events of particular interest such as General Elections 2013 in that way providing some evidence that such crowd sourcing platforms are being used the most when a particular event or case takes place as for example in the case of Haiti earthquake¹⁸. This may indicate to a need to

¹⁸ During the Haiti earthquake 2010 *Ushahidi* Platform was used to identify emergency spots in that way providing first aid help to citizens being affected by the disaster. Information retrieved May 15, 2013.

develop other functions of such crowd sourcing platforms apart from coverage of a particular event in order to ensure the platform is being used constantly. In case of *Voice of Kibera* initiative such other function may be the opportunity to identify cases of local issues or problems that need to be solved as for example the shortage of main facilities such as public toilets or water pumps. The ability of crowd sourcing platform to centralize knowledge and visualize it in one place to some extent was used to identify most insecure places in Kibera that need to be avoided by citizens. Security maps were then distributed to local police offices thus improving the level of local services and the life of community.

The implementation of participatory communication approach in *Map Kibera* project

According to the outcome of research during the initial stage of project design *Map Kibera* project team co-operated with local community to, firstly, engage local volunteers to become project team members that further on would take the ownership of the project and continue its work independently. Secondly, project team identified local communities and NGOs such as the Social Development Network or SODNET and Carolina for Kibera Kibera Community and co-operated with them during the implementation of project. It needs to be stated that according to the evaluation derived from project team *Map Kibera* initially did not start as participatory project. This is being explained by the fact that communities identified during the research were only consulted, engaged in provision of feedback or during the events of creating awareness of the project. Moreover only after one and a half years after the start of the project a common plan for community engagement was developed. In addition several steps of the approach during the research were not identified. These steps are *Expression of individual and shared needs* that is aimed to identify the interests of all citizens including the most marginalized community members and ensure these interests in project activities and *Assessment of current status* aimed at understand the current position within the community in relation to the problem identified.

from National Geographic NewsWatch <http://newswatch.nationalgeographic.com/2012/07/02/crisis-mapping-haiti/>

Overall it can be stated that the principle of participatory communication approach has been applied within a particular community – project team that has worked on the implementation of project activities. However, even though *Map Kibera* project and *Voice of Kibera* initiative did not foster mobilization of a broader community, it became an important actor of Kibera showing the real situation and providing people choice to be represented. At the same time in order to ensure the presence of community dialogue a broader community has to be not only consulted but also engaged from the first steps of project implementation working together to set common objectives, outcome and design project plan. In that way, firstly, it will be ensured that local community understands the benefits the project can bring as well as it integrates project tools – a platform in case of *Voice of Kibera* in its daily activities improving lives of the citizens. Also in that way the local knowledge and culture is being taken into account ensuring the higher level of the success of project.

***Map Kibera* project activities to foster social change**

Application of *Map Kibera* project and *Voice of Kibera* initiative in Kibera has brought several changes and indicate to particular processes fostering development. According to analysis, implementation of project on the individual level has stimulated, for example, the acquisition of new skills, both technical and social as project team members were involved in the learning processes from the beginning. This is a very crucial aspect from the perspective of empowerment and indicate to individual change as an outcome of application of participatory communication approach according to Figueroa *et al* (2002, p. 7). Moreover, these skills have not only been acquired but also passed further on to new communities in that way sharing knowledge and possibly becoming catalysts for change themselves fostering individual empowerment and willingness to start the action.

At the same time indication to increased level of local organizational capacity in the form of activities produced by team members, self organization in a Map Kibera Trust, participation in local and regional level events and processes indicates to ability of this project community to work and operate independently, to bring the voice of community

on the local and national political, economical arena thus becoming active participants to improve the level of life of community members.

Important to mention is the role of crowd sourcing platform *Voice of Kibera* in fostering changes in the community. As indicated in table 5.3. important aspect that was bought with the initiation of *Voice of Kibera* platform is to give people voice and opportunity to create their own agenda. Using the opportunity to send low-cost SMS or by interacting with platform online almost each citizen of Kibera can become citizen journalist and report an event or process that he finds important to bring out and make visible for broader community. After being collected these reports produce a common picture of what the reality in Kibera is in that way not only fighting the misleading coverage of the Kibera produced by mainstream media but also indicating to problematic areas that need to be developed in that way playing the role of community media and mediator between community and city officials in that way fostering the accountability of the latter acquiring the possibility to influence processes that stimulate the development of the community.

Access to information has also been strongly indicated as an outcome of project and initiative activities. By collecting and representing local information (public services, local events, security information, indication to problematic/unfixed issues) at one place – *Voice of Kibera* platform or produced maps of Kibera local community members, citizens of Kibera gained opportunity to access this knowledge and use it to make better decisions and informed actions. As according to Pradip (in Servaes, 2008, p. 34) the lack of access is being considered as one of the reason of persistence of poverty explained as inability of people to understand their own role and ability in fighting this poverty. Pradip (in Servaes, 2008, p. 35) continues by stating that: “the notion of access suggests that when people become aware of their rights, they are empowered to confront and deal with the many reasons that continue to keep them in poverty”. In that way local actors receive an opportunity to understand their position and possibly change it in that way developing the notion of critical consciousness introduced by Brazilian adult educator Paulo Freire.

Nevertheless it is important to mention that due to certain barriers most common way to access information produced during the project was using printed paper maps and information disseminated or visualized. This indicates to need to adapt technologies to local needs and specifics of a particular community otherwise the project may fail as not reaching its target audience and therefore not fulfilling its aims.

Barriers or limitations that restrict or limit the engagement of community in *Map Kibera* project activities

As stated previously the importance of specifics of local community must be considered from multidimensional perspective in order to ensure the success of the project. The maturity of local technologies and readiness of community to acquire proposed idea from technical aspect is also important as to avoid situation when technology being presented and adapted seems too innovative for the particular community.

The novelty of *Map Kibera* project and *Voice of Kibera* initiative was one of the aspects being indicated during the analysis. The need to provide in-depth training on mapping and content management of reporting platform indicated to the need to be technologically savvy and this constituted one of the barriers indicated. As stated by project team, community was not ready to inherit the initiative provided. This could be explained by the most important challenge people of Kibera face – the lack of access to ICT such as computers. In that way the inability to develop technological skills may have resulted in slower process of adaptation of project idea. At the same time this indicates to direct restriction of citizens of Kibera to be engaged – to report. The possible solution here derives from the opportunity to use reporting platform via mobile phones, ICT tools that nowadays have gained more popularity. Crucial is also such possible barriers of participations as language barriers due to the fact that all activities represented are being produces in English but not all citizens of Kibera, especially the most marginalized are literate or able to communicate in any other language than local. In addition the possible feeling of insecurity to report sensitive data might affect the life of the reporter. This latter identified barrier indicates to the need to research specifics of local culture and adapt to it during the implementation of project to ensure the project “fits” to local circumstances.

Finally, such barrier as possible misconception about the work of the project and outcome it produces represents the need to work more closely with the community raising the awareness of the project locally. The inability to perceive the benefits that project can bring may also lower the level of people of Kibera willing to take part in project as it appears to them unclear. Co-operation with broader community would also help to overcome such barrier as a need to represent the results produced during the activities in that was stimulating more people to get engaged as they understand the actual impact of their engagement.

Identified barriers as well as examples of social change and application of participatory communication approach are to be considered important as derived from project experience and need to be taken into account when implementing similar projects in other areas in order to ensure the project fulfills its aims at best bringing development to community it serves for.

In addition some reflections derived from the conduction of the research are important to share. In relation to qualitative interviews, one has to be sensitive when working with respondents from different background, such as economic or religious. Researcher has to keep in mind that each respondent may have different from his own perception of the same issues. This notion may help avoid possible ethical aspects during conversation. At the same time it was identified that communication via such social networks as *Facebook* tends to become more informal even between unfamiliar researcher and respondent. This indicates that the tendency to keep conversation formal as a requirement of an academic research may have a negative impact such as inability to develop rapport between the two actors that may result in the loss of data. It is also crucial to develop a common perception of discussed concepts and terms such as the understanding of the word *empowerment* for the case of *Map Kibera* project. In addition researcher must be sensitive in sustaining the communication with respondents even after the end of the research in that way showing appreciation and respect to respondents willing to contribute their knowledge for the research.

Broader discussions on the field of crowd sourcing

Continuing the discussion about the concept of crowd sourcing and its application in various fields several considerations need to be taken into account. As previously stated, when working with open data one should be aware of such issues, for example, as privacy, ethics and security. Considering the volunteer contribution of information it is nevertheless important to work on the basis of “do no harm” principle in that way ensuring that data being produced does not foster any negative impact on local or even national level. Meanwhile, citizen driven information may directly foster the process of development of a particular community but specific conditions such as (but not only) favorable political and social will need to take place. More precisely, on the one hand such initiative needs to have a broader aim considering possible future application of data being created (for example in case of *Map Kibera* project not be counted as a platform for reporting *per se*), on the other hand - support from representatives of local government or any other representatives being in charge of decision making that could usefully apply this citizen driven information. Nevertheless it is important to understand that even in cases when such information is considered valuable for local community cooperation may not always take place. Moreover, understanding the possible impact on existing power relations representatives of local government may not be willing to further apply this data on purpose. As stated by Chambers (2007, p.25) discussing the statistical data being produced by participatory methods such as community mapping: “Participatory statistics can be persuasive [...] But they may be discounted when they challenge official statistics and threaten professional reputations”. It can be stated that despite the fact that cooperation with local government was estimated as good no major changes as a result of the work of the platform that would affect the lives of citizens of local community took place yet. This calls for not only well-planned strategy for project implementation and work with local actors and other communities but also thoroughly designed plan for further work with local city officials and decision makers in that way ensuring the practical impact of citizen reporting and crowd sourcing. Finally, it is important to understand that in order to achieve some change and reorganize existing power relation such initiative needs not to be isolated from other local or international initiatives as well as it needs to achieve a broad coverage in that way attracting attention to problems that would no more be ignored. But as stated previously, some change may

take place only under certain conditions with support of local policy make otherwise the broader aim of initiative stays unclear to community it's been implemented for. For the Kibera this deals with the issue of being over-researched with most often no further action or, for example, the case of slum tourism that at one point may attract some attention to local area and life of Kibera people, but if no further steps are taken it can actually have even a negative impact on local citizens. As stated by Odede (09.08.2010., par.4): “[Slum tourism] is not worth it. [It] turns poverty into entertainment, something that can be momentarily experienced and then escaped from”. Therefore in such initiatives as well as other projects working on the interdisciplinary principle using ICT technologies to achieve social change it is important to understand various contexts this project will be exposed to.

6.2. Further elaborations

Map Kibera project and *Voice of Kibera* initiative provide a unique example of application of the concept of crowd sourcing in community operating in specific economic and political setting. Being implemented in two forms – online and as a mobile application in could be stated that *Voice of Kibera* reporting platform is nevertheless being accessible more commonly via mobile phones as more people have access to mobile phones than computers. Therefore it could be useful to research how people use these ICT tools, how they find the *Voice of Kibera* mobile application and what could motivate them to use this application more often to report activities happening in Kibera.

The aim of the research was also to find what could motivate people to report, what would be the reason they take part in project activities or refuse to do so. However, it was not possible to determine the strata of men/women participating in project and possible barriers women/girls could face. This derives the next possible direction of research aimed to identify the ability of female population to report therefore gaining understanding if the reporting system needs to be adapted to certain specifics of local culture.

Important to mention is also the collaboration with local government and city officials.

During the research several representatives of local government such as The Ministry of The East African Community and ICT Kenya Board were contacted for a possible interview but unfortunately no reply was received. Therefore new perspective could be brought researching the position of city officials towards data derived from citizens, how could this information be used to increase the level of accountability and improve the lives of Kibera residents as well as what collaboration local government sees as possible with *Map Kibera Trust* to improve the level of services provided.

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APPENDICES

Appendix 1

List of coded articles produced on *Voice of Kibera* and *Map Kibera* blog. Indication – name of the author as appeared in blog, date of submission, name of the article.

<i>Voice of Kibera blog</i>	<i>Map Kibera blog</i>
<i>admin (28.04.2011) no title</i>	<i>Erica (26.10.2009) First Impressions</i>
<i>Sande Wycliffe (02.06.2011) Training on reporting</i>	<i>Mikel (27.10.2009) Mapping Party tomorrow with ActionAid</i>
<i>Fred (16.08.2011) Kibera in the last two weeks</i>	<i>Erica (29.10.2009) It's only been one week?</i>
<i>Fred (26.08.2011) Ushahidi evaluation launch</i>	<i>Mikel (01.11.2009) Solidarity with Kibera as Violence Flares Up</i>
<i>Fred (30.08.2011) Voice of Kibera review</i>	<i>Mikel (04.11.2009) Calling all Technical Volunteers for Map Kibera</i>
<i>Fred (15.11.2011) Kibera at a glance</i>	<i>Erica (09.11.2009) Getting ready!</i>
<i>Lee Ibrahim (29.11.2011) Keeping the youth involved</i>	<i>Erica (16.11.2009) Kibera emerging</i>
<i>Lee Ibrahim (06.12.2011) A busy month in Kibera</i>	<i>Mikel (30.11.2009) Events this week at the UN East Africa Centre</i>
<i>Lee Ibrahim (12.12.2011) Entrepreneurship among dwellers</i>	<i>Erica (01.12.2009) Maps and the Media</i>
<i>Sande Wycliffe (04.06.2012) Mapping Kibera</i>	<i>Admin (12.01.2010) Some notes on Map Kibera mapping</i>
<i>Sande Wycliffe (01.07.2012) Global Voices to Map Kibera Trust</i>	<i>Erica (17.02.2010) Starting up again</i>
<i>Fred (09.07.2012) The cost of the coming Election</i>	<i>Mikel (24.03.2010) Time is Curious</i>
<i>Sande Wycliffe (11.07.2012) A Visit by Amnesty International at Map Kibera Trust</i>	<i>Jamie (09.04.2010) How do you represent health services in informal settlements?</i>
<i>Lee (19.11.2012) Voter registration process in Kibera</i>	<i>Jamie (13.04.2010) Reflections: Day 1 and 2 of health service mapping</i>
<i>Sande Wycliffe (29.11.2012) Map Kibera Trust on a map distribution drive in Kibera Slums</i>	<i>Mikel (18.04.2010) Quick beginning of the week thoughts on Open Mapping and Power</i>
<i>Sande Wycliffe (06.02.2013) Taking VOK Platform Awareness to Mashinani</i>	<i>Mikel (17.05.2010) How Can Map Kibera Help Map a Refugee Camp</i>
<i>Lee Ibrahim (12.02.2013) Map Kibera Trust awareness creation in readiness to</i>	<i>Mikel (31.05.2010) Map Kibera Internships</i>

<i>the Election Monitoring in March</i>	
<i>Douglas Namale (28.02.2013) Radar trains citizen reporters in Kibera</i>	<i>Mikel (15.06.2010) Paper Mapping in Community Meetings</i>
<i>Joshua Ogure (07.03.2013) THE AGONY OF ELECTION RESULTS IN KIBERA</i>	<i>Josh (28.06.2010) Kibera's Most Detailed Security Map</i>
<i>Douglas Namale (08.03.2012) Security lapse in Kibera worrying</i>	<i>Jamie (18.07.2010) Meet the Voice of Kibera Editorial Board!</i>
<i>Lee Ibrahim (05.04.2013) Courts Verdict: The events before and after courts decision to Uphold Presidential Election results</i>	<i>Jamie (03.08.2010) Kibera a "Hotspot" for the use of new media in Referendum reporting</i>
<i>Douglas Namale (09.04.2013) Security map graffiti draw attention in Kibera</i>	<i>Jamie (12.08.2010) Reviewing the Referendum Reports</i>
	<i>Mikel (22.08.2010) Voice of Kibera, Ushahidi 2.0, and Our Wishlist</i>
	<i>Primož (28.08.2010) Mapping Flood Damage in Kibera</i>
	<i>Mikel (29.08.2010) Ex-aug-hausting, in a good way</i>
	<i>Jamie (08.09.2010) A meeting of the minds – mappers, videographers, editorial board & SMS reporters</i>
	<i>Primož (25.11.2010) Thinking long-term in Kibera, Mathare approaching quickly</i>
	<i>Mikel (19.01.2011) Organizing Map Kibera</i>
	<i>Jamie (24.01.2011) Whose map?</i>
	<i>Mikel (08.02.2011) Research Principles of Map Kibera</i>
	<i>Primož (31.05.2011) Doing the other 90% in Kibera</i>
	<i>Jamie (04.07.2011) Documenting a participatory digital mapping workshop with Plan Kenya</i>
	<i>Primož (05.07.2011) Paper Mapping</i>
	<i>Jamie (16.08.2011) Help Map Kibera turn maps into action!</i>
	<i>Primož (10.09.2011) Engaging Community Stakeholders</i>

	<i>Mikel (02.04.2012) Map Kibera Mapping Manuals</i>
	<i>Kepha (26.10.2012) Director's Diary: Combatting Development Chaos</i>
	<i>Douglas Namale (23.11.2012) Opinion leaders nominated to lead election monitoring</i>
	<i>Erica (02.03.2013) Map Kibera: Ready for the Elections!</i>
	<i>Mikel (04.03.2013) Election Day Closes in Kibera</i>
	<i>Kepha (21.03.2013) How slum communities came together to help prevent election violence</i>
	<i>Mikel (03.04.2013) Election Maps for the Slums of Nairobi</i>

Appendix 2

Coding schedule applied on sample data. Additional categories being identified are presented in summary tables, Appendix 3, 4, 5.

Name of the blog: Name of the article: Date: Posted by:				
<i>Number of nominal/descriptive characteristics in the text/heading</i>				
	<i>Type of change</i>	<i>Heading/Text</i>	<i>Example</i>	<i>Nr. of times mentioned</i>
Indicating social change	Information equity			
	Access to information			
	Accountability			
	Local organizational capacity			
	To gain new skills and probably new job			
	To bring about the change			
	Emotional - Feeling proud of the work produced			
	<i>Other</i>			
	The level of familiarity with technology			
	The cost of SMS			
	Work/cooperation with particular group of the community			
	Activities are being produced but results are not shared with the community			

Indicating to barriers of participation/engagement	No access to ICT and primary technologies like computers			
	Support of young people, providing particular services			
	Development of trust between project members and the community			
	Cooperation between different community generations			
	Possible misconception about the project and its work			
	<i>Other</i>			
Indicating to the process of participation and engagement	Potential catalyst			
	The recognition of a problem			
	Identification and Involvement of Leaders and Stakeholders			
	Clarification of Perception			
	Expression of individual and shared needs			
	Assessment of current status			
	Setting objectives			
	Options for Action			
	Consensus on Action			
	Production of common Action plan			
	Assignment of responsibilities			
	Mobilization of organization			
	Implementation of the action plan and monitoring			
	Outcome phase			
	Participatory evaluation			
	Willingness to serve the community			
	The opportunity to create and show the real situation			
	Collaboration between different people to develop the strategy together			
	Work with community, creation of social ties and network			
	Technology being adjusted to the particular situation			
	<i>Other</i>			

Appendix 3

Summary table. Indication to the process of participation and engagement

Indications to the process of participation and engagement	CONTENT ANALYSIS			INTERVIEWS	Nr. of times mentioned	TOTAL frequency
	Type of the step/additional category	V.O.K	M.K			
		Nr. of times mentioned	Nr. of times mentioned			
	<i>Potential catalyst</i>	1 (in 1 article)	-		-	1
	<i>The recognition of a problem</i>	7 (in 1 article)	2 (in 2 articles)		-	9
	<i>Identification and Involvement of Leaders and Stakeholders</i>	15 (in 5 articles)	27 (in 13 articles)		3 (in 1 interview)	45
	<i>Clarification of Perception</i>	1 (in 1 article)	24 (in 11 articles)		6 (in 5 interviews)	31
	<i>Expression of individual and shared needs</i>	-	-		-	0
	<i>Vision of the future</i>	-	16 (in 10 articles)		-	16
	<i>Assessment of current status</i>	1 (in 1 article)	-		-	1
	<i>Setting objectives</i>	3 (in 2 articles)	24 (in 11 articles)		-	27
	<i>Options for Action</i>	1 (in 1 article)	3 (in 1 article)		-	4
	<i>Consensus on Action</i>	2 (in 1 article)	10 (in 5 articles)		-	12
	<i>Production of common Action plan</i>	-	11 (in 7 articles)		-	11
	<i>Assignment of responsibilities</i>	1 (in 1 article)	6 (in 4 articles)		2 (in 2 interviews)	9
	<i>Mobilization of organization</i>	1 (in 1 article)	-		-	1
	<i>Implementation of the action plan and monitoring</i>	7 (in 5 articles)	25 (in 15 articles)		-	32
	<i>Outcome phase</i>	-	-		-	-
	<i>Participatory evaluation</i>	2 (in 2 articles)	13 (in 5 articles)		-	15
	<i>Work with community, creation of social ties and network</i>	2 (in 1 article)	7 (in 4 articles)		4 (in 2 interviews)	13
	<i>Important social preconditions in order to ensure the successful implementation of the project</i>	7 (in 3 articles)	4 (in 4 articles)		-	11
	<i>Creating the awareness of the project</i>	6 (in 2 articles)	7 (in 5 articles)		3 (in 2 interviews)	16
	<i>Lack of support from the government to implement the project successfully</i>	1 (in 1 article)	-		-	1
	<i>Other preconditions-the importance of local culture</i>	-	6 (in 5 articles)		7 (in 4 interviews)	13
	<i>Evaluation of the work</i>	-	5 (in 3 articles)		-	5
	<i>Possible barrier – non-sustainability</i>	-	18 (in 5 articles)		2 (in 1 interview)	20
	<i>Financial restrictions</i>	-	3 (in 1 article)		-	3
	<i>Adapting to local needs</i>	-	3 (in 3 articles)		1 (in 1 interview)	4

Appendix 4

Summary Tables. Indication to social change

	CONTENT ANALYSIS			INTERVIEWS	Nr. of times mentioned	TOTAL frequency
	Type of the change/additional category	V.O.K	M.K			
		Nr. of times mentioned	Nr. of times mentioned			
Indicating social change/community	<i>Information equity</i>	1 (in 1 article)	2 (in 2 articles)		-	3
	<i>Access to information</i>	17 (in 7 articles)	17 (in 11 articles)		2 (in 1 interview)	36
	<i>Accountability</i>	4 (in 2 articles)	11 (in 7 articles)		7 (in 4 interviews)	22
	<i>Local organizational capacity</i>	30 (in 13 articles)	25 (in 14 articles)		3 (in 1 interview)	58
	<i>To gain new skills and probably new job</i>	11 (in 5 articles)	13 (in 11 articles)		1 (in 1 interview)	25
	<i>To bring about the change</i>	4 (in 3 articles)	4 (in 4 articles)		12 (in 4 interviews)	20
	<i>Emotional - Feeling proud of the work produced</i>	-	5 (in 3 articles)		2 (in 2 interviews)	7
	<i>Giving the voice to the community</i>	1 (in 1 article)	12 (in 7 articles)		2 (in 2 interviews)	15
	<i>Understanding the word empowerment</i>	1 (in 1 article)	4 (in 4 articles)		2 (in 2 interviews)	7
	<i>Visibility of data</i>	1 (in 1 article)	8 (in 7 articles)		-	9
	<i>The opportunity to show the real situation</i>	11 (in 10 articles)	15 (in 8 articles)		14 (in 5 interviews)	40
	<i>Fostering of development</i>	1 (in 1 article)	-		-	1
	<i>To share knowledge</i>	-	8 (in 6 articles)		-	8
	<i>International recognition</i>	-	3 (in 2 articles)		-	3
	<i>Education</i>	-	1 (in 1 article)		1 (in 1 interview)	2
	<i>Providing tools for action</i>	-	1 (in 1 article)		3 (in 1 interview)	4
	<i>Benefits for the community</i>	2 (in 2 articles)	20 (in 13 articles)		8 (in 4 interviews)	30
		-	-	Actual results	2 (in 2 interviews)	2
individual	<i>The promotion of individual aspirations</i>	3 (in 2 articles)	2 (in 2 articles)		-	5

Appendix 5

Summary table. Indication to barriers restricting/minimizing the engagement of actors

	CONTENT ANALYSIS			INTERVIEWS	Nr. of times mentioned	TOTAL frequency
	Type of the barrier/restriction factor	V.O.K.	M.K.			
		Nr. of times mentioned	Nr. of times mentioned			
Direct factors restricting participation	<i>The level of familiarity with technology</i>	2 (in 2 articles)	13 (in 7 articles)		5 (in 3 interviews)	20
	<i>The cost of SMS</i>	-	-		4 (in 4 interviews)	4
	<i>No access to ICT and primary technologies like computers</i>	10 (in 6 articles)	10 (in 6 articles)		12 (in 6 interviews)	32
	<i>Cooperation between different community generations</i>	4 (in 1 article)	-		-	4
	<i>Possible misconception about the project and its work</i>	1 (in 1 article)	7 (in 5 articles)		-	8
	<i>Lack of information about the project</i>	1 (in 1 article)	1 (in 1 article)		-	2
	<i>Too innovative activity</i>	-	1 (in 1 article)		-	1
		-	-	<i>Insecurity</i>	6 (in 2 interviews)	6
		-	-	<i>Tribalism</i>	1 (in 1 interview)	1
		-	-	<i>Language barrier</i>	5 (in 3 interviews)	5
Factors influencing the level of engagement	<i>Activities are being produced but results are not shared with the community</i>	3 (in 1 article)	4 (in 2 articles)		2 (in 1 interview)	9
	<i>Support of young people, providing particular services</i>	1 (in 1 article)	-		-	1
	<i>Lack of information</i>	-	1 (in 1 article)		-	1
	<i>Restrictions such as unemployment</i>	2 (in 2 articles)	1 (in 1 article)		3 (in 3 interviews)	6
	<i>Low level of civic activity</i>	-	1 (in 2 articles)		-	1
	<i>Personal social reasons</i>	-	1 (in 1 article)		1 (in 1 interview)	2
		-	-	<i>No feedback is provided</i>	3 (in 2 interviews)	3
		-	-	<i>The outcome/impact of the reporting is not clear</i>	5 (in 2 interviews)	5

	<i>Motivation to become more active, employed in broader sense</i>	-	1 (in 1 article)		-	1
	<i>Willingness to serve the community</i>	9 (in 4 articles)			1 (in 1 interview)	10

Appendix 6

List of questions for the qualitative semi-structured interviews. Questions for the semi-structured interviews were formulated incorporated theories relevant to research questions such as Integrated Model of Communication for Social Change (IMCFSC) (Figuroa et al, 2002, p.iii), concept of empowerment and social change as well as questions formulated to identified possible barriers of actor participation. Presented above is the indicative list of questions depending on the target audience.

List of questions to **project team** (emphasis to the implementation of IMCFSC during the project implementation):

1. On the initial stage of development of *Voice of Kibera* did you have any specific techniques on how to engage various stakeholders in the production of the *Voice of Kibera* (maps/content/themes/etc.)?
2. What were the barriers that made it difficult/impossible to engage other communities, citizens, actors in the process of creation of *Map Kibera* and *Voice of Kibera*?
3. Did something change now? What barriers could appear today?
4. Why do you think people report? What motivates them to report (what “benefits” they might receive)?
5. And what could be the reason they do not report?
6. Can there be any problems/barriers identified when engaging people? Is it always good to engage?
7. Are there any strategies planned by the *Map Kibera* and *Voice of Kibera* project team that will be aimed to ensure that citizens/local actors will be willing continue reporting later on, even after such important activities as Elections 2013?

8. In your opinion did the use of *Voice of Kibera* and the whole reporting system made any change in the community/whole Kibera/whole Kenya? If yes, in what ways?
9. Can these changes be addressed to the successful form of *Voice of Kibera* such as Internet crowd sourcing platform or there is other factor?
10. Could you comment somehow on the historical dilemma about the finances being allocated to ICT vs. fulfilling some basic needs like education?
11. What role of the government would be dealing with this project?
12. Do you think the outcome of the project would change if the initiators were local actors?

List of questions to **citizens of Kibera, Kenya** (emphasis the role of participation and engagement from citizen perspective):

1. Are you familiar with *Map Kibera* project?
2. Have you ever reported something using *Voice of Kibera* reporting platform?
3. Do you think it is important to engage various local actors/communities in the production of any local project aimed at development of the local community?
4. Why do you think people chose to report activities happening around them (reporting via SMS help or through Internet)? What motivates them to report (what “benefits” they might receive)?
5. And what could be the reason they do not report?
6. How these barriers could be minimized?
7. What could motivate them to report? How project could attract them to start reporting/taking part in the project?
8. If project like *Map Kibera* and reporting opportunities would be implemented in your area, would you report something and if yes/no please explain why?
9. How do you think the information about community activities should be spread?
- 9.1. Why particularly in this way?
10. In general, can there appear any problems/barriers when engaging people in project activities? Is it always good to engage?

11. What change could bring the use of internet crowd sourcing platforms? Can people somehow benefit from projects that use crowd sourcing platforms? Why particularly these changes?
12. What the role of the government should be in this project? How should government use the information being created during the project?
13. Could you comment somehow on the historical dilemma about the finances being allocated to ICT vs. fulfilling some basic needs like education?

Appendix 7

Statistical information on respondents taking part in the qualitative semi-structured interviews (on the date of interviewing period).

Total number of interviewees:	7;
Gender:	Men - 4;
	Women - 3;
Age:	20-25 years – 4;
	26-30 years – none;
	31-35 years – 1;
	36-40 years – 2;
Education:	Holding university degree – 5;
	High school education – 2;
Occupation (status):	Employed - 5;
	Unemployed - 1;
	No information – 1;
Resident of Kenya:	Yes - 5;
	No - 2;

Appendix 8

Example of the qualitative semi-structured interview with one of the respondents, Joshue Ogure, initiative *Kibera New Network* coordinator, resident of Nairobi.

Period: 04.04.2013 – 26.04.2013.
Facebook *Map Kibera* group

Alise Gedgauda: Firstly I would like to ask, from your perspective what could be the barriers (technological, social etc.) that restrict the engagement of citizens in reporting now, these days? Why people may not report and may not use *Voice of Kibera*? And what motivates you to report?

Ogure Joshua: Most people would prefer to report on Swahili the local language but this doesn't meet the international audience. Why people might not use vok, is because *Voice of Kibera*'s number is chargable while people prefers free lines to report to. What motivates me is the fact that I report what happens, how I know Kibera not what people thinks it is, and also whatever I report is about us by us with us, and when I report something that triggers some positive change really motivates me to report more and more

Alise Gedgauda: I understand.. But maybe as a further development it would be possible to create a version of VOK in Swahili, for example on the same web page with option to change language? But do you think people also receive some..social or emotional benefits or gaining when they participate, for example the sense of pride?

Ogure Joshua: Yes definitely, people feel so proud to send reports to vok, especially when they get a feedback message telling them thank you for sending a message to vok. And they want to identify with certain reports, like you can hear one bragging , "Hey am the one who sent that report to vok"

Alise Gedgauda: That sounds great! It feels like a certain community is being created around VOK and the whole project as new members join it. But how could you estimate the cooperation of the project with the local government? Has it been good or in what ways it could be improved?

Ogure Joshua: Yes Alise, the cooperation with the local government is good, especially with the mapping group that produced the security map that is being used by the local administration and the police to patroll in Kibera, what should be done to improve it is maybe to link up the two websites so that each report that comes to *Voice of Kibera* also lands on the local governments site.

Alise Gedgauda: In your opinion, did the participation in *Voice of Kibera* (in reporting) stimulated those people to do something additional? Do you think it mobilized them in some way and stimulated to more action? And in what ways *Voice of Kibera* – a crowd sourcing platform benefited the community? Why crowd sourcing platform is/was good for Kibera?

Ogure Joshua: No, I don't think it stimulated them to do something additional, they just did what they could do by reporting the real happenings on the ground, but there was a team set a side to do the follow ups and inform the responders where necessary, and VOK platform benefits the community by giving them a platform to air their voices, something that was not there before. Also to be able to tell their own stories, not what

people think they are. It also controlled the violence since people could get the right information from the ground despite the many propaganda on social media, one could come up and dismiss the fake reports and give the right one on vok platform.

Alise Gedgauda: How do you think a project team could ensure that people would continue reporting even after the major events like elections are over? Would this “sustainability strategy” be based on more closer work with communities or “marketing” or in some other way? And do you think that people would be more motivated to report, to take part in reporting if they would see the impact of their reporting, like for example if someone would report a water shortage and the next day this problem would be fixed, would it stimulate more people to report? And how would you estimate the impact the VOK has now?

Ogure Joshua: The project team ensures that people continue reporting by conducting community forums, that reminds people that we there are many stories to report on than just elections, yes the sustainability would be based on a closer work with the communities and letting them understand that the reporting they do is for their on advantage.

Yes people get really motivated to see a positive impact from their reporting, this happens even to me, if feel so motivated when my reports triggers some positive change, Voice of Kibera has a small impact by working and partnering with the responders, the only problem is that many Kibera people don't access internet to see the reports, they can contribute via sms but cant consume reports from other reporters.

Alise Gedgauda: Towards the end of my questions I also wanted to ask, if possible - how would you estimate or comment the process of community engagement in the stage of primary development of *Map Kibera* project? Could it be stated that the *Map Kibera* project was a participatory project working closely with local community when *Map Kibera* idea was developing or maybe not to such a big extent?

Ogure Joshua: Talking about some positive changes achieved, not on elections but when there was a severe water shortage in Kibera sometimes back and KNN did report it and shared with Nairobi Water Company who responded positively and fixed the problem and there was water, this is one example, http://youtu.be/U_2c4ST6pD4 another example is during elections there were lots of propagandas going round that could trigger violence but through our channels and by being on the ground we were able to dismiss the false reports and give the exact ones, this helped even with the security agencies confirming with us.

And yes *Map Kibera* project was so participatory working close with the local community who also contributed a lot towards what themes to map as the first priority. thanks.

One additional question I would like to ask - do you think that something would go different or had different outcome if the idea of *Map Kibera* would originate exactly from Kibera, that is if the idea of such project would come exactly from local people?

Ogure Joshua : Yeah! May be *Map Kibera* would not have such a big international recognition, and also sourcing out for funds to sustain the project would be a bit difficult, but if all other conditions are kept constant then a local Kibera would even do better since he or she understand the people and know what problems are there with the real issues around them.