

# Uchaguzi:

## An analysis of the crowdsourced election monitoring in Kenya 2013



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## **Abstract**

During the 2013 general elections in Kenya the crowdsourced election monitoring project Uchaguzi ran in parallel with ordinary domestic and international election observations. Such monitoring projects have been performed in several countries, and research on the methods and effects of crowdsourced election monitoring is increasing. In particular, scholars are focusing on the political significance of such projects, whether value is generated for citizen participation in democratization and political engagement. Very few studies have looked at the actual content of the reports generated through such projects and compared the findings of the crowd with official election reports. This study investigate the content of 2300 sms reports in the Uchaguzi dataset, and compare the story revealed in these reports with the conclusions in the election observation report from a recognized institution, the Carter Center. The report from the domestic monitoring group ELOG is also used for reference. The aim is to evaluate the relevance and reliability of the crowdsourced reports.

The findings show that the Uchaguzi reports indeed presented a relevant picture of the events on election day. The crowd focus on how smoothly they were able to perform the voting, on security and injustice like bribery or intimidation. They are far less occupied with electoral formalities and processes. Monitoring in near realtime enables the platform to be an alert central for urgent reports. Logging time and location for each message generates timelines and geographical overview that traditional reports does not. The findings suggest that crowdsourced election monitoring project can benefit from a further development of the questions asked to the crowd. Today these are to a large extent inherited from traditional observation methodologies.

## **Keywords**

Citizen engagement, Crowdsourcing, Election Monitoring, Uchaguzi, Kenya elections

## Foreword

A growing crowd of people see social media, online mapping and the possibilities of the Internet as tools to engage and contribute. During elections, disasters or enduring conflicts we see crowdsourced projects created for documenting and visualizing what goes on. You will find them from most corners of the world. And you will notice that the online communities in this sphere easily engage with projects happening on the other side of the planet. Notice also that these groups are frontrunners in contributing new thinking, technologies and processes. Many of the projects represent expressions of concerned citizens, sometimes against authorities. But often they represent an outlet for ordinary citizens concern and engagement. Some of the projects are ignored by established institutions, which hesitate to include amateurs or volunteers into their traditional domains. The fact is, there is a new group of experts emerging from these circles. You will find them in Nairobi or Kathmandu, in Cebu or Abuja.

This thesis came about thanks to the support of several people. Angela Oduor Lungati, Daudi Were and Sara-Jayne Terp at Ushahidi gave me access to the Uchaguzi dataset. Without their trust and support, this project could not have been done. Thanks also to my colleagues in the Standby Task Force.

The data was not created for the purpose of research, and to extract meaning from the records, the assistance from the following people was essential: The inspiring conversations with Kendra Dupuy and Arne Tostensen at CMI, Stephan Hamberg and Jan Skrobanek moved the project forward and improved the structure of the dataset. Tutor and advisor Maria Gabrielsen Jumbert at PRIO spent hours showing the way out of chaos and towards some structure. My patient wife Ingrid maybe has suffered the most from a distant and sometimes frustrated husband. Thank you for your patience!

Hanevik, Norway

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## **Abbreviations**

AFRICOG - Africa Center for Open Governance

BVR - Biometric Voter Registration - abbreviation used by domestic observers

CRECO - Constitution and Reform Education Consortium

ELOG - Elections Observation Group

EU-EOM - European Union Election Observation Mission

EVID - Electronic Voter Identification kits - abbreviation used by the Carter Center

GNDEM - Global Network of Domestic Election Monitors

IEBC - Independent Electoral and Boundaries Commission

KHRC - Kenya Human Rights Commission

KPTJ - Kenyans for Peace with Truth & Justice

OSCE - Organization for Security and Co-operation in Europe

PVT - Parallel Vote Tabulation

VTC, V&TC - Volunteer & Technical Community

# 1 Introduction

Close to 1300 people were killed and more than half a million were displaced during the violent clashes before, during and after the elections in Kenya in December 2007 (CarterCenter 2013: 17). The Nairobi based lawyer and blogger Ory Okolloh, who run the blog *kenyanpundit.com*<sup>1</sup> was overwhelmed by messages on email and SMS regarding the violence. Kenyapundit was already a recognized source for insights on Kenyan politics, human rights, journalism and the 2007 elections. Her blog soon became the most reliable source of information on the flawed elections and the turbulent violence. Due to the massive flow of information - more than she could handle manually - she turned to her tech-savvy friends to ask for assistance. During a week in January 2008, they created an online platform with the name of *Ushahidi*<sup>2</sup> ("witness") to which messages were directed. The reports and SMS sent to Ushahidi was approved and verified before they appeared on the interactive map. It created an awareness of the situation, helped civilians to avoid conflict areas, and in some instances provides as an emergency central where urgent situations were acted upon (Okolloh 2009).

Five years later there was a new election in Kenya. By this time the technology, workflow and understanding of crowdsourced mapping of citizen reports had been tested and developed during conflicts, disasters and elections (Meier 2015; Norris 2014; Starbird 2011). A customized setup of Ushahidi was deployed for the 2013 General Elections in Kenya. The platform and the project had the name "Uchaguzi" (Kiswahili for "election").

The name refers to an instance of the Ushahidi platform that was first developed for monitoring the 2010 constitutional referendum (Chan 2010). Later on, we find several uses both of the name "Uchaguzi" and the same setup under different names. The latest was the "Uzabe" project to monitor the Nigerian presidential elections in march 2015. "Zabe" means "election" in the Hausa language (Babayemi 2015).

The head of the Uchaguzi project, Daudi Were explains it: The main difference between Ushahidi and Uchaguzi is that the latter is a project with a digital setup and with teams to be prepared for the monitoring of elections (Omenya and Crandall 2013).

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<sup>1</sup> The blog is no longer updated, but still online: <http://www.kenyanpundit.com/>

<sup>2</sup> Ushahidi is now a company offering several solutions: <http://www.usshahidi.com/>

Today, references to such projects even appears in election observation reports from recognized institutions whether they are performed in Kenya or Ukraine (EU-EOM 2013: 29; OSCE 2014: 9).

In these kind of projects there is a diversity of groups engaged. The reporters or observers might be on the ground where the events are happening or they might physically be located on another continent connected to the events online. They are sending SMS, tweeting or posting pictures on what's going on. They are real eyewitnesses or passing on information harvested from online or physical sources. The reporters are referred to as "the crowd".

At the collecting hub of the project, the situation room, there is a team organizing the information, training participants or giving feedback to the rest of the world. In addition, there is a trained online group of participants who support the project by categorizing, verifying or geo-locating the messages or images. This group are referred to as "digital online volunteers".

My participation as an online digital volunteer during the Uchaguzi project (and many others since) has triggered the urge to understand what is going on in these projects, what characterizes the content of the information gathered, and whether the tools and methods are relevant to the process unfolding on the ground.

I hope to bring forward characteristics and stories from crowdsourced observation - or citizen reporting during elections to be able to shed light on new sides of monitoring. There might be new stories, confirming stories or contradicting stories in the crowdsourced narration when held up to the reports from ordinary election observation missions.

When including ordinary citizens in election monitoring one may also address the question whether the crowd are able to pinpoint electoral fraud or malpractice. Pippa Norris is the director of the "Electoral Integrity Project", a collaboration between several faculties at Harvard University, political science organizations, the University of Sydney and the Australian Research Council (EIP 2014). She says they are. "*Ordinary citizens are indeed aware of many types of electoral malpractices*". In her studies of public judgements of the quality of elections she found that the conclusions of ordinary citizens coincide closely with the experts assessments of the same elections (Norris 2014).

A small group of international election observers select the polling stations to cover during an election (Carter Center 2013). In contrast - the crowd is "everywhere" and



they appear in large numbers. They might represent a great asset for representative monitoring.

Sometimes the possible biases in crowdsourced SMS projects are discussed, regarding access to the tools needed to participate. In such discussions however, we tend to forget that elections themselves demand a certain level of engagement. In many countries, Kenya included you have to register up front as a voter to take part in the election (Kelley 2010; KPTJ 2013; Marchant 2013). With 38 million mobile phone users on 48 million people (Barkan 2013), and according to Safaricom only 5% live outside mobile coverage (GSMA 2012) Kenya should be "connected". Adding that there were 14,3 million voters registered for the elections should indicate that the vast majority of them would be connected.

One aim of this study is to contribute to the understanding of what citizen reporting can do to increase participation, debate and engagement in political processes - in short - democratization. Domenico Tuccinardi and Franck Balme think that this is exactly what is about to happen. They encourage a shift towards more process-oriented observations and to give more attention to citizen election observation groups and the application of crowdsourcing techniques.

*"By combining rigor and objectivity with the ability to reach a very large public through several stages of the electoral cycle, these platforms could become extremely powerful tools to evaluate not just the quality of elections, but the state of democracy in a given country at any given moment in time. (Tuccinardi and Balme 2013).*

Maybe the findings in this study also can add to the body of knowledge on how to perform crowdsourced election monitoring to increase the validity and viability of such projects and strengthen the confidence in civic participation and the use of social- and digital media in future democratization projects (Sambuli et al. 2013b).

In 1997 Thomas Carothers bluntly stated: *"The amateurs need to leave the field to the professionals"* (Carothers 1997). He was referring to a "crowd" of more or less skilled international observation missions who observed the 1996 Nicaraguan presidential elections. Carothers promotes the support of domestic election observation and writes;

*"There is another, equally important, reason for the neglect of domestic observation: many international groups prefer to send out their own high-profile,*

*exciting missions around the world rather than engage in the unglamorous and painstaking work of helping local groups to do the work themselves" (Carothers 1997: 27).*

Today's monitoring landscape might be described like this: Domestic observers are monitoring events on the ground, online observers are monitoring the Internet, their combined stories are collected and organized with the assistance of both on-the-ground and online volunteers. This happens during crisis as well as during elections.

Several studies have been done on the techniques and process of crowdsourced and volunteer election observation and peacekeeping efforts (Hellström and Karefelt 2012; Sambuli et al. 2013b; Trujillo et al. 2014; Tuccinardi and Balme 2013). Far less is written on the actual content, which stories are told in such projects.

Having the ability to analyse what is actually written in the citizen reports, this constitutes the starting point of my investigation. International and domestic election observation have become institutionalized with recognized international guidelines (GNDEM 2012; UN 2005). Crowdsourced observations are still in its shaping, although there exist guidelines on how formal organization should collaborate with online volunteers during emergencies (Capelo, Chang, and Verity 2013). One of the intentions with this study is to understand the reporting process from this not yet institutionalized methodology, and how the pictures drawn from the different methods complete each other or how they differ.

I therefore ask: Does the Uchaguzi project give a relevant picture of the process on the election day? If they give a relevant picture, what are main similarities or differences in these reports compared to traditional election observation reports from the same election? And what were the shortcomings observed, and what could possible improvements to this be?

## **1.1 Disposition**

The thesis consists of three parts. The first contains a brief discussion on election observation, the activity with the aim of ensuring free and fair elections as a means of promoting democracy. Since its start in the 1980s, election observation has become a big "industry" on its own. And discussions have risen on the value of its numerous missions, the criteria on which an election is judged and what seems to be a constant

disagreement between the professionals on acceptable performance of elections. Scholars such as Pippa Norris, Thomas Carothers and Eric Bjornlund will help us understand this landscape.

Further, the first part contains a discussion of citizen engagement with the use of SMS and other communication tools, and how the Internet and social media have opened a vast landscape for participation independent of geographical location. Crowdsourced engagements and activism are related to each other through their methods and communication channels. Various online activities performed in Kenya and elsewhere during important events share some common concepts. Ethan Zuckerman, Patrick Meier, and Evgeny Morozow are among the scholars I draw knowledge from. This section includes thoughts and discussions from fields such as technology, media and design.

The second part describes the run up and the 2013 election. I argue that we need a backdrop on what else was going on before and during the elections in Kenya to contextualize the subject of study. The Uchaguzi project was not a standalone project, but had collaborators and must in my opinion be seen in relation to other civic engagement efforts during the run up and through the elections. Quite a few of the projects enjoyed international support or funding. Several studies and articles are written on the Kenyan elections, including analysis of the social media landscape. Nanjira Sambuli, Johan Hellström, Horacio R. Trujillo and Gabrielle Bardall are some of my sources to understand what happened.

Finally I categorize and analyse the stories told through the crowdsourced election-monitoring project as they were collected on the Uchaguzi platform. Final election observation reports from Carter Center and the domestic Elections Observation Group (ELOG) creates the references to which I will compare the relevance and the content of the Uchaguzi stories. The Carter Center report is chosen to represent the observations from a reputed international election observation organization, and the ELOG report is selected due to its massive coverage with about 7000 observers covering all constituencies. As a relatively new form of election monitoring, the Uchaguzi project was chosen as a case to test if the content of reports in such monitoring efforts present value to fill in the picture of the election day events.

## 2 Observer assessments and crowd monitoring, theoretical reflections

After the cold war, democracy-assistance and multi-party elections were seen by donor-countries as a condition for economic liberalism, and financial aid could follow successful elections (Bordewich, Davis-Roberts, and Carroll 2006).

Election monitoring, as we know it today, started in the early 1980s with ad-hoc projects from a number of concerned individuals who saw the need of observing important elections. In 1980, through an election that played a central role in the transition to independence for Zimbabwe, the election observation "mission" consisted of four activists arriving in the capital just before the election to talk with citizens about what was going on (Bjornlund 2004; Houser 1980). Ten years later, election monitoring had become a widespread, high profile activity.

Poorly prepared or politically biased Election Observation Missions was rightfully criticized. About 80 different foreign observation missions observed the 1996 elections in Nicaragua. The number of observation missions didn't prevent technical flaws, a politicized and inefficient election commission and a problematic counting process (Carothers 1997; McCoy and Shelley 1997).

### 2.1 International election observation

Thomas Carothers also discusses the outcomes of election observations. He asks if it is possible to simplify the conclusions on whether an election was "Free and fair" or not. He points to problematic areas of international election observation, where biased conclusions might occur due to political affiliations of the observing group, or even the acceptance of partially flawed elections of sympathy with the country (Carothers 1997). Judith Kelley follows up on Carothers in the *Journal of Democracy* in 2010. She refers to the study "Data on International Election Monitoring"<sup>5</sup> which covers 340 elections observed by nearly 600 observation missions. She criticizes the different observer missions to conclude differently on the same election, and even shows that one professional mission might contradict its own conclusions. The OSCE report on the Russian elections in 1999 states in the executive summary that the "electoral laws

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<sup>5</sup> Data on International Election Monitoring (DIEM): <http://sites.duke.edu/kelley/data/>

provides a healthy environment for fair elections", while the content of the report points to "major flaws" in the legislation (Kelley 2010: 160).

Khabele Matlosa ask for the same in the African Journal of Political Science. I am not going to refer his discussion on the highly disputed election and the observation missions to Zimbabwe in 2002 (Kelley 2009: 63; Matlosa 2002: 138-152). But he states a relevant demand for international standards, not only to evaluate the quality of the outcome, but a common practice on the deployment of international observation itself. Also the electoral processes in some developed countries are disputed. In France and USA elections are not monitored by international observation missions. International observers are not invited. Elections in developing countries are however scrutinized by the international community. Matlosa ask if this is a sign of a continuation of old times imperialism (Matlosa 2002).

### **2.1.1 Standards for international election observation**

Standards for international observations arrived in 2005 with the UN "Declaration of Principles for International Election Observation and Code of Conduct for International Election Observers" (UN 2005). But the principles does not answer Matlosa's claim for a common practice on where to deploy these missions.

He also argues that observation missions from western industrialized countries to developing countries *"tended to be used as part of the political conditionality and leverage through which industrial countries impose their hegemony over developing countries and thereby undermine their already enfeebled national sovereignty"* (Matlosa 2002). His concern is shared from a slightly different angle by Judith Kelley, who finds it peculiar that EU tend to observe elections in countries with which they either have political relations or support with aid (Kelley 2010: 169).

And Carothers finally raises concern about the community of observer organisation's lack of interest in supporting domestic election monitors. *"Domestic election monitors, if properly organized and prepared, have important advantages over foreign observers. They can much more easily turn out in very large numbers, usually in the thousands."* (Carothers 1997). During the Kenyan elections in 2013 - they did.

Today there is a shift towards monitoring numerous aspects of governance, not only the elections themselves. *"Interventions range from monitoring and capacity-building ... on*

*one hand and attempting to improve legal regulations, strengthening accountability mechanisms, and applying international pressures on the other hand"* (Norris 2014)

As large groups of citizens now have a possibility to raise their voice, we might see another turn in the evolution of election observation. In her list of policy options for strengthening electoral integrity, Pippa Norris includes technology, domestic NGOs and social media (Norris 2014: 201). Those are the elements with which I'll attempt to contextualize the Uchaguzi project.

## **2.2 Domestic election observation**

In 2012, the "Declaration of Global Principles for Non-Partisan Election Observation and Monitoring by Citizen Organizations and Code of Conduct for Non-Partisan Citizen Election Observers and Monitors" were endorsed by over 160 nonpartisan election monitoring organizations in more than 75 countries on five continents (GNDEM 2012). The guidelines was worked out by the Global Network of Domestic Election Monitors (GNDEM), where also the ELOG from Kenya took part.

The declaration recognize civil society, engaging millions of citizens to participate in public affairs, and acknowledge monitoring of elections by such civic bodies as a

*"specialized form of human rights defending that focuses on civil and political rights, which are central to achieving genuine elections, the rule of law and democratic governance".* The declaration further note that *"non-partisan election observation and monitoring organizations can contribute significantly to improving the democratic quality of legal frameworks for elections, the conduct of election processes and broader democratic development"* (GNDEM 2012: 3).

With the aim of supporting a process-oriented approach to election monitoring and violence prevention and by supporting citizen groups in their aim for accountability, the declaration, and its acceptance also in the European Union marks a shift. The potential in citizen observation, their use of new digital tools and crowdsourcing techniques was finally recognized by the democracy assisting community (Tuccinardi and Balme 2013). The field is no longer left only for *"the professionals"* as Carothers wished in 1997. But - this time it is not international amateurs that is promoted, but as he also wished for - domestic monitoring groups. The declaration is aimed at assisting in the professionalization of such groups.

Tuccinardi and Balme calls it a "crowdsourcing revolution" stating that

*"Citizen election observation activities have led the developments in the entire election observation sector and the methodology they developed has evolved over 25 years: experiences like the ones of NAMFREL of the Philippines in 1986 and Transparencia Peru in 2000, have been instrumental and inspirational for the design and subsequent evolution of international election observation efforts.*  
(Tuccinardi and Balme 2013)

### **2.3 Revolutions and people power**

What was it with NAMFREL? Under the regime of Ferdinand Marcos in the Philippines one of the first citizen election observation organizations emerged. The National Citizens' Movement for Free Elections (NAMFREL) with more than 250 000 members played a central role in the "People Power Revolution" in February 1986.

The February 7 elections was considered *"not free and fair"* by the International Observer Delegation who reported the voting to be flawed with bribing, double voting, fraudulent voter registration and falsified counts. Despite this, they stated that *"the election succeeded in providing a vehicle through which the national will of the Philippines was ultimately expressed"* (Atwood and Schuette 1986). The count they referred to in the observation report, showed a winning president Ferdinand Marcos over the contestant, Corazon Aquino.

Meanwhile, 29 computer technicians from the official Commission on Elections (COMELEC) walked out in protest of the deliberate flawed results of the elections (DuVall and Ackerman 2001) and NAMFREL published their Parallel Vote Tabulation (PVT) showing that Corazon Aquino was the actual winner. The statement of the Archbishop of Cebu, Ricardo Vidal reading: *"Now is the time to speak up. Now is the time to repair the wrong. The wrong was systematically organized. So must its correction be"*. His message was aired by the local station Radio Veritas and followed up by millions of people who gathered in Epifanio de los Santos Avenue (EDSA) in Metro Manila. " (Vidal 1986). During three days - 22 - 25 February, the two million people joined what came to be called the "People Power Revolution", ending with Ferdinand Marcos boarding an American helicopter from his presidential palace, departing for a final destination in Hawaii. By the time of the uprising, the International Observer Delegation was safely back home (Atwood and Schuette 1986).

NAMFRELs 500 000 volunteers and the organizations exposure of *"fraud on the part of the Marcos government contributed significantly to the ouster of the regime"*, states the final election report (Bordewich, Davis-Roberts, and Carroll 2006).

The above story is not included for the purpose of demonstrating a successful overthrow of a regime - which it also was - but to demonstrate the power of civil organizations doing systematic election monitoring and tallying and collaboration with each other.

### **2.3.1 The machine that sees it all**

In a charming talk at TED.com<sup>6</sup> in 2007, the former editor of Wire magazine, Kevin Kelly talks about the first 5000 days of the World Wide Web. He claims that the web itself is the largest and longest running "machine" that mankind ever created. This "machine" is growing at an enormous rate every day. All our laptops, cameras, phones and gadgets with a sliver of built in connectivity are the "eyes and ears" of this machine. All the screens in the world are "windows" into this huge pile of information.

He predicts our total dependency of the machine, "The One" as he names it. We will depend on it much in the same way our society have become totally dependent of another technology invented long ago, which is language and writing. We can't imagine our world running without it. The machine is hungry for ever more information, and we gladly feed it (Kelly 2007). This machine is one of the foundations for online activism, surveillance or sous-veillance. Without it there would be no digital crowdsourcing.

### **2.3.2 Politics of technology**

Research fellow Gregory Asmolov at the London School of Economics and Political Science discusses the political aspects of crowdsourcing tools in his text "Crowdsourcing as an Activity System: Online Platforms as Mediating Artifacts" (2014). He suggests that the term "Crowdsourcing" embeds a close relationship between collecting information, reporting and eventual actions. And further - he underlines that no ICT systems are unaffected by politics: *"...ICT, and in particular crowdsourcing, and the architecture of online platforms can be conceptualized as forms of "governance of crowds" that through their structure suggest "the possible field of action of others."* (Asmolov 2014)

Similar governance can be seen in other kinds of social media. When you create your Facebook account, you are encouraged to enter information about your real life contacts

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<sup>6</sup> TED is a platform for spreading ideas and trigger conversation: <http://www.ted.com/>



- where you went to school, where you studied and where you work. Facebook suggest you should bond with the likes of yourself.

During his keynote at ICT4Peace conference in 2014 media scholar Ethan Zuckerman warns on the effect such platforms may have. *"Technology is never a neutral player in this space. When you make decisions on how people are going to act online, you are making political decisions,"* he says (Zuckerman 2014). He use the sociologist Robert Mertons study on "homophily" love of the same - about social forces affecting the formation of friendship. Several researches show that we tend to flock together with others assumingly like ourselves (Zuckerman 2013: 69-73). There might be structures that tries to interfere with such tendencies, for example a university dorm room organizer who might try to mix groups with different backgrounds on the same floor. In contrast - Facebook is a social platform that encourages homophily. When you sign up, you are invited to connect with the likes of yourself. This is the political aspect of the software which Zuckerman comments: *"Facebook is the only business that I know of that has made homophily its business model"* (Zuckerman 2014).

He points to Myanmar to underpin his argument. Where the rest of the world have had 20 years to get used to the Internet, Myanmar citizens came online in large numbers in 2012. And there was Facebook. It shaped an online world quite different from other cyberspaces, where businesses, interest organizations or political movements turned to Facebook for their online activity. And - as Zuckerman puts it - *"homophily leads to echo-chambers, which leads to extreme positions. Technology by itself does not bring people together. It may do the opposite"* (Zuckerman 2013).

There are two connections from this reasoning to the Kenyan elections. Not surprisingly, 90 % of hate-speech messages harvested by the Umati project (see chapter 3) were found on Facebook. Secondly - one may ask which political structures were embedded in the Uchaguzi platform that contributed to shape the information harvested.

Farid Shirazi et al claim that *"there is a very high correlation between ICT expansion and democratic freedoms"*. Their study covered 133 countries and their development from the birth of the World Wide Web in 1995 through 2003. The relation between high ICT expansion during the time period and high democracy performance he claims are closely connected. When individuals have the possibility to share knowledge, participate in dialogue and get access to information, they do. ICT infrastructure has in general a positive impact on democracy and freedom of expression. But the same

technology also opens channels for radical groups, religious fundamentalists, and their exchange of dangerous speech and threats. Governments reactions to un-wanted communication by filtering and censorship has a negative impact on political rights and liberties, and will therefore also reduce the country's performance on a democracy scale (Shirazi, Ngwenyama, and Morawczynski 2010).

## **2.4 Crowdsourcing and its applications in civic engagement**

Jeff Howe coined the term "crowdsourcing" nearly ten years ago in an article in Wired (Howe 2006). The term describes a contemporary alternative to "outsourcing" - harvesting information or services from a crowd. In his later book, he points to the research of Scott E. Page who tested the ability for problem solving among different groups of people. It turns out that a group of people with a diverse skillset (the crowd) outperforms a group of experts in problem solving. This eventually formed the theorem "Diversity Trumps Ability" (Howe 2009). Since then ever new aspects of engaging "the crowd" in scientific work, monitoring, political or humanitarian projects have evolved.

Some of these aspects are seen in the online volunteer crowd supporting the teams on the ground. With a spread of skillsets, their combined knowledge may outperform a small group of experts. Daren Brabham confirm this in his description of what crowdsourcing is and is not: *... "when the conditions are right, groups of people can outperform individual experts, outsiders can bring fresh insights to internal problems, and geographically dispersed people can work together" ...* (Brabham 2013).

Already in 2002, during the annual conference of the American Political Science Association, Pippa Norris presented a study on how political tools were changing. She stated that the increasing level of human capital and social modernisation lead to a situation where educated citizens have more options for participation in society than their parents. Through different tools and via *"... new social movements, Internet activism and transnational policy networks"* the younger generation are less willing to direct their engagement through traditional channels as political parties and churches (Norris 2002). Not until two years later, in February 2004, Mark Zuckerberg launched Facebook. One of the research areas of the Electoral Integrity Project is "Crowdsourced Election Monitoring", a methodology for citizens to monitor and to organize the information collected before, during and after elections. Their description of three different kinds of

crowdsourcing are relevant for the Uchaguzi project, and are referred below (Grömping 2014).

#### **2.4.1 Risks in online engagement**

Evgeny Morozov warns on the belief that connectivity and the ability to share information will liberate the oppressed and set us free. Named a "cyber sceptic" he raises his voice at western Internet utopians as hopelessly naive and out of sync with the situations on the ground. Propaganda, censorship and surveillance by (authoritarian) governments are easily enabled by a "free" net and the willingness of citizens to raise their voices. The more connections between activists a government can identify, and the more trust users have in blogs and social networks, the easier it is to disguise carefully designed government messages and boost the propaganda apparatus. In particular, Morozow is warning of the belief that large social media campaigns will lead to real change. Covering the field of mass movements with the viewpoint of an informed sceptic, he still encourages political activists to master these media. "*That they may not know how to do this is a poor excuse for not getting engaged*" (Morozov 2011).

During the attack on the Westgate shopping centre in Nairobi in 2013, the fact that the attackers, the hostages and the general public all were active on Twitter not only established this medium as a major source of information, but also illustrated to the extreme the risks involved. People trapped inside the building or eager journalists were posting images identifying where people were hiding<sup>7</sup>, not reflecting over the fact that the terrorists were following the same channels (Card, Mackinnon, and Meier 2013; Carpeev et al. 2011; Ishengoma 2013). This example is extreme, but may illustrate the importance of knowledge on how the tools work.

#### **2.4.2 Attributes of crowdsourcing**

Common attributes for a variety of crowdsourcing projects are "*the crowd, the task at hand, the recompense obtained, the crowdsourcer or initiator of the crowdsourcing activity, what is obtained by them following the crowdsourcing process, the type of process, the call to participate, and the medium*" (Estellés-Arolas and González-Ladrón-de-Fuevara 2012). Arolas and Fuevara describe overarching attributes, not characteristics of the project as such. Maja Bott and Gregor Young add success criteria to the equation

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<sup>7</sup> See example of images circulating at: <https://goo.gl/zUCT8f>

in their article in PRAXIS. Core elements as infrastructure, vision for the project, human capital, linkages and trust are key to make the project work. So is governance of the project itself. "*Decentralization of authority, thus minimizing the principal-agent problem; centralization of information via one platform and interoperability of interfaces and applications with this platform*" (Bott and Young 2012) are examples of such governance. In their report for the World Bank two years later, they study applications of crowdsourcing projects for governance in fragile state contexts. The ability for crowdsourced monitoring projects to "*localize, visualize, and publish complex, aggregate data on a multilayer map*" in near real time, "*empowers citizens and beneficiaries of government and donor services to provide feedback*". The projects can deliver an immediate situation awareness, an aspect of crowdsourced monitoring that might be one of the main differences to traditional observation processes (Bott, Gigler, and Young 2014).

A crowdsourced election monitoring projects can engage large groups of citizens on the ground as observers. These observers typically inform a central hub via SMS about the incidents and their locations. This information is then posted on interactive maps. The near real time reporting using social media or SMS in combination with platforms such as the Ushahidi, have "*created a new horizon of possibilities for monitoring, harnessing election violence by documenting it in real time, and creating new access channels for citizens to hold their governments accountable*", as Gabrielle Bardall notes (Bardall 2010).

The above sounds nice, but crowdsourced projects are vulnerable both for false reports or for revealing information that should not reach the public. George Chamales therefore suggests best practise to include guidance "*to identify sensitive types of information that should not be disclosed and ways to detect and respond to inaccurate or fabricated information*" (Chamales 2013).

The landscape and scope of crowdsourced projects is vast. To relate the Uchaguzi project to the set of definitions and characteristics of crowdsourcing, we turn to the "The Electoral Integrity Project"<sup>8</sup> and the definitions they use to separate variations of crowdsourcing (Grömping 2014).

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<sup>8</sup> The Electoral Integrity project: <https://sites.google.com/site/electoralintegrityproject4/home>

### 2.4.3 Listening or actively asking

Imagine you enter a town on the day of an important event. The market square is crowded, people are chatting about what is going on. If you collected all what was said on the market square and filtered out the nonsense, it resembles what happens in passive crowdsourcing. If you instead started asking people what happened, it resembles active crowdsourcing. Both methods are frequently used.

"Passive" crowdsourcing usually describes various methods of passively listening and harvesting information from media channels or social media as Facebook or Twitter. During particular events, there would be created keywords or hashtags<sup>9</sup> used to relate the message to the event (Grömping 2014).

To properly monitor the large amount of information shared on social media, machine learning techniques are used to be able to filter out the noise and extract valuable information from of messages - or to find the needle in the haystack, as Patrick Meier likes to describe it (Cobb et al. 2014; Imran et al. 2014; Starbird, Muzny, and Palen 2012).

"Open" crowdsourcing is characterized by the ability of any citizen equipped with a mobile phone or Internet connection to contribute to a given project. The term "Active" is used when the crowd is encouraged to do so, either through traditional media, posters, pamphlets or social media. There are numerous experiences on how reports from the crowd, organized in a proper manner, can alert or inform the general public on events as they are unfolding. If participation in political processes also attracts those who normally do not participate *"this is something that will affect political equality in a positive direction"* (Hellström and Karefelt 2012).

In certain events, the large amount of messages sent can be directed by adding particular tags to the message. Thus the open crowdsourcing becomes "guided" in the sense that the crowd is given recommendations on how to classify their messages. UN OCHA has a project going to further elaborate the possibilities of guiding tweets to increase the usefulness of microblogging<sup>10</sup> during crisis (Moore and Verity 2014).

"Bounded" crowdsourcing is characterized by a registered and usually trained "crowd" of informants feed the information or collaborate on a given project.

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<sup>9</sup> See the appendix for a list of hashtags used for the Uchaguzi project.

<sup>10</sup> Microblogging: Posting messages with severe space or size restraints, <http://www.merriam-webster.com/dictionary/microblogging>

Cristophe Billen, an analyst at the International Criminal Court, develops a project called "Peoples Intelligence". It seeks to develop crowdsourcing information during crisis or tense situations a step further, using a digital talk-back function to ask witnesses for details and more information through automated SMS. The project is in its developing phase, granted a seed fund from USAID in 2014. "Peoples Intelligence" provides a tool for verification of reports received by witnesses, with the ability to request more information in cases where the incident is not fully reported (Billen 2013, 2014).

#### **2.4.4 Online volunteers**

Wikipedia could not have been created without them, Open Street Map wouldn't be the major open-source map of the world without the group of engaged citizens described as online volunteers. In some contexts they may be described as the "Volunteer and Technical Communities" (V&TC). These are organized groups of online volunteers (Waldman, Verity, and Roberts 2013).

The United Nations started using online volunteers 15 years ago in collaboration with Cisco systems. With today's 450 000 registered volunteers their database represents a massive workforce for online humanitarian- and development purposes (UN Volunteers 2015). Close to 3 million online volunteers were searching for flight MH370 in March 2014 through the Tomnod<sup>11</sup> platform (Fishwick 2014). At the time of writing the Tomnod volunteers do damage assessment from satellite images over Nepal.

Online volunteers may be more or less trained, and are characterized by their engagement and skills rather than profession, age, location or income. They and count dozens or millions depending on the event. (Cobb et al. 2014; Shanley et al. 2013). During the Uchaguzi project more than 200 trained online volunteers engaged in translating, verifying, and geo-locating the reports on the elections (Omenya and Crandall 2013).

The Ushahidi mapping platforms, which is free to use, has been deployed in a number of monitoring projects, whether it has been election-monitoring, crisis mapping of wildfires, earthquakes, floods or human rights abuses. In addition to be a major tool for collecting information, the platform and its creators at iHub Nairobi also serves as a core for a global online community investigating the perils and possibilities of open source tools for crowdsourced mapping projects (Bardall 2010).

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<sup>11</sup> Tomnod is owned by the satellite company DigitalGlobe: <http://www.tomnod.com/>

The crowdmap platform is simply a database enabled for collecting information via mobile apps, SMS or the web. The user sets up a structure for categorizing the information, and adds a geographical location to each report. It then appears as a located dot on an interactive map. Where OpenStreetMap (OSM 2015) is a tool for the crowd to join drawing the roads, buildings or market squares, the Ushahidi tool allows the crowd to populate such maps with textual descriptions, images or videos of events.

The use of Ushahidi to map the earthquake in Haiti in 2010, gave a boost to this type of crisis mapping where online volunteers were translating, categorizing and mapping reports from the affected population to create an as close to realtime as possible - map over the situation. This mapping exercise led to a new term, "Digital Humanitarians" (Bailard et al. 2012; Bott, Gigler, and Young 2014; Meier 2015).

The loosely connected individuals have later organized themselves in more or less specialized entities and are today counted upon during major disasters. Organizations such as Red Cross, the World Bank, UN OCHA or MSF are frequently using their services (ICRC 2013; Karlsrud 2014; OCHA 2013).

#### **2.4.5 Mobile phones for governance**

For more than a decade, Johan Hellström has studied how mobile phones can be used as a tool for good governance. He refers to DFIDs three main concepts for good governance: "*Capability of governments to get things done, how they respond to the needs and rights of their citizens, and how, in turn, people can hold their governments to account*" (DFID 2006).: Hellström is not over-optimistic about how East-African governments are enabling mobile technologies for good governance. Maja Bott describes the reluctance of the Kenyan government to enable the citizen engagement platform Huduma<sup>12</sup> created to enable dialogue between the government and the public. The platform is still under construction (Bott and Young 2012: 28). But Hellström acknowledges how communication between citizens has changed with the spread of mobile communication tools. "*Technology does not empower anyone, citizens empower themselves. And with right and better tools, this will become easier*" (Hellström 2011).

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<sup>12</sup> Huduma: Swahili for "Service". See <http://www.hudumakenya.go.ke/> - Portal is coming "soon".

## 2.4.6 Lowering the language barriers

During the presidential elections in Ukraine in 2014, OSCE/ODIHR noticed the contribution of the volunteer organization OPORA, and their use of citizen reporting with 2500 volunteers throughout the country and their online mapping project (opora.org 2014; OSCE 2014). The OPORA platform is no longer online.

With translation activated on your web-browser, the reports and the project was readable even for us who don't understand Ukrainian. This simple feature increase the potential audience for such projects - enabled by machine translation technology in the tools we use. And - the content is understandable outside your language domain. From understanding nothing, machine translation let you understand a lot.

## 2.4.7 Examples of crowdsourcing projects

The below table shows different types of crowdsourced projects, describing the tasks performed by the crowd and characteristics of these projects. It is not a comprehensive list, but might give an idea of the diversity of such projects in some relevant settings.

Type	Crowd task	Example	Motive	Characteristics
Documentation	Creating videos	Witness.org	Making grassroots heard	Dedicated channel Edited videos Trust
Advocacy	Sign petitions	Avaaz/SumOfUs	Influence	"Clicktivism"
Crisis alerts, information	Tweeting	Phillipines Gov., OCHA	Information	Organized hashtags to direct tweets
Crowdwork	Classifying or searching images	Tomnod, Zooniverse, MicroMappers	Solve large tasks	Classifying images, tagging objects
Crisismapping	Adding information to a map	Standby Task Force, KLL	Creating overview of a situation	Near realtime mapping of events
Crowd monitoring	Messages sent directly to a project	Environmentalist-, human rights	Documenting particular events	Civilians dedicated to a particular happening in time
Self organizing	Inform each other	Self organizing through Facebook	Stay informed, share tasks	Closed or open exchange of information
Mapping	Draw map details from satellite images	OSM, Wikimapia	Create detailed maps of unmapped areas	Span from local interest to global concern. Pre-crisis and post-crisis
Election monitoring	Reporting, categorization	Uchaguzi, Reclaim Naija, UgandaWatch	Citizen participation, free and fair elections	Mixture of bounded and open crowdsourcing

Table 1: Examples of different uses of crowdsourcing and crowdwork.



#### **2.4.8 Citizen reporting in other elections**

In some recent elections in sub-Saharan countries, the voices of the crowd, through the engagement in domestic election observation and with the use of ICT based communication tools, are becoming visible and more organized as participants in what might be described as a hybrid between domestic and international observation "missions". The observers are on the ground, covering far more polling stations than any international mission, reporting directly to an online platform. The international online volunteers assist the project from their offices, homes or universities worldwide.

Although crowdsourcing projects are going on during elections on all continents, I will refer to a couple of projects below.

At the 2012 International Conference on Information and Communication Technologies and Development (ICTD) in Atlanta, USA Johan Hellström and Anna Karefelt presented a study on the use of SMS during the Uganda general elections in 2011. A domestic non-governmental organization, the DEMGroup set up two platforms for SMS enabled election monitoring. One was an open platform, inviting the general public to submit their observations, the other was a bounded crowdsourcing platform deploying 6000 observers to report from the elections. Hellström and Karefelt surveyed the experiences of the participating and not-participating citizens on their experience with the reporting possibilities and tools. They found that such platforms indeed create a channel for citizens who don't know where else to report their observations or where to turn to for help during the elections. They also found that the main obstacle for not participating was either that the public did not know about the service, their fear of personal security or the perception that their reports would be of no use.

They noticed that *"Using mobile phones for participation seem to attract groups of citizens not participating in other arenas, which suggest that this channel is contributing positively to political equality."* (Hellström and Karefelt 2012)

#### **2.4.9 Reclaim Naija**

Bailard and Livingston have investigated the actual datasets gathered during the crowdsourced monitoring of the 2011 Nigerian Elections, ReclaimNaija<sup>13</sup>. Reports from citizens during the elections for the National Assembly, the Presidential elections and

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<sup>13</sup> ReclaimNaija was also running for the 2015 elections in Nigeria: <http://www.reclaimnaija.net/>

the Governor elections added up to 27 000 crowdsourced reports. The elections for the Nigerian National Assembly were to take place on April 2, 2011, but was delayed due to polling stations not being prepared, lacking material for the votes. The elections were postponed by a week. Bailard and Livingston partly credit the crowdsourced information for the extra time given to Independent National Electoral Commission (INEC) to prepare the elections (Bailard and Livingston 2014).

Further they claim to have found a correlation between the crowdsourced reports and the ability for voters to successfully cast their vote. Their point is not to say that crowdsourced information increased number of votes cast because of increased motivation but *"Rather, our point is that motivated voters were presented with an opportunity to successfully realize their ambition to participate in the election owing to the repairs made to the voting process."* (Bailard and Livingston 2014: 359) The crowdsourced reports provided information to election officials to better support the elections, resulting in more successful votes. They state that *"crowdsourced information can, indeed, improve transparency and possibly even electoral integrity"* and that *"the reduced communication costs provided by digital networks have altered the toolset of governance and citizenship in potentially profound ways"* (Bailard and Livingston 2014).

### 3 Civil society projects in the 2013 Kenya Elections

In 2010, Kenyans cast their votes in the national referendum to confirm their new constitution. The new legislative framework contained several reforms that supported the possibilities for civic engagement as well as changes in power structure for following elections. Some important changes were:

- The constitution removes the power of the president to appoint key public officials including the electoral commission.
- The new commission is a body independent from the presidency and has operational autonomy of the election management.
- The creation of 47 counties with an elected governor created as a new level of political power. The elected governors constitute the Senate, the Upper House.
- Candidates running for president need 50% plus one to win rather than plurality. The elected president also have to gain more than 25% of the votes in 24 of the 47 counties to secure support from different communities

(Carter Center 2013: 20-24)

Other proposals never passed the parliament, such as a demand for the candidates to declare their wealth or the regulation of campaign financing. And finally, Kalenjins and the Kikuyus - the once bitter enemies in the 2007/08 elections was now teamed up behind the same presidential candidate (Carter Center 2013; CrisisGroup 2013).

At the same time an expanded media landscape, where voters were allowed to question their candidates in public (BBC 2013), set the stage for several civic engagement projects. But happiness on the new media freedom didn't last. In contradiction to the press freedom secured in the new constitution, a new bill was passed in parliament in October 2013 that again would reduce the press freedom in Kenya (RSF 2013).

One month ahead of the elections, Human Rights Watch warned that the underlying reasons for the violence in 2007 still was present and alive, and that the tension in parts of the country even had escalated (HRW 2013). The global angst for new waves of violence in Kenya evoked a large media attention on the preparations and the elections. Traces of what was expected can also be seen in the prepared categories for the reports on the Uchaguzi platform. Luckily, not too many reports were filed to populate the gravest categories of violence (Leson 2013c).

### **3.1 Securing peaceful elections**

To reduce the risk of outbursts, the country had never seen such electoral preparations with the peace projects, voter education and civic engagement as during the months ahead of the elections. This is the landscape in which the crowdsourced monitoring project was launched. All the peace efforts mentioned above has to be seen in context with the Uchaguzi project. The "tone" was set - even with the risk of suppressing important issues to keep the peace.

#### **3.1.1 Training voters and observers**

With the new political and media landscape and with a massive international support to prevent a new violent turnout of elections, volunteer organizations and NGOs started planning for the events to come in 2013. Partners and sources for finance were identified, and the Constitution and Reform Education Consortium (CRECO) planned for voter education and training of observers. International organizations such as Dutch HIVOS, Canadian CIDA, USAID, the British DFID and the Kenyan Independent Electoral and Boundaries Commission (IEBC) supported the various voter education and electoral staff education projects. The Constitution & Reform Education Consortium (CRECO) - an umbrella organization for more than 20 civil sector organizations was one of the important drivers of voter education as well as training observers. (EU-EOM 2013; Hivos 2013; KHRC 2014; US DoS 2013). *"Although voter education was carried out in all the constituencies, it was of varying and uneven quality and quantity"* ELOG notes in their report (ELOG 2013).

Where CRECO focused on voters, the Elections Observation Group (ELOG) coordinated stakeholder awareness projects and long term observation, and later on, election day monitoring as well as Parallel Vote Tabulation.

ELOG deployed the largest group of observers during the elections, and their partner organization CRECO contributed to this group. The latter collaborated with the Uchaguzi project, feeding the platform with their observations (Omenya 2013).

### **3.2 The (social) media landscape**

The use of ICT in the preparation for the elections did not pass without notice. Trujillo et al points to the fear of contagious violence to spread, and how creative use of ICT and innovative strategies were employed to prevent it before the 2013 elections (Trujillo et

al. 2014). In Kenya there were 38 million mobile phone users of a population of 48 million in 2013. Every grown up - rich and poor - have one, and except some of the less populated areas in the north, there is mobile coverage in most parts of the country. The M-pesa mobile banking system have included new groups in the official economy (Barkan 2013).

### **3.2.1 Peace campaigns on the ground and in cyberspace**

One other group involved in civic education that played a role in promoting peaceful elections was Sisi ni Amani Kenya ("We are Peace Kenya"). In collaboration with the global community PopTech (PopTech 2015) Sisi ni Amani arranged community meetings as well as SMS-based civic education and promotion of peace (Corlazzoli 2014; Sisi ni Amani 2013).

PeaceTXT Kenya campaigned to "*prevent, reduce or stop election-related violence*" using SMS to transmit peace-messages to their subscribers (Gettleman 2013; Kalan 2013; Meier 2013b; Trujillo et al. 2014).

To prevent media from spreading hate speech, guidelines were developed by the National Cohesion and Integration Commission. Media was encouraged to do "peaceful reporting". Monitors were deployed to watch and listen to see that media did not contribute to escalation of hate or violence (Marchant 2013).

Finally, the advertising company Flashcast Kenya, used its text displays on buses in Nairobi and encouraged their passengers to post peace-messages via SMS. The texts displayed on screens on the buses and was also published via the company's Twitter feed, on their Facebook page and on the FlashCast Peace Feed website (Marchant 2013).

### **3.2.2 Kenya speaks**

For the first time in history Kenyans experienced an open media-debate between the contestants in the elections. A project staged by BBC - Sema Kenya ("Kenya Speaks") - invited citizens to appear in panel debates and were encouraged and allowed to question their leaders face to face. The weekly program series ran from October 2012 to the end of March 2013, following a straight forward concept of broadcasted public panel debates among the candidates staged both in urban and rural areas of the country. The voters were for the first time in direct dialogue with their candidates on live TV. The project was run by BBC Media Action TV and funded by DFID (BBC 2013).

### **3.2.3 Scanning social media for dangerous speech**

The Umati ("crowd") project, supported by Internews, PACT, and Chemonics/KTI was set up to scan social media for hateful expressions. The team surveying the Internet worked in five Kenyan languages, Swahili and English. With over 2 million active Kenyan Facebook users in April 2013 the space of expression was significant. The aim was to "create a window" of insight to the state of Kenyan society. Sanctions and laws to prosecute hate-speech that generates violent action is not yet in place, and the monitoring is not in itself a complete solution, but surely a method to raise awareness on the phenomenon. The Umati project facilitated the possibility of response and commenting through the project and developed methods to identify, collect and categorise such expressions (Sambuli, Morara, and Mahihu 2013; Wrong 2013).

They followed Susan Benesch's definition of hate speech - speech that encourages violence against a particular group. She documents that inflammatory speech tends to rise before outbreaks of mass violence, and that monitoring such speech may form "*a basis for efforts to prevent such violence*" (Benesch 2012).

Interestingly, the Umati monitoring found that 90 % of hate-speech before the elections was retrieved from Facebook. Ethan Zuckerman reports a similar situation on Facebook in Myanmar - where the Muslim Rohingya minority are harassed and persecuted. Facebook is not in its roots an open social media platform where your expressions run a higher risk of being contradicted (Zuckerman 2014) such as on Twitter.

### **3.2.4 Online polling station locator**

As other multinational giants, Google joined the party by launching their Kenya Elections Hub - a portal meant for journalists, candidates or voters to find news, links and a Google-map to find your polling station. Kenya was the third sub-Saharan country where this initiative had been launched, after Senegal and Gambia. With 14 million internet users, mostly accessing the internet with smartphones, a considerable amount of voters turned to the net to stay informed (CapitalFM 2013; Mayers 2013). According to Google Zeitgeist, "IEBC" ranked as a top search word for Google searches from Kenya in 2012, beating both "Facebook" and "Whitney Houston" (Google 2012; Okolloh 2013)

Globally, according to Tuccinardi and Balme, election-day activities have become increasingly "cleaner". Groups who are seeking to manipulate the election results chose

to aim their fraud in other areas such as media manipulation, political party financing, voter registration or boundary delimitations (Tuccinardi and Balme 2013).

Despite this, the violence before, during and after the 2007/2008 elections in Kenya were fresh in mind before the 2013 elections. This makes a good reason for all the efforts done to prevent it happen again. The Facebook platform "I am Kenyan", the Umati project "I have no Tribe" as well as the Peacetxt effort are all signs of how projects were aimed to reduce the risk of violence and keep the elections peaceful (Trujillo et al. 2014).

### **3.2.5 ICT for managing the Kenyan Elections**

The 2013 Kenyan elections also turned out to become the most expensive ever in the nations history. The IEBC introduced technology to match a 21st century approach to elections. The Biometric Voter Registration system (BVR) would ensure a foolproof computerized national register of voters. The Electronic Voter-Identification Devices or EVIDs, 33,100 were eventually purchased by the IEBC, one for each polling station, was to ensure recognition of voters. Thirdly, the system of SMS transfer of results to a central server with realtime publishing of intermediate tallying should prevent fraud during transmission of votes (Barkan 2013; Carter Center 2013).

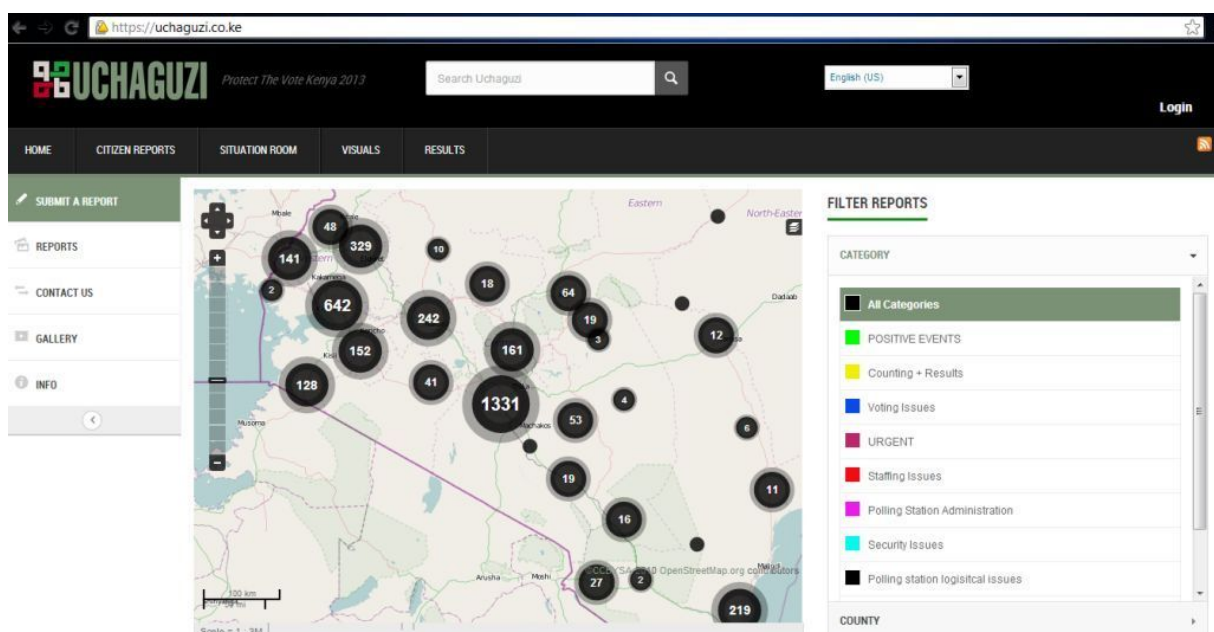
Joel Barkan, in his article in *Journal of Democracy*, launches serious critics to the choices done by the IEBC in their selection of technology, their procurement process and their delay to make crucial decisions. This led to a shortened period of time for voter registration and a fragile setup on election day (Barkan 2013).

The purchase was done to late, so was the distribution of the equipment, and the lack of backup power contributed to the failure of about 40% of the advanced systems. One of the main reason for complaints on a slow voting processes was connected to that the IEBC manning the polling stations had to turn to paper based voter registers to be able to continue the voting process (Barkan 2013; Carter Center 2013; ELOG 2013).

### 3.3 The Uchaguzi methodology

Uchaguzi is not only a technology platform, but also a set up to handle crowdsourced election monitoring. It was first created for the 2010 referendum for the new constitution (Chan 2010) and renewed for the 2013 elections. According to the organizers, the platform "*seeks to leverage on existing activities*" on election observation (Omenya 2013). The umbrella organization Elections Observer Group (ELOG) therefore became an important partner. The setup enabled rapid publication of reports in a systematic way. Secondly, the team in the situation room could alert authorities or organizations to react on urgent issues, and thirdly - it worked as a channel to give an outlet to the voice of citizens.

Below is a screen dump showing the Uchaguzi platform as it appeared during the elections. Each circle represent the reports from a given location, zooming in on the map let the viewer identify what was communicated from a given place.



Map 1: Dots on the map showing number of reports from each location. Categories used are selectable to the right. (Screenshot from njathika.blogspot.com)

The main target group for the Uchaguzi project were ordinary citizens. Through posters, flyers and broadcast the general public were encouraged to report on the election as it proceeded (Omenya and Crandall 2013).

Their official partner, CRECO deployed 2000 observers during the elections. Another important partner in the project was Peace and Development Network Trust (PeaceNet),



an umbrella organisation for several Civic Society Organisations (CSO) concerned with peace building, promotion of justice and conflict transformation.

### **3.4 The Uchaguzi workflow**

Three major sources of information were deployed during the data collection:

First were the trained group of observers. These volunteers were equipped with a cell-phone and a predefined list of issues to report. The phone numbers of the observers was registered on the Uchaguzi platform on forehand together with the location of the observer. The four digit toll free number "3002" was set up for reporting to the platform. The predefined lists of issues to report on are referred to as the Code Cards. The cards contained 51 chosen issues, each of them identified with a number. By sending an SMS to "3002" containing the given number from the Code Card, the report was registered on the Uchaguzi platform and converted to plain text. Since the names, phone-numbers and location of the observers already was registered in the system these reports were automatically geolocated (Leson 2013b).

*04.03.2013, 5:49, Mathioya District Headquarters, Kiriani, Boxes Inspection: Polling station 0520 inspecting the boxes (Uchaguzi ID 782)*

Before the elections 2500 on-the-ground volunteers from different youth groups and umbrella organizations like CRECO, Mercy Corps, CHF, USAID, and CUEA were trained as observers. Some were trained by their organization, others went through online training arranged by the Uchaguzi team.

The reports from these observers are referred to as "Trusted reports" in the dataset exported from the Uchaguzi platform. Further description of the list of issues follows below.

The "Trusted Election Monitor Cards" (Code Cards) acted as a reporting guide for trusted observers. They were registered on the Uchaguzi platform on forehand with their location on constituency level, and their phone-number. By sending an SMS with the number corresponding to the issue on the Code Cards, their message was automatically converted to readable text on the Uchaguzi platform. If they needed to report on other issues, their SMS would contain normal text. If the phone number and name was not registered and the observer still used the Code Cards, the number sent

simply appeared in the message body of the report. The Uchaguzi wiki<sup>14</sup> shows the list of codes and report categories used for the Uchaguzi platform (Leson 2013b, 2013c). These are listed in table 4.

In the same Wiki the Uchaguzi Categories are explained, listed in (Table 4, column B), while the Carter Center categories are picked from their checklists used during the observation (p121-123) (Carter Center 2013). The ELOG categories are derived from their election observation report (ELOG 2013).

Secondly - observers referred to as "the crowd" was ordinary citizens with no previous training. They were encouraged to report on the elections with an SMS to "3002". The team at the Uchaguzi situation room had the option to message back and ask for details on such SMS reports. This has evidently been done several times.

Applications for iOS or Android, email or the form on the Uchaguzi platform represented alternatives to sending SMS. Others reported through twitter using tags like @Uchaguzi and #Uchaguzi. Tweets containing these tags were monitored by the crew in the Uchaguzi situation room. A complete list of hashtags used during the elections is found in the appendix (Leson 2013a; Omenya 2013).

### **3.4.1 Working groups and teams**

To better understand the structure and division of labour behind the crowdsourced Uchaguzi project we need to describe the practical organization of the event. In collaboration with a core group in Nairobi consisting of less than twenty individuals and a handful of online participants, two major groups were engaged: Domestic groups in Kenya and digitally connected individuals and worldwide groups.

The domestic working groups preparing the project consisted of teams responsible for various aspects of the preparation. Teams were organized to test the platform and proposed digital security measures, to work with media strategy and managing outreach, workflow process, and documentation. The language team translated the platform setup to Swahili, others developed strategies for the use of social media during the project period. Finally, the Research and Analysis team were to observe the process and draw lessons from the project (Leson 2013a).

The final report on the Uchaguzi project, compiled and written by Rhoda Omenya describes a project with high ambitions and serious partners. Her report reveals that the

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<sup>14</sup> Uchaguzi wiki: <https://wiki.ushahidi.com/display/WIKI/Uchaguzi+-+Kenyan+Elections+2013>

Uchaguzi project would have been "strengthened with explicit strategies guiding the various areas of the deployment and communicated well to all partners" (Omenya 2013: 7). She also addresses the question whether these kind of projects should be based on "one of" events or if there should be a long term strategy for the entire election cycle.

### 3.4.2 Digital teams

The structure of the digital teams was inspired by the setup used by the volunteer organisation Standby Task Force<sup>15</sup>. Their structure had proven effective for handling large crowdsourced project during crisis, since its foundation after the Haiti Earthquake in 2010 (Meier 2015; Milner 2014). Depending on the size of the operation, the digital teams are given specialized tasks and responsibilities. For the Uchaguzi project, eight teams were deployed and trained on forehand.

The *Media Monitoring team* was in charge of monitoring citizen reports via different social media streams like Twitter, Facebook, blogs or online media.

*04.03.2013, 07:24, Market Street, Nairobi, Kenya: @<Name> A woman has just delivered here at Muthurwa polling station. Its a baby girl #Choice2013 pic.twitter.com/zGKsao21Ch*

The above report, picked up from Twitter was of course re-tweeted several times. Entering the Uchaguzi platform, it was categorized "Everything Fine"

The *Translation Team* translated reports from local languages to English. Below is an example of translation of a message that hardly would have been registered by traditional election observation. The message was categorized "Other".

*04.03.2013, 14:36, KERWA PRI.SCH, KIKUYU, KIAMBU: "Wee,tkia kana\_rege, twana nt\_ragwatanio g\_k\_ Kerwa\_Kikuyu, nguo m\_tumia atwarwo mbere, twatua twana onatuo tuhakwo karangi*

*Believe it or not! Women are borrowing babies from so that they can be taken forward in the queue, we have agreed that even babies be applied the ink on their finger too. <Name> (Uchaguzi ID 1614)*

The *SMS-team* handled all incoming messages including extraction of the location of the incident. This one was categorized as "Voting issues".

*04.03.2013, 15:34, CHANGAMWE, MOMBASA: Sisi waislamu ni dhambi kuingia kanisani na hatuezi kuingia kwa sababu ya kupipa kura(mwisho wa lami mshomoroni opposite mshomoroni mosque*

*It is a sin for us Muslims to enter churches and we will not enter to vote (Uchaguzi ID 1670)*

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<sup>15</sup> Standby Task Force is a digital organization specializing in crisis mapping during emergencies. See: <http://blog.standbytaskforce.com/our-model/what-we-do/>

*Geolocation team* was in charge of all reports also from the SMS and Media Monitoring teams to ensure the reports were mapped to the correct location. Important tools like OpenStreetMap and Google Maps, combined with online lists of polling stations help the process of adding Latitude and Longitude coordinates to the reports. All reports have these coordinates and are key to creating the maps seen later on. For the reason of readability, I have removed the coordinates when quoting elsewhere. Category "Other".

*04.03.2013, 7:26, Industrial Area, MAKADARA, NAIROBI, 1.3054988, 36.8631167: Please do something about Employers in industrial area nairobi who told their employees to go to work today This robbing them of their democratic right to vote (Uchaguzi ID 966)*

*Verification team* ensured that feedback and response was given for critical and urgent reports. This team was also doing triangulation and verification of reports. The example below would be classified "urgent" and trigger a team member to alarm the police.

*02.03.2013, 19:24, Nyali, Nakumatt Likoni, Nyerere Avenue, MOMBASA: Send some police officers at kenol near Nakumat nyali, guptas' planet Bamburi, chelsea internet ciber cafe, someone has been stubbed (Uchaguzi ID 239)*

The *Reports team* was responsible for approving reports for online publishing as well as ensuring that the reports were given the correct categorization.

The *Analysis and Research team* was in charge of analysing the information (sense making). They provided situation-room reports that also was shared with partners, citizens and the media.

Finally, the *Tech Team* was in charge of maintaining the platform during the activation, solving any technical problems that might occur (Leson 2013a; Sambuli et al. 2013a)

Online teams were basically manned by volunteers, most of them coming from organisations connected to the Digital Humanitarian Network<sup>16</sup>. Training for both the local and online teams was arranged, and mandatory for participants. Approximately 240 online volunteers from 19 countries were trained and taken through all workflows to get them generally acquainted. They would then break into groups to further go through their chosen workflow with the help of the instructions on wiki pages and with the assistance of co-leads. These co-leads consisted of experienced online volunteers. (Omenya 2013).

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<sup>16</sup> Digital Humanitarian Network consist of various online, volunteer organisations and their active partners. See <http://digitalhumanitarians.com/about>

In this deployment as in many others, Skype is used as the communication tool within teams and across the whole operation. A setup of Skype-chats for each team and for coordinating purposes have almost become a standard procedure for such operations.

## 4 Preparing the dataset for comparison

The dataset I received for this study we so-called "Approved reports". They had been accepted by the Uchaguzi team for online publishing. Spam, false information or reports impossible to locate would not be published.

After removing a number of double postings in the dataset, it now contains 2333 records - or reports from individual observers. Their observations are from the polling stations and market squares in Kenya, or from social media and local news websites. There are stories about life and death, about fraud and intimidation, but also about a surprisingly peaceful yet slow-paced election process that engaged more than 80 percent of the registered voters.

As a comparison of relevance of the Uchaguzi dataset, I use the final report from the international election observation mission of the Carter Center in addition to the final report from the domestic Election Observation Group ELOG. As a recognized international observation group with extensive experience, the Carter Center report should represent a benchmark of international standards. The Center also give credit to the ELOG report stating: *"Not only did ELOG's efforts inspire confidence on the part of the Center about the capacities of citizen observers but their findings also provided an important register against which we could check the quality of our own observations"* (Carter Center 2013: 76). Both EU and the African Union had their teams on the ground as well as several other national and international observation groups.

### 4.1 Cleaning and refining the dataset

Although the reports I received should not contain personal information, some of them still contained some names. They have been anonymized, and occasional instances of phone numbers are removed. The csv file contained 2993 records as I received it. Duplicate reports and reports missing a location have been removed. Further I have entered full text descriptions in cases where the report only contained a code referring to the Code Card. Messages in Swahili not translated by the teams are translated with Google Translator to be able to verify the category given to the report. If the meaning of the report was still unclear, it has been removed.

The dataset contained the following:

**Report ID** - a unique ID number, which is also used for reference to individual reports in this text.

**Incident Date** - Date and timestamp of the message

**Incident Title** - The header of the message

**Location** - A location name given either by the system or by the geo-location team

**Description** - The message body. If the reporter sent a two digit code, this would be a description from the Code Card.

**Category** - the category/sub category are the ones set up on the Uchaguzi platform, and assigned by the categorization team.

**Lat.** - Latitude

**Long.** - Longitude

**Approved** - reports approved by the team in Nairobi

**Verified** - the incident is verified/not verified by other sources.

I have added County, Constituency and Polling Station as well as a new set of codes and categories to improve the information value. A number of reports contain information on the polling station from where the observation is done by referring to the station ID in the IEBC register. The official name of the station is then entered in the dataset.

To the best of my knowledge, the dataset is of an acceptable standard for the purpose of this analysis. It is not to be published, but a pdf export has been sent to the censors.

#### **4.1.1 Refining locations of the reports**

To be able to show the geographical distribution of reports in the Uchaguzi dataset, I needed to add polling station name, constituency and county information to the records. Two datasets have been used for this purpose. One is the IEBC list of voter-registration sites containing about 15 000 names, coded with an ID number. This number was used by several observers to identify their location (IEBC 2012). The other is a database extracted from the IEBC Polling Station Locator<sup>17</sup>. Mikel Maron from OpenStreetMap extracted about 25 000 geolocated polling stations and shared it on GitHub<sup>18</sup>. I have used this dataset uploaded to a Google Sheet as verification of the names and locations mentioned in the Uchaguzi dataset and thus being able to identify the number of polling

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<sup>17</sup> IEBC polling station locator: <http://vote.iebc.or.ke/>

<sup>18</sup> Mikel Maron on GitHub: <https://github.com/mikelmaron/kenya-election-data>

stations mentioned in the reports. Shapefiles from his dataset is also used to show constituency and county borders where this is used on maps.

There were in total 33 100 polling stations operating during the elections, but some 8000 have not been registered in the database I used. Some of the explanation of the difference is that the IEBC at certain polling stations created different "streams" to separate large groups of voters in manageable queues (Carter Center 2013).

Below is an example of how a report is refined. Original report is located to the constituency, but the text contains ID number of the pollingstation. The station is found, and added to the message, giving it a more precise location. The text "Incident-NO9", meaning BVR kits did not work, indicate that the observer used the Code Cards.

*04.03.2013, 6:58 Kipkelion, Kenya, ID kit not working, "Kipkelion-East,constituence-CODE,NO188polling-station,code-038incident-NO9 Kits in Chepseyon ward in Kipsigori polling station were not working."  
(Uchaguzi ID 924)*

*04.03.2013, 6:58, CHEPSEON COMPLEX PRIMARY SCHOOL KIPKELION EAST, KERICHO, Rift Valley, ID kit not working: "Kipkelion-East,constituence-CODE,NO188polling-station,code-038incident-NO9 Kits in Chepseyon ward in Kipsigori polling station were not working." (Uchaguzi ID 924)*

Finally, both GoogleMaps<sup>19</sup> and OpenStreetMap<sup>20</sup> (OSM) have had a project running on locating primary schools in Kenya. As most polling stations were found in schools, this information has been of great help to determine the precise location from where the reports came. In its original set up, locations were determined down to constituency level. Where possible, I have refined this down to polling station level.

In some villages and towns, the demarcation between two or more constituencies follows a street or a river. In these cases it has been of great value to be able to locate the reports to building level. As it turned out - the constituency to which the report came from therefore shifted. All reports from cities and towns are in the present dataset located to ward-level. Quite a few of the "automated" reports are located to constituency level. It might therefore happen that there are reports from one constituency telling stories from different polling stations without it being possible to find out from which stations it arrived. The geographical information is used for positioning the reports on a map, as seen later on.

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<sup>19</sup> Google Maps: <https://www.google.no>

<sup>20</sup> Open Street Map: <http://www.openstreetmap.org>



#### 4.1.2 Comparison of structure in the reports

The Carter Center and ELOG reports follows templates covering all sides of the electoral process from Kenya's electoral institutions and the framework for the elections, via political parties - their financing and campaigning to how post-election disputes are solved. Only a fraction of this is covered by the Uchaguzi reports. They cover five days starting two days before the elections.

The Carter Center address the following themes:

***The legal framework:*** The Uchaguzi reports are not addressing the legal framework as such, only the violations of it during election day.

***The Electoral System and Boundary Delimitation:*** None of the boundaries are commented in our dataset.

***Election Management:*** Reports concerning the Biometric Voter Registration (BVR) system, (or EVID system) or design of polling stations are connected to electoral management, but are commented on in relation to the performance during election day.

***The Media:*** Only two reports are concerned with how media operated during the elections. At the same time - the Carter Center does not comment on the widespread use of social media as a channel during the electoral process.

***Candidacy and Campaigning:*** The Uchaguzi reports covers (illegal) election day campaigning as well as a relatively widespread practice of vote buying.

***Voter Education:*** Comments on assistance for illiterate voters and some lack of clarity on voter information are found in the dataset, but it does not cover voter education as such.

***Voter Registration:*** The Uchaguzi data does not cover the process of registration, but contain several reports on voters who can't find their name in the register.

***Voting Operations:*** The majority of the reports are directly commenting on the voting operation. In addition, they describe the general situation in various locations regarding threats, bribes or peaceful voting conditions.

***Vote Counting:*** Not very many reports are connected to the counting process (26), a few more are providing citizen provisional results (96).

***Electoral Dispute Resolution:*** The Uchaguzi project did not cover the final phase of the electoral period.

### 4.1.3 Comparison on Coverage

Carter Center observers visited a total of 265 polling stations in 34 counties (p. 92).

There are Uchaguzi reports from more than 500 identified polling stations in addition to records referring to constituencies. Uchaguzi covers 46 counties, missing only the scarcely populated Isiolo County. The dataset further contain reports from 234 of the 290 constituencies. Table 2 shows the distribution of observers from the Carter Center, ELOG and CRECO. The latter group was reporting to the Uchaguzi platform.

	IEBC totals	Carter Center	ELOG	Uchaguzi / CRECO
Counties	47	34	47	46*
Constituencies	290	N/A	290	234**
Polling stations	33 100 ***	265	952	500 +
Observers	9000 +****	52	7000+	~2500

Table 2: Number of Counties, constituencies, polling stations and observers deployed on election day.

\* 9 counties are represented by less than 10 reports.

\*\* 26 constituencies are represented with only one report.

\*\*\* Carter Center operates with a number of 32 400 polling stations.

\*\*\*\* More than 50 domestic organizations were accredited by the IEBC to observe the elections.

### 4.1.4 Categorizing the Uchaguzi reports

The table below shows how new categories are created and some are split in sub-groups to extract meaningful charts and tables. I argue that Chart 2 (below) reveals more meaning than if the subjects were categorized according to the setup in the Carter Center report as shown in Chart 1.

The separation and creation of new "categories" are also connected to the material itself. As seen in the large Table 4 - both the crowd and the trained observers reported on issues not foreseen in the pre-defined list of issues and on the Code Cards.

Theme covered by Carter Center short term observer teams	Thesis categorization	Examples of content
Security	01 Peace	Peace initiatives and messages
	01 Tension	Rumours, dangerous speech, mobilization towards violence, etc.
	01 Violence	Violent & Physical attack, armed clashes, robbery etc.
Administration / Management	02 Adm. issues	Numbering of poll stations, design compromising secrecy, absence of IEBC staff, closing, etc.
	02 Tech issues	ID kit not working, power cuts, computer problems, etc.
Opening	03 Opening	Late opening, missing materials, no security present, etc.
Polling	04 Fraud	Bribing, buying of ID cards, ballot box stuffing, etc.

	04 Malpractice	Unusual voter assistance, campaigning, intimidation, etc.
	04 Slow process	Complaints on a slow process
	04 Voting issues	Voters name missing, voters turned away
Counting and results	05 Citizen results	Citizen reporting results of counts
	05 Count Issues	Issues connected to counting
	05 Results Issues	Issues connected to results and announcements
Other issues	06 Other	ID cards lost, queue sneaking, questions, etc.

Table 3.:Sub-categorisation and grouping of the messages in the Uchaguzi dataset.

The Code Card used by the trusted observers was to simplify and systematize the reporting. The issues listed on these cards are shown in column **A** of Table 4, and are numbered 1-51. But in the dataset there were reports covering particular issues not listed as issues in the setup of the reporting system, like complaints on a slow process or technical failures during the voting. (Table 4, row 52-53). In addition, derived from the setup on the Uchaguzi platform there are issues on violence, peace-efforts and citizen results (Table 4, row 54-59), neither listed on the code cards. These are added.

Column **B-D** shows the categories for each issue used by the Uchaguzi platform, the Carter Center and the ELOG observation report. To be able to derive meaningful diagrams of the different categories, we have created a modified set of categories shown in column **E**. They basically follow the logic of the others, so that security, administrative setup, opening procedure, polling, counting and results are separated.

The Code Cards did not contain descriptions of violence other than " 51. Sexual and Gender Based Violence" of which there was one report. The same goes for "Peace" - although the crowd and observers were encourage through media to report on this (Omenya 2013: 29). In sum - the above separations of the main categories are done to visualize more detail what was messaged by the crowd.

"Closing procedures" is usually included in the reports by observer groups. Only two statements cover this on the Code Cards. One is included in the "Adm issues" and has to do with closing before schedule (issue 27), the other is connected to violence and included in that category (issue 45).

Column **F** shows the number of reports in which the issues are mentioned. These figures can also be seen as an indicator on what the observers and the crowd found as the most important cases to report. Issues with more than 75 reports are highlighted yellow. Issues generating 50-74 reports are marked light green. Issues with few reports are greyed out. All reports are however included in Chart 1 and 2 on the following pages.

#### 4.1.5 Issues and categorization in three reports

The first 51 rows of table 4 shows the Codes and corresponding statements (1–51) used by the trusted observers during the elections. The blue rows (52–53) are statements extracted from the collection of reports. The red rows (54–59) are extracted from the Uchaguzi sub-categories.

Columns B-D shows how different observer groups categorize the issues. Column E are the categories used for the purpose of this thesis, and finally - column F shows number of reports for each issue.

A	B	C	D	E	F
CRECO/Uchaguzi Codes for SMS reporting of issues:	Uchaguzi categories	Carter Center categories	ELOG categories	Thesis Categories	N reports
1. Polling Station Not Opened On Time	Polling St Admin	03 Opening	01 Opening & set up	03 Opening	150
2. Polling Station Not Numbered Properly	Polling St Admin	03 Opening	01 Opening & set up	02 Adm issues	54
3. Absence Of IEBC Officials/Staff At Polling Station Opening	Staffing Issues	03 Opening	01 Opening & set up	02 Adm issues	28
4. Design Of Polling Station Compromising Secrecy Of Ballot	Polling St Admin	04 Polling	02 Voting	02 Adm issues	32
5. Missing/Inadequate Voting Materials	Polling St Admin	03 Opening	01 Opening & set up	03 Opening	46
6. No Presence Of Security At Polling Station	Staffing Issues	03 Opening	01 Opening & set up	03 Opening	22
7. Ballot Boxes Not Sealed At Start Of Voting Process	Polling St Admin	03 Opening	01 Opening & set up	03 Opening	9
8. Observers/Media Blocked From Entering Polling Station	Staffing Issues	03 Opening	01 Opening & set up	03 Opening	25
9. Identification Kit Not Working	Polling St Admin	04 Polling	01 Opening & set up	02 Tech issues	310
10. Polling Station Not Adequately Lit	Polling St Admin	04 Polling	02 Voting	02 Tech issues	44
11. Register of Voters missing	Voting Issues	04 Polling	02 Voting	02 Adm issues	18
12. Eligible Voters Turned Away /Not Allowed to Vote	Voting Issues	04 Polling	02 Voting	04 Voting issues	14
13. Voters Names Missing From Voter Register	Voting Issues	04 Polling	02 Voting	04 Voting issues	225
14. Voters Issued With Invalid Ballot Papers	Voting Issues	04 Polling	02 Voting	04 Voting issues	1
15. Voter Importation i.e. Voters Brought from Elsewhere	Voting Issues	04 Polling	02 Voting	04 Fraud	6
16. Voter Impersonation	Voting Issues	04 Polling	02 Voting	04 Malpractice	3
17. Voter Intimidation	Voting Issues	04 Polling	02 Voting	04 Malpractice	26
18. Purchasing Of Voters Cards Outside Polling Centre/Station	Voting Issues	04 Polling	04 Violence	04 Fraud	8
19. Bribing Of Voters	Voting Issues	04 Polling	04 Violence	04 Fraud	99
20. Voters Voting More Than Once	Voting Issues	04 Polling	02 Voting	04 Fraud	2
21. Illiterate Voters Not Assisted	Voting Issues	04 Polling	02 Voting	04 Malpractice	21
22. Unusually Many Assisted Voters	Voting Issues	04 Polling	02 Voting	04 Malpractice	60
23. Voter Assister Not Taking Oath Of Secrecy	Voting Issues	04 Polling	02 Voting	04 Malpractice	37
24. Ineligible Voters Allowed To Vote	Voting Issues	04 Polling	02 Voting	04 Malpractice	4
25. Campaigns/Propaganda Ongoing Outside Polling Station	Voting Issues	04 Polling	02 Voting	04 Malpractice	59

A	B	C	D	E	F
CRECO/Uchaguzi Codes for SMS reporting of issues:	Uchaguzi categories	Carter Center categories	ELOG categories	Thesis Categories	N reports
26. Polling Officials (security/IEBC staff) Behaving Unprofessionally (see 40.)	Polling St. Admin	04 Polling	02 Voting	04 Malpractice	38
27. Polling Station Closed Before Time	Polling St. Admin	05 Closing	03 Closing	02 Adm Issues	14
28. Sealed Ballot Box Tampered With	Polling St. Admin	04 Polling	03 Closing	04 Fraud	6
29. Non-Voting Materials Placed In Ballot Box	Polling St. Admin	04 Polling	02 Voting	04 Fraud	5
30. Spoilt Ballot Papers Not Properly Preserved For Review	Counting & Results	05 Closing	03 Closing	05 Count Issues	3
31. Observers Not Allowed In The Hall During Vote Counting	Counting & Results	06 Counting	03 Counting	05 Count Issues	6
32. Party Agents Not Allowed In The Hall During Vote Counting	Counting & Results	06 Counting	03 Counting	05 Count Issues	2
33. Ballot Papers Not Being Counted In A Transparent Manner	Counting & Results	06 Counting	03 Counting	05 Count Issues	3
34. Unusually Many Rejected/Spoilt Ballot Papers	Counting & Results	06 Counting	03 Counting	05 Count Issues	5
35. Party Agents Failed To Agree On Disputed Ballot Papers	Counting & Results	06 Counting	03 Counting	05 Count Issues	3
36. Agents Failure To Sign Final Results Form	Counting & Results	06 Counting	03 Counting	05 Results Issues	1
37. Agents Decline To Sign Tally Sheet & Decline To Give Reason	Counting & Results	06 Counting	03 Counting	05 Results Issues	0
38. Error Or Omission In Computing Or Completing Tally Sheets	Counting & Results	06 Counting	03 Counting	05 Results Issues	16
39. Intimidation Of Counting Officials & Observers	Counting & Results	06 Counting	03 Counting	05 Count Issues	5
40. IEBC Officials Not Acting In Accordance To Set Rules (see 26)	Staffing Issues	06 Counting	03 Counting	04 Malpractice	45
41. IEBC Officials Not Reporting Results At Prescribed Time	Counting & Results	06 Counting	03 Counting	05 Results issues	8
42. IEBC Officials Tallying Wrong/Tampered Results	Counting & Results	07 Tabulation & Results	03 Counting	05 Results issues	6
43. Failure To Announce Provisional Result/Final Results By IEBC official	Counting & Results	07 Tabulation & Results	03 Counting	05 Results issues	7
44. Failure To Announce Final Result By IEBC Official	Counting & Results	07 Tabulation & Results	03 Counting	05 Results issues	2
45. Polling Station Closed Due To Violence	Polling St. Admin	01 Security	03 Closing	05 Results issues	3
46. Occurrence Of Violence After Announcement Of Final Results	Counting & Results	01 Security	04 Violence	01 Violence	4
47. No Transport To Deliver Ballot Boxes	Counting & Results	02 Management	03 Counting	02 Adm issues	2
48. Ballot Boxes Not Transported To Tallying Centre	Counting & Results	07 Tabulation & Results	03 Counting	05 Count Issues	2
49. Ballot Boxes Destroyed After Announcing Final Results	Counting & Results	07 Tabulation & Results	03 Counting	05 Results issues	0
50. Media Biased In Reporting Election Coverage	Other	08 Campaigning	05 Other	04 Malpractice	2
51. Sexual and Gender Based Violence	Security Issues	01 Security	04 Violence	01 Violence	1
<b>ISSUES NOT ON THE CODE CARDS:</b>					
52. Slow election process (Derived from reports)	Polling St. Admin	04 Polling	02 Voting	04 Slow process	109
53. ICT/electricity failure (Derived from reports)	Polling St. Admin	02 Management	02 Voting	02 Tech issues	38
54. Citizen Results (Derived from Uchaguzi categories)	Counting & Results	07 Tabulation & Results	03 PVT	05 Citizen results	97
55. Peace Initiatives (Derived from Uchaguzi categories)	Positive Events	01 Security	05 Other	01 Peace	39
56. Everything Fine (Derived from Uchaguzi categories)	Positive Events	01 Security	05 Other	01 Peace	343
57. Tension (Derived from reports)	Security Issues	01 Security	04 Violence	01 Tension	87
58. Violence (Derived from reports)	Security Issues	01 Security	04 Violence	01 Violence	80
59. Other issues (Derived from reports)	Other	02 Other	05 Other	06 Other	32
<b>Total</b>					<b>2 333</b>

Table 4: (previous page) shows the codes and number of reports received and how they are categorised.

**4.2 Negative statements or open ended questions**

The Uchaguzi setup was prepared for rapid reporting of issues. Equipped with the Code Card you would send "9" to 3002 to tell that the Identification kit was not working. If it was working, you had the option to write a full text message saying so. No observers did that.

The Carter Center check lists (See appendix) contains open ended questions like:

Carter Center Checklist (Opening)		Uchaguzi Code Cards	
Issue	Answer option	Issue	Answer option
19 Were all the poll workers present at Polling Station?	Yes/No	3. Absence Of IEBC Officials/Staff At Polling Station Opening	Confirm statement (or no information / free SMS)
42 How would you evaluate the Polling Station staff's performance?	a. Very Good b. Good c. Poor d. Very Poor	26. Polling Officials (security/IEBC staff) Behaving Unprofessionally (see 40.)	Confirm statement (or no information / free SMS)

Table 4a: Examples on how issues are formulated in the Carter Center checklist and the Uchaguzi Code Cards

The examples in table 4a show the difference in how issues are formulated in Carter Center Checklist and on the Uchaguzi Code Cards. The Carter Center encourage observers to report both good and bad performance, while the Uchaguzi Code Card only ask for information on poor performance or malfunctioning systems. This is a systemic difference between the two lists of issues. The Uchaguzi setup thus shapes the viewpoint of the observer to look for things going wrong rather than reporting on things going well. Statements created on forehand had an advantage. Coded messages were programmable. The platform converted a number to a meaningful message.

Adding a letter to the coded messages would have given the possibility to use open questions on the Code Cards. Send "3Y" (3 Yes) if the staff was present, "3N" (3 No) if not. For graded evaluations, the same logic could have been used: "26a" for very good performance of the staff ranging to "26d" for very poor performance. The programming of the Uchaguzi platform would not be more complicated, and the dataset might have delivered richer information in that both positive and negative performance would have been recorded. Also the observers would be less directed to only looking for negative performance. Despite this - there are large numbers of reports on peaceful elections and good performance - they were just not asked for on the Code Cards.

#### 4.2.1 Multiple bits of information in one report

Categorizing the reports sent according to the Code Cards was mostly unproblematic. One message contained one issue. Some of the observers however, sent messages containing several codes or describing different incidents within the same SMS. David Weinbergers has written about theories of categorization of physical and digital information. In his book "Everything is Miscellaneous" he advocates to reduce the contagious urge to box information in single categories as we would do in the physical world and promotes the use of tags as we do in the world of digital information (Weinberger 2008). The extract of the message below can be categorized in two categories - "Peace" and "Slow process" and is one of many reports containing information covering multiple categories in the Uchaguzi dataset. I have to some extent re-coded messages and given them more than one "tag" where appropriate.

*04.03.2013, 20:08, LONDIANI TOWNSHIP PRIMARY SCHOOL, KIPKELION EAST, KERICHO, Londiani township pri sch the area **peaceful** thous line still long exercise moving **slowly** with about 500 people, having not casted their votes Kericho county, londiani town not bad, town is calm (Extract from Uchaguzi report 2068)*

#### 4.3 Categorization to reveal information

By using the Carter Center categories, there are three themes standing out - Security (23,6%), Opening process (14,6%) and Voting (48,6%). The following chart show counts of reports within each category. As mentioned above - we claim that the number of reports on each issue can indicate how the observers perceived the elections. What was the most important for them to report? By using a different categorization we get a different picture of the answers.

In the second diagram, we have used the categories listed in column E in the table above. We have also introduced a differentiation on some of the traditional categorizations used in observation reports.

Chart 1 shows the distribution of reports if we categorize the reports according to the setup in the Carter Center report. About half the reports are concerning the polling itself, two other significant themes being security and opening procedures. Limited amount of meaning can be derived from this visualisation.

**4.3.1 Reports sorted with Carter Center categories**

The diagram below shows number of reports in each category when sorted according to the Carter Center clustering of themes. The main three groups are connected to security, opening procedures and polling issues. Tabulation and results are under-reported. The diagram is created from the Uchaguzi dataset categorized as shown in table 4, column C (Carter Center category). The diagram shows that the crowd and the trusted reporters were concerned on security issues, opening issues and the polling itself, but reveals no detailed picture of what concerned the voters.

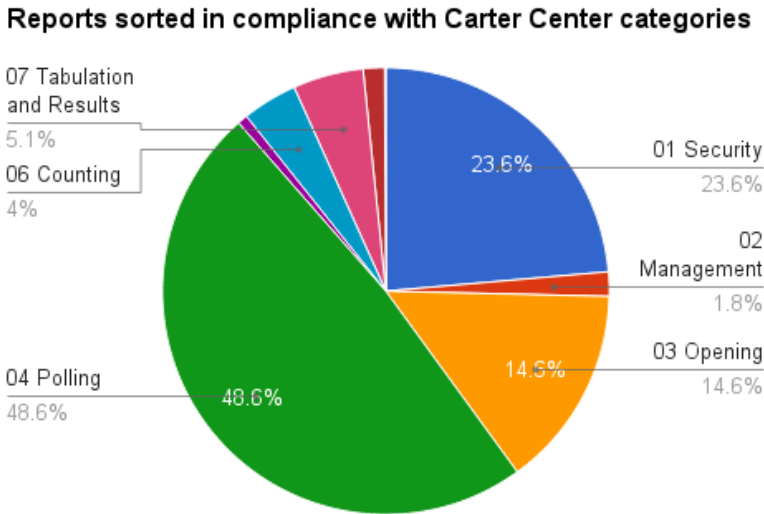


Chart 1: 2333 reports sorted in accordance with Carter Center categories

If we alter the categories assigned to the reports, the distribution changes, and I argue that the information level increases. It also shows issues the crowd reported which was not asked for on the Code Cards. Chart 2 shows the distribution of reports when categorized as listed in Table 3 and 4.

**4.3.2 Reports sorted with modified categories**

When re-allocating reports to a sub-divided set of categories, a more detailed picture emerge on the issues found most important by the crowd during election day. Both technical problems and administrative issues were commented.

Chart 2 shows that the category connected to security shows in fact contained more messages related to peace (16,3%) and very few report about violence (3,2%). The category "malpractice" describes misbehaviour of staff, voters and agents, that affected



the voting process, while "fraud" includes bribing. The diagram is created from the Uchaguzi dataset categorized as shown in table 4, column E "Thesis Categories".

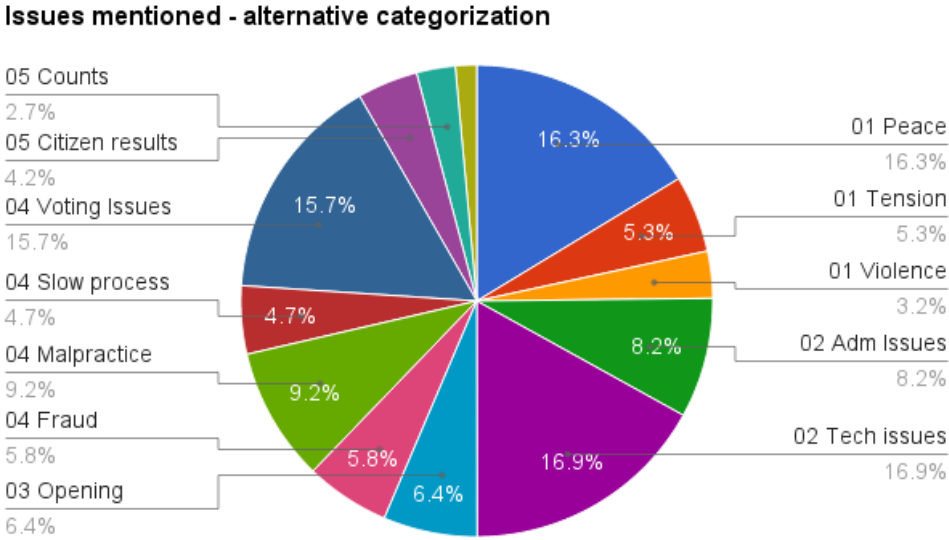


Chart 2: Reorganizing the reports in new categories reveal a more detailed picture of what was reported.

Chart 2: The single largest group of messages reported about peaceful elections (343). The category was listed on the Uchaguzi platform as "Everything fine" and contained testimonies on the absence of violence and large numbers of voters lining up in patience to vote. In some areas the situation was tenser, where observers reported on rumours, threats or disturbances. Chapter 6.12 presents a closer look on these messages.

It is worth noting that 24,2% of the reports shown in Chart 2 are on issues not listed on the Code Cards - Peace reports (16,3%), Violence (3,2%) and Slow (voting) process (4,7%).

The three categories Peace (16,3%), Tech issues (16,9%) covering the malfunctioning BVR and EVID systems, and Voting issues (15,7%) covering missing names from the register adds up to almost half of the total number of reports. Simply put - the crowd reported on easy to spot issues. Their perception on safety or insecurity, injustice as fraud or malpractice or technical obstacles preventing them from a calm arrival, understanding what to do, vote and then leave. Issues on technicalities connected to the formal procedures inside the polling station are far less reported.

Reports from trusted observers using the Code Cards are easy to categorise. Each report contained one piece of information. The Uchaguzi dataset show that the volunteers categorizing report have struggled with some of the more descriptive reports containing

information that fitted several categories. Although there was a possibility to tag a report for more than one category, this was not done to a large extent, and therefore reduces the precision in the above chart.

But in the following diagrams are showing single issues, not categories. Here the reports containing free descriptions are tagged relevant to the content. Below is one example:

*"04.03.2013, 13:28, SOUTH C, LANGATA, NAIROBI, So Far So Good South C: Everyone is so far so good around south c waiting in queues to cast their vote. Everything has been good and well organized. Though there have been some long queues but everyone is calm." (#1660)*

This report is tagged under "Peace", "Voting OK" and "Slow process". There are not too many reports in the dataset covering more topics, but since they exist, this method of categorization has been used when creating charts describing single issues.

## 5 Analysing the content

I have chosen a few issues from the dataset for further analysis. The higher number of reports received concerning a particular issue the easier it is to use the data. Below the chosen issues are discussed.

The reports in the dataset are from two major groups of observers. To check if the trained reporters and the crowd talked about the same issues they are separated in Table 5.

The comparison shows that Trusted reporters filed more reports on issues mentioned on the Code Cards than the crowd. Their reports outnumber the crowd on administrative and technical issues, malpractice and voting issues. But on issues not listed on the cards the crowd reported more frequently.

This confirm that observers who are guided to report on specific issues are likely to do so, where as the crowd - who had no guidance, report on situations that are important to them or situations they are encouraged to talk about from other sources. During the elections, radio-stations were inviting people to report to the "3002" short-code during the day. It is not known if particular subjects were promoted in these broadcasts, but it is likely to believe that peace-messages could be one such category given the high focus peaceful elections was given in in various channels.

Table 5 also list reports retrieved from social media or websites, simply to get an idea of the numbers retrieved from such media. As the table shows - very few reports from social media was included in the mapping project.

The Code Cards contained only one issue connected to violence, "Sexual and Gender Based Violence" - to which there were no reports.

**N reports from trained observers, the crowd and online media**

	01 Peace	01 Tension	01 Violence*	02 Adm Issues	02 Tech issues	03 Fraud	03 Malpract.	04 Slow process	04 Voting	05 Citizen res.	05 Counting	06 Other	SUM
1 Trusted reports	1	12		217	262	67	120		273		40	3	995
2 The Crowd	352	104	67	120	119	66	83	88	89	96	21	27	1232
3 Twitter	21	4	4	5	14	2	7	10	2	1	1	2	73
4 Web/media	7	3	4				4	11	2			2	33
SUM	381	123	75	342	395	135	214	109	366	97	62	34	2333

Table 5: Comparison on number of reports within each category depending on the source of the reports

To further test if the reports from the two reporting groups correspond, I have picked two single subjects and compared them in the below charts.

As the Carter Center and ELOG reports also comment, some polling stations did not open on time. "Carter Center observers reported that 75 percent of polling station openings occurred by 6:30 a.m." (Carter Center 2013: 103) and a total of 6,4% of the Uchaguzi reports comment on late opening. The diagram below show a similar picture as the Carter Center, where the far most reports on late opening was sent before 7 a.m. Also it shows a correlation between the trained observers and the crowd. A polling station not open when you expect it to be is easy for anyone to observe.

Kenya Human Rights Commission (KHRC) blame the non functioning BVR kits to be the main reason for late starts, in some locations creating frustrations among voters who queued at early hours to vote, an thereby led to tension and unrest (KHRC 2014).

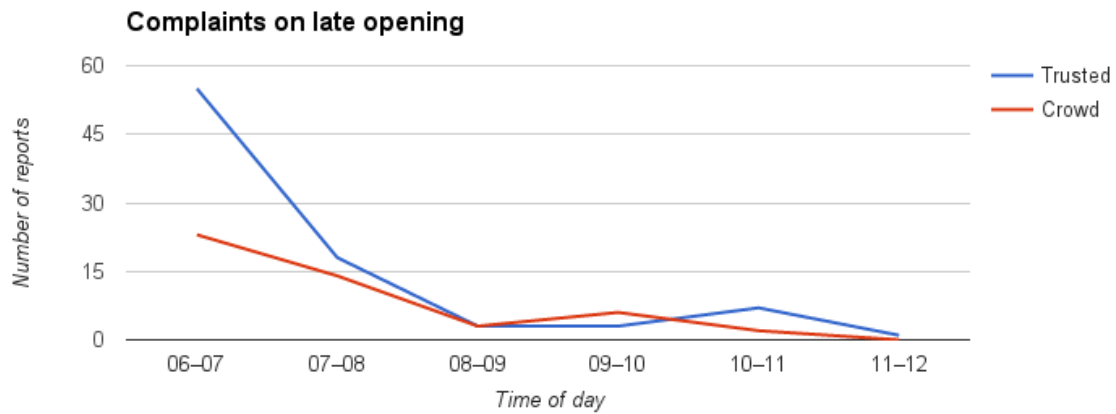


Chart 3: The blue line shows reports from trusted reporters, the red line is from "the crowd". 81 % of the reports concerning opening were sent before 9am. (Uchaguzi data)

The timeline is used as an indicator of relevance for the reports on late opening of the polling stations. Chart 3 shows a very similar pattern between the two groups, only a handful of reports on this issue after 9 am in the morning indicates both that the absolute majority of polling stations were up and running by that time, and that there are no practical difference in the reports from the two groups.

The Biometric Voter Registration system was exposed to major criticism both before, during and after the election. The two groups of reporters seem to agree that the system was not functioning as shown in Chart 4. The small rise in number of reports after 12 am might even indicate the time when batteries started to run out on the equipment.

The above indicates that both groups of reporters were in tune with each other, and I therefore combine all the responses in the following charts and maps.

The Carter Center found that "In 41 percent of polling stations visited by Center observers these electronic devices were not operating." (Carter Center 2013: 99)

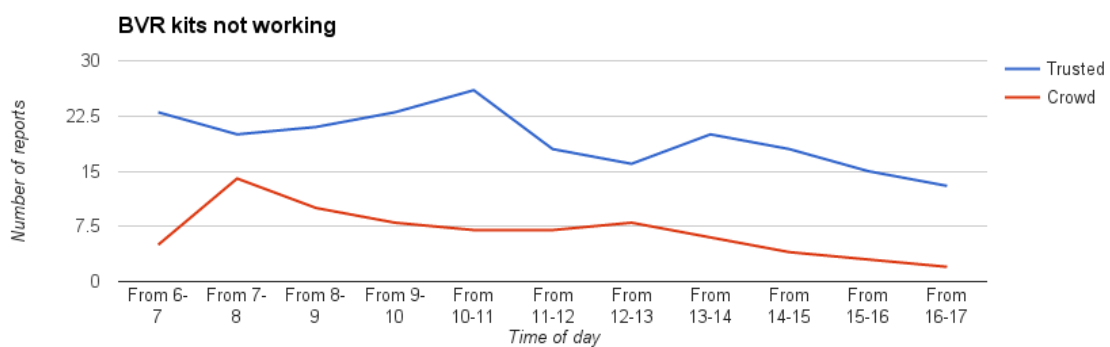


Chart 4: The increase of reports around lunch may indicate situations where the kits was working in the morning, but then ran out of power.

**5.1.1 Timeline as a reflection of polling day events**

Using a timeline to reflect events unfolding is one characteristic of crowdsourced information. The timestamp of the messages are automatically recorded, and can therefore create a time-oriented view of what goes on. In some situations, the timestamp can also contribute to verification of the report.

To test if the timeline generate meaning to the report, I have picked a "random" selection of issues and presented them in Chart 5. Reports on fraud, peace messages and citizen results are very different in nature. Logically there should be no reports on results before late in the day, and one could expect the others to be reported in a more stable flow.

The most surprising curve shows the peace messages coming in bulks, creating peaks at certain hours. Maybe the sudden jump in the curve is an outlier. But it could also be that radio-jingles or other broadcasts encouraged the voters to send peace messages to the Uchaguzi platform. The curve showing citizen results stays flat until 5pm when it slowly rises peaking at 11 pm. If the chart had included the day after the elections, we would have seen citizen result coming in all through the night and into the next day.

Voters reporting on fraudulent behaviour, register this throughout the election day. It might also be that these types of issues were not reported the moment they were observed, but later on. Fraud and malpractice is discussed in more detail further later on.

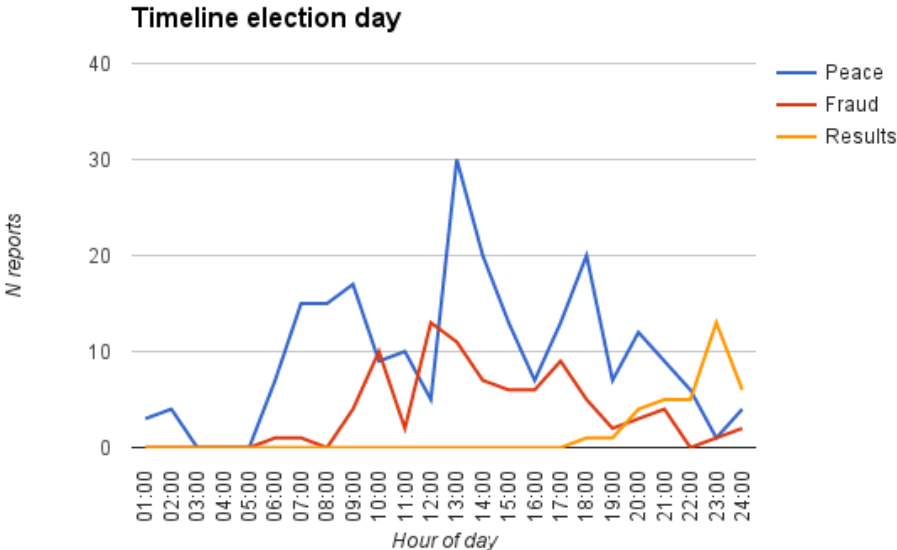


Chart 5: Selected issues reported during election day. Toward the end of the day, citizen results start to come in, while reports on fraud follows the opening hours of the polling stations.

**5.1.2 Handling large volumes of reports**

The vast majority of the reports in the Uchaguzi dataset, came during election day. The rapid increase in reporting early in the morning put a strain on the teams in the situation room in Nairobi as well as on the online volunteers. The capacity to rapidly process large volumes of reports was an issue noted in the evaluation report of the project, and can be seen as a limitation for projects where manual filtering is a part of the workflow before publication of such reports (Omenya 2013).

The lack of capacity to manually handle large numbers of reports is also one major argument for using artificial intelligence tools to help separate noise from valuable information. An online crowd would then through a simple interface be able to put the information in its correct category. Patrick Meier and his team at QCRI are experimenting with such tools in the project Artificial Intelligence for Monitoring Elections (AIME) (Meier 2011, 2013a).

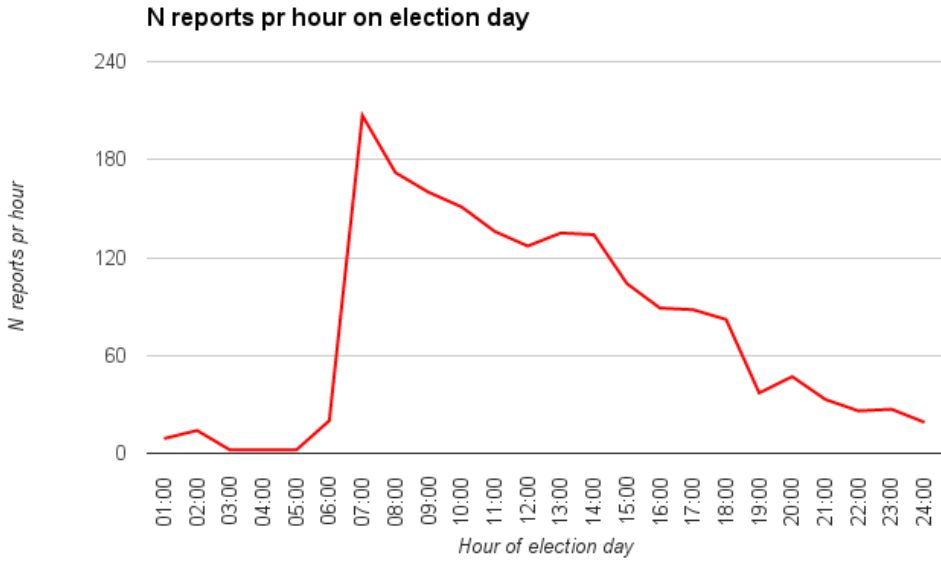


Chart 6 shows the flow of reports on election day and the rapid rise of reports early in the morning.

**5.2 Comparing issues on check-lists**

ELOG deployed two supervisors in each constituency and selected 976 observers to perform Parallel Vote Tabulation (PVT) in nationally representative samples of polling streams. The PVT was performed in all constituencies.

ELOG had a high rate of response from the national sample (97.5%). This means they received data from - and the data passed quality control checks for - 952 polling streams out of the 976 total polling streams in their chosen sample (ELOG 2013: 59).

The Uchaguzi project was not organized the same way, and therefore the results from the two groups are not directly comparable.

SMS reporters will typically focus on particular issues they discover rather than sending in reports covering all aspects of the election. A direct comparison of the content from the two kinds of observations does not make sense. But high numbers of reports on particular subjects can be seen as an indicator of importance, and a comparison with the key findings in observation reports might be possible.

The ELOG findings can be presented with percentages of polling streams visited, as the Carter Center does, the Uchaguzi reports can only be presented as report counts. The total number of polling streams covered by the Uchaguzi observers, by ordinary voters and social media is not listed. But - all the reports from the Uchaguzi observers have a location, although not always down to polling station level.

Of the 2333 Uchaguzi reports 943 are connected to the 522 polling stations identified in the dataset, while 1451 are located to a ward, village or constituency. In the table below, we have listed the number of reports covering similar issues as the ELOG reports.

If the number of reports on one issue is high, it is an indication that several reporters have noticed the same issue at different stations. The top three - late opening, problems with the identification kits and voters not finding their name in the register are significant.

Different ways of formulating issues in the three observation reports, also challenges a direct comparison. That is also reflected in ELOGs conclusion on election day monitoring: *"Better synergy amongst domestic observers in the deployment and standardization of observation tools is desirable in future election observation efforts"* (ELOG 2013: 61)

Where ELOG mostly use a positive statement, the Uchaguzi dataset contains negative statements. Some comparable information is however possible to discuss. This is covered below each of the following tables.

**5.2.1 Comparing issues on opening and setup**

All three reports states a high number of polling stations opening too late. As Chart 2 earlier on shows, 6,4% of the total Uchaguzi reports complain about late opening. Chart 3 where we compare the comments from trusted reporters and the crowd show first that the two groups of observers report the same thing, secondly that the number of reports decline after 9 am, indicating that by far the most stations were up and running by that time.

ELOG		Uchaguzi	
5.2: Opening and set up Critical Indicators	% of all polling streams (%)	Uchaguzi Code cards/reports	N reports
Polling streams opened on time (6.15am)	59.7	01 Polling station not opened on time	147
Polling streams had security personnel present	99.6	06 No presence of security at polling station	23
Ballot boxes were shown to be empty before being sealed	95.6	07 Ballot boxes not sealed at start of voting process	8
Polling streams had strategic items for voting	99.4	05 Missing/ Inadequate voting materials	49
Polling stream did not have an electronic poll book or the poll book failed to function	8.0	09 Identification kit not working	315

Table 6: Source: ELOG 2013 PVT observation Data, Table 5.2, National Sample ( ELOG 2013: 59-60)

ELOG reports on security, sealed boxes and presence of strategic material, are positive. It is more difficult to interpret the low numbers of reports from the Uchaguzi observers. This is connected to the logical problem with negative statements on the Code Cards. The Uchaguzi observers were not given a predefined alternative than reporting malfunction, A low number of reports therefore might indicate that the issue was all fine, or that the issues was overseen.

**5.2.2 Comparing Voting day issues**

Table 7 covers incidents on election day. Both Carter Center, ELOG and Uchaguzi recorded that the identification kits in many poll stations did not work. The Code Cards contained an additional question on the names missing from the register (13). It is not clear if the missing names were connected to the machines not working, or a faulty pre-election registration process. In the same way - unusually many assisted voters may be



fraudulent or it might be that the election was complicated. Voters had to cast six different votes in each their box.

*04.03.2013, 12:44, MSAMBWENI, KWALE: Ballot confusing, unable to cast vote "HELO BARAKA NIMESHINDWA KUPIGAKURA JUYALAMA YAWAGOMBEZI SIELEWI AFADHALI WANGE WEKA JINA HAU PICHA YA MGOMBAYAJI NI <Name>*

*Hello Baraka. I was unable to cast my vote because the party symbols were confusing. They should have only put the photo or name of the aspirant. <Name> (Uchaguzi ID 2096)*

Combined with reports on varying quality of the voter education processes (Omenya and Crandall 2013), it might not be surprising that the voters needed assistance.

ELOG		Uchaguzi	
5.3 Access and actual voting	% of all polling streams	Uchaguzi Code cards/reports	N reports
Electronic poll book failed at some point during voting	55.1	53 ICT/Electricity failure, 09 Identification kit not working	38 315
Many voters within the stream (i.e., 25 or more) received assistance when voting	54.0	22 Unusually many assisted voters	60
People whose details were not on voters' register not permitted to vote (as prescribed by law)	84.8	12 Eligible Voters Turned Away /Not Allowed to Vote	14
N/A		13 Voter's names missing from voter register	227
People whose details were not on voters' register were permitted to vote	15.2	24 Ineligible voters allowed to vote	4
Secrecy of the vote was violated during voting	17.6	23 Voter assister not taking oath of secrecy 04 Design of polling station compromising secrecy of ballot	37 54
Voters' fingers were marked with ink	99.9	NA	
Some people not permitted to vote	46.4	12 Eligible voters turned away /not allowed to vote	14
Voters names were properly marked or crossed out once their details were confirmed in the voters register.	99.4	NA	
Ballot papers were properly stamped with the IEBC official stamp before being issued.	99.5	14 Voters issued with invalid ballot papers	1
Polling streams still voting at 7.30 p.m.	6.9	27 Polling Station Closed Before Time	14

Table 7: Source: ELOG 2013 PVT observation Data, Table 5.3, National Sample (ELOG 2013: 60)

All three reports comment on the failure of the BVR and the electronic poll book. Where ELOG ask if those who didn't find their name were allowed to vote anyway, Uchaguzi filed reports of those who wasn't in the register. Only 4 reports says that illegible voter were allowed to vote, and 14 reports says that eligible voters were turned away. When the ID-machines failed and the IEBC had to turn to the paper-based register, combined

with numerous reports stating that people didn't find their name must logically have slowed down the process. Chart 7 therefore contains these three issues.

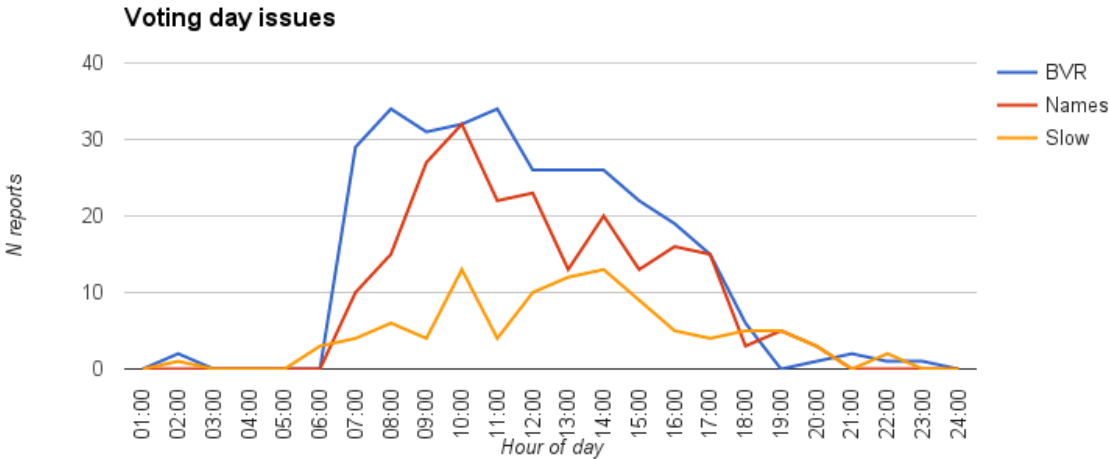
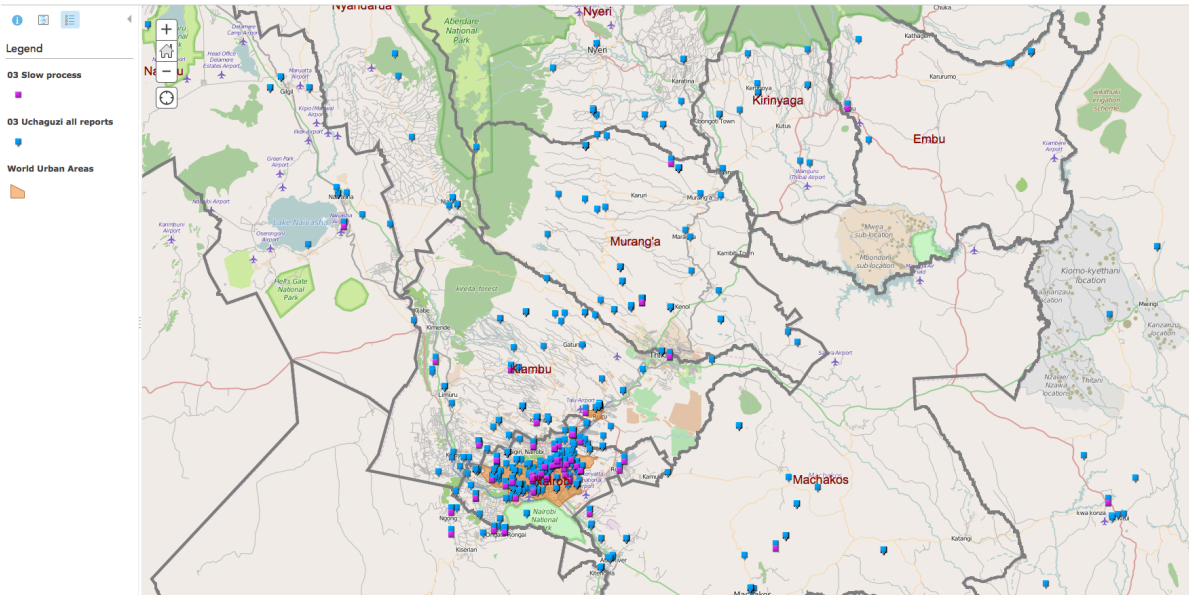


Chart 7: Uchaguzi reports on failing Biometric Voter Register (BVR), missing names from the register and complaint of a slow voting process.

The Carter Center report suggest that too many voters were assigned to some polling station contributing to a slow process. When the identification kits failed, and one had to return to the paper-based register, it moved even slower. If that is the case, then it logically should occur in urban areas with a dense population and large groups of voters registered to each polling station. Map 2 indicates that this indeed was the case.



Map 2: 14,8 % of all reports from Nairobi County were complaints about slow voting process. The purple dots show geographical distribution of complaints, blue dots are reports on other issues. In rural areas there are

Purple dots showing complaints on a slow process are concentrated in the capital Nairobi, where as in the countryside around, there are hardly any complaints on this issue. Blue dots in Map 2 shows all reports in the region.

### **5.2.3 Voter register**

By comparing the public voter lists on each county, the Carter Center report expresses concern about discrepancies in the voter register. The differences are mainly registered in two fields. First there are discrepancies on lists published before the election - both between the lists published in 2012 and those published days before the election. They notice a difference of about 100.000 voters between the two lists. This suggests, according to Carter Center that voters have been moved from one county to another and the Center comments on the lack of transparency or explanation on what happened (Carter Center 2013: 55).

After the elections the total number of voters as noted in the polling stations are sent to the national tallying centre. The numbers from the polling stations *"should have matched the voter register, it was very often not the case"* (Carter Center 2013: 110). Secondly - the total number of votes cast in each of the six ballot boxes should have been the same. But as the observers note, they *"differed by several hundred to several thousand"* from the same polling station. But there is no proof that these discrepancies led to favouring of any particular political party, the Center concludes.

In the Uchaguzi reports - there are two categories that correspond to the same. First are the reports saying the voters didn't find their name in the register. Nearly every tenth report in the Uchaguzi dataset states that the voter didn't find her name in the register (9,55%). Secondly, when the BVR kits didn't work, and the Carter Center had found differences in the content between the electronic and the paper-based voter registers, these two major complaints might be connected.

### **5.2.4 Malpractice and fraud**

Neither the Carter Center report nor the ELOG report pay close attention to bribery on electionday. The ELOG report mention the issues in connection with campaigning during the pre-election period (ELOG 2013: 39, 44), but does not report specifically on this in their election day observation. This may then constitute a major difference in the observing method. Where traditional observation happens inside the polling station, the

voters are lined up in a long queue or moving through town on their way to the polling station. They are more likely both to observe such events, and to be affected by it. There are several reports in the Uchaguzi dataset telling about pre-election bribing, such as this fatal one:

*01.03.2013, 21:38, MATUNGU, KAKAMEGA, Person died on 27/2 after taking photos of bribery: One person was injured and died on following day morning at munami mkt when taking photo after shitanda dished cash worthy kshs40000 this has been observed from almost all candidates on different occasions, including rallies and homes the incident took place on 27/02/2013 at 1715pm (Uchaguzi ID: 162)*

The report is not marked as confirmed, and I have not been able to confirm it through other online sources either.

Chart 8 below, is showing reports on fraud and malpractice on election day, together with reports containing information that the voting procedure actually worked fine, with no noticeable disturbances. Issues included in the category "Fraud" and "Malpractice" as shown in Table 3 are:

*04 Fraud: Bribing, buying of ID cards, ballot box stuffing, etc.* The definite majority of reports in this category is concerning bribing.

*04 Malpractice: Unusual voter assistance, campaigning, intimidation, etc.* Number of reports in this category is more evenly distributed among the issues, campaigning (59) and unusual voter assistance (60) being the largest group.

Unusually many voters getting assistance is noted by ELOG to have happened in 54 % of the polling stations (Table 7).

One must not forget however, that the election procedure was new to the voters. Casting 6 different ballots in each their box might demand assistance, and the ELOG report does not explicitly state that there was fraud or malpractice involved in the assistance - but that the numbers of voter getting assistance was unusually high.

Reports stating that the voting went on well is included. Although not asked for, 76 reports specifically states that the voting process was handles properly. Some of these are the same reports as those categorized as "Peace". But in this table the ones explicitly mentioning the voting process have been extracted

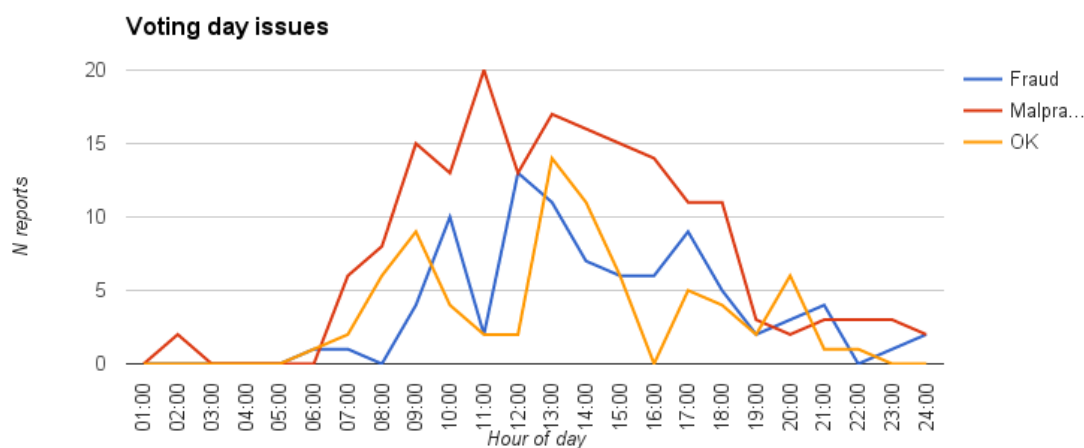


Chart 8: Reporting on fraud and malpractice on election day..

### 5.2.5 Comparing reports on closing and counting

As the Table 8 shows - this is the part where the Uchaguzi reports hardly are useful. The observers either did not report on the issues, or everything went smoothly. The ELOG report, containing verifications that the issues listed were as they should be, creates a more reliable picture than the very few Uchaguzi reports saying something was wrong. The trained reporters had access to the counting process, where as the crowd did not. No surprize then, that they did not report on it.

ELOG		Uchaguzi	
<b>5.4 Integrity of closing poll streams and counting of votes</b>		<b>Uchaguzi dataset/reports</b>	
Key Indicators	(%)	Uchaguzi Code cards	N reports
Voters in the queue at 5.00 pm allowed to vote	95.4	27 Polling Station Closed Before Time	14
		45 Polling Station Closed Due To Violence	3
Ballot box seals were intact before counting	99.5	28 Selaed Ballot Box Tampered With	6
Party agents requested a recount of Presidential ballots	2.8	35 Party Agents Failed to Agree on Disputed Ballot Papers	3
CORD agents present in polling streams	87.9	NA	
CORD agents signed declaration of Presidential results (in the 87.9% of polling streams where CORD agents were present).	94.9	NA	
JUBILEE agents present in polling streams	90.0	NA	
JUBILEE agents signed declaration of Presidential results (in the 90.0% of polling streams where JUBILEE agents were present).	95.6	NA	
Other agents present in polling streams	88.5	32 Party Agents not allowed in the Hall during vote counting	2

Other agents signed declaration of Presidential results (in the 88.5% of polling streams were Other agents were present).	88.3	36 Agents failure to sign final results form 37 Agents decline to sign tally sheet & decline to give reason	1 0
Official Presidential results posted outside polling streams after counting	89.1	44 Failure to announce Final Result by IEBC official	2
		54 Citizen results	97

Table 8: Source: ELOG 2013 PVT observation Data, Table 5.4, National Sample ( ELOG 2013: 61)

The Uchaguzi dataset contains 97 reports transmitting preliminary results. To my knowledge they were not collected in such a manner that they could be used as a statistical relevant parallel vote tabulation, nor that anybody pick them up to do it. But - for the sake of documentation - the fact that someone types and transmits the results from a polling station to a central hub, is a documentation of events that match the very logic of election observation. As such they are of value. Chart 5 visualises the timeline of the reports as they started to come around 5 pm.

### 5.3 Mapping Peace, tension and violence

The Uchaguzi category called "Everything's Fine" does not really cover the content of the reports shown in this category. Most of these reports tell that the elections are going forward and there is no violence. They do not say that everything is working smoothly, but there is absence of violence and presence of peace. Therefore the name of the category have been altered for this study.

The Uchaguzi project as well as the Carter Center operates with the term "Security issues" in which there is a large span from peace to severe violence - which for our discussion needs to be broken down in more detail. As we can see in Table 4, only one issue relates directly to security (No 6) - which ask if there were security personnel present when the poll opened. The Uchaguzi sub-categories of security list "rumors" and "dangerous speech" as well as bombings or abductions under the same main category. Therefore we have created three categories to differentiate security related issues. The word "Peace" gives a more relevant description of the actual reports than "Everything fine", "Tension" contains all reports about rumours, dangerous speech and threatening behaviour, and the category "Violence" covers robbery, fighting or armed attacks.

The Carter Center report contains very few comments on violence during election day. The report states that polling operations on election day was performed in *"largely peaceful atmosphere with the exception of two occurrences of violence with regrettable*

*deaths in the Coast region*" (Carter Center 2013: 45). Disturbances in Chumani, Kilifi County are mentioned in their report as well as the violence occurring in Mombasa. The ELOG report only mentions the Mombasa killings where 13 civilians and 6 police officers were killed (ELOG 2013: 62, KPTJ: 5). Below is a more detailed description on how the Uchaguzi reports show violence and tension.

### **5.3.1 Violence hotspots**

As the map below show, the Uchaguzi reports contain statements of killings and hotspots of violence and tensions in Kilifi and Mombasa by the coast, in Mandera in the north, in Nairobi and in Kakamega in the western province. There are witness descriptions on stabbing, torching of houses and cars as well as threats to public peace. The dataset contains 73 reports on various types of violence occurring during two days before and one day after the elections.

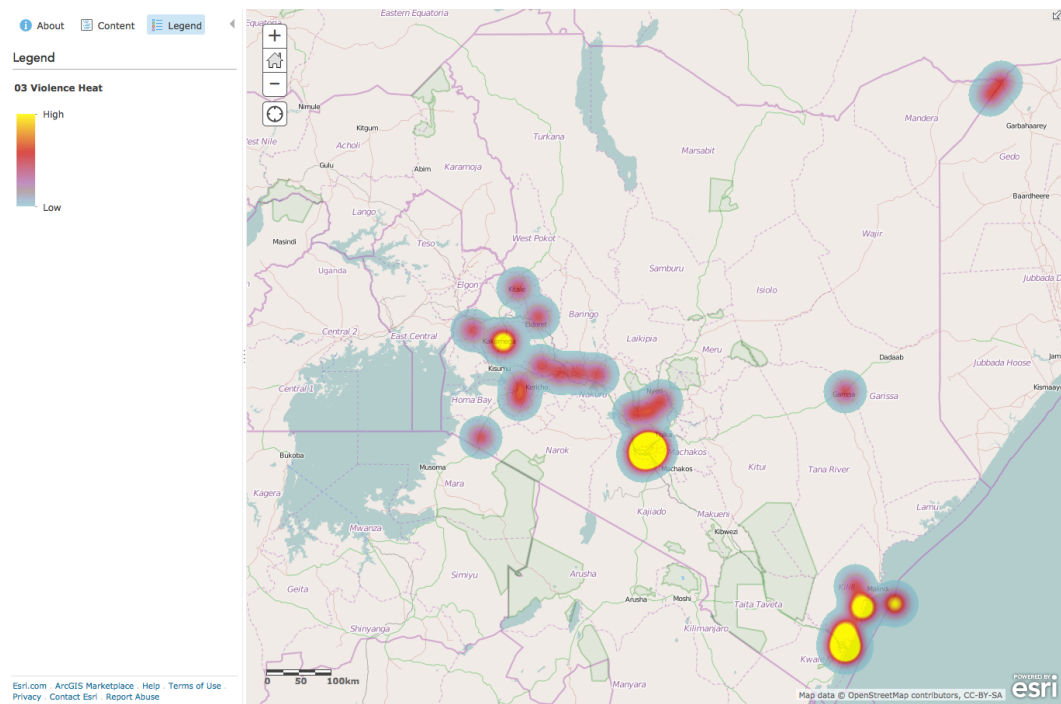
One reason for the underreporting of violent disturbance in the ELOG and Carter Center reports might be found in the latter when media coverage is commented: "*...media houses were overly cautious in their coverage, focusing on the prevention of violence to such an extent that they censored themselves while reporting news*" (Carter Center 2013: 41).

*"04.03.2013, 15:01, MATHARE, NAIROBI, Violence: Votin process is wel in mathare, but there are some gungs in 3c villege attacking pple wth knife, one man hd bn stubd, more security re-enforcemnt on ths area around sokomoko'n'Brdge 2 along mau mau road, plz help?"* (Uchaguzi ID: 1622)

It seems therefore that the Uchaguzi dataset holds the most detailed picture of violence and tension around election day. This was in contrast to international media arriving at the scene. "*The Carter Center regretted that the focus of international media on the risks of violence did not reflect the peaceful messages being delivered by candidates, political parties, and all stakeholders*". (Carter Center 2013: 41). The statement is nicely formulated in a tweet circulating and appearing in the Uchaguzi reports:

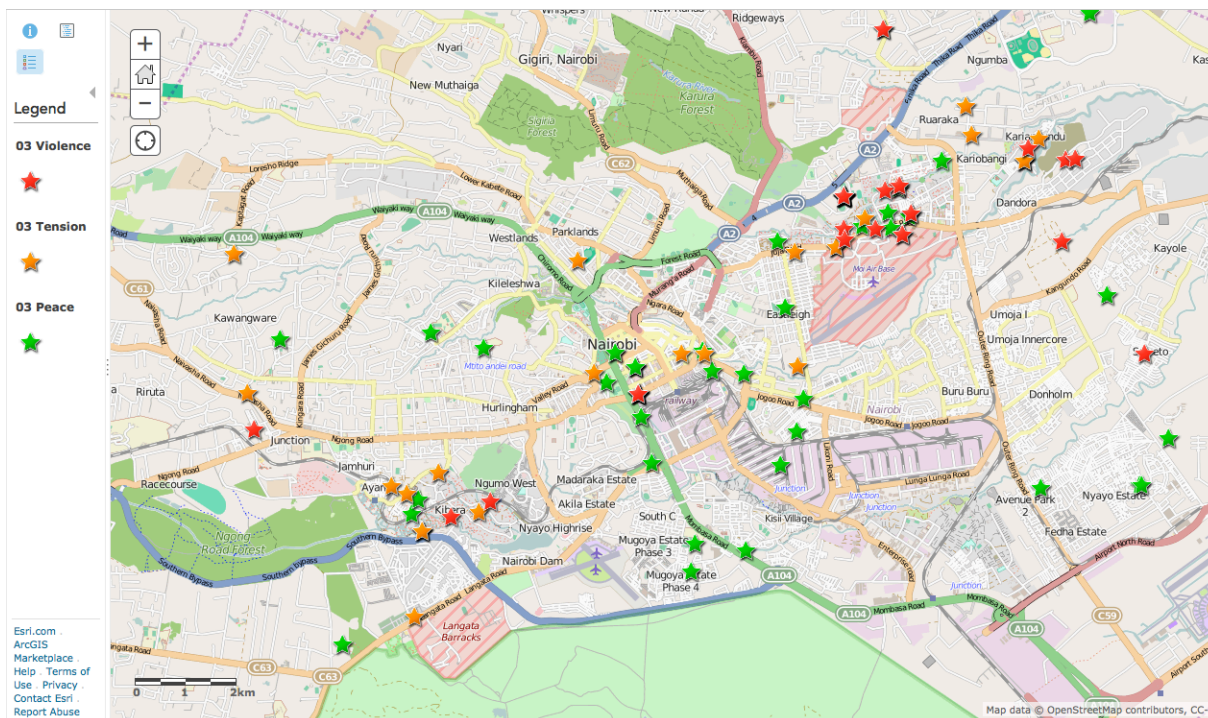
*04.03.2013, 13:36, NAIROBI, @calestous BREAKING: Foreign reporters clash in #Kenya amid growing scarcity of bad news. #kenyadecides* (Uchaguzi ID: 1948)

## Hotspots of violent events during the elections



Map 2: Violence hotspots: Instances of reports on violence in Manderu in north east, Western areas, Nairobi in central south and Mombasa and Kilifi by the coast. (Map by author, base layer: OSM, data: Uchaguzi)

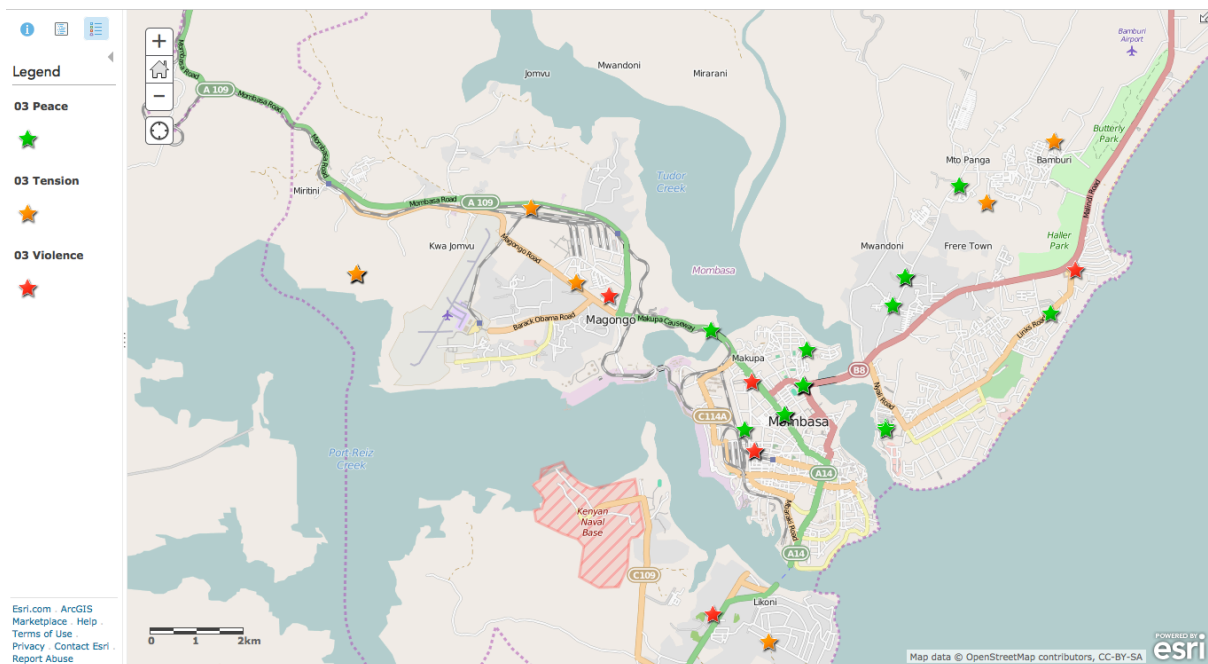
## Reports on peace, tension and violence in Kibera and Mathare, Nairobi



Map 3: Reports on Tension and Violence clustered around Kibera and Mathare in Nairobi. Orange stars mark reports on tension, red stars are violence, green stars are reports on peace. (Map by author, base layer: OSM, data: Uchaguzi)



## Reports on peace, tension and violence in Mombasa



Map 4: Reports on Peace, Tension and Violence in Mombasa. (Map by author, base layer: OSM, data: Uchaguzi)

Reports tagged with Code 6 "No presence of security at polling station" can be read and classified in different ways. Here is one example:

*04.03.2013, 06:13, NYALI, MOMBASA, Code 6, No Presence Of Security At Polling Station (Uchaguzi ID 4376)*

It could be that the observer refers to a checklist for the setup of the polling station before opening, and that the classification of the message therefore belongs to the category "Opening" or "Administration". Reading the timestamp of the message (sent 06:13 on polling day) support this idea. But noticing that a third of the messages using this code are sent from Mombasa (7), a hotspot for violent disturbance of the elections, and that they keep coming during the morning hours, indicate that the message is not about opening procedures, but about the observer has a perception of insecurity or tension. This is to illustrate a need for a high level of precision in predefined statements when asking the crowd to report. The 7 reports with Code 6 from Mombasa are categorized under "Opening" as the others from the rest of the country.

The tension in Mombasa are confirmed by the ELOG observers. They report on the attacks and senseless killings that happened on the eve of the election and affected the opening of the polling stations. The election reports tells the story: *"However, our*

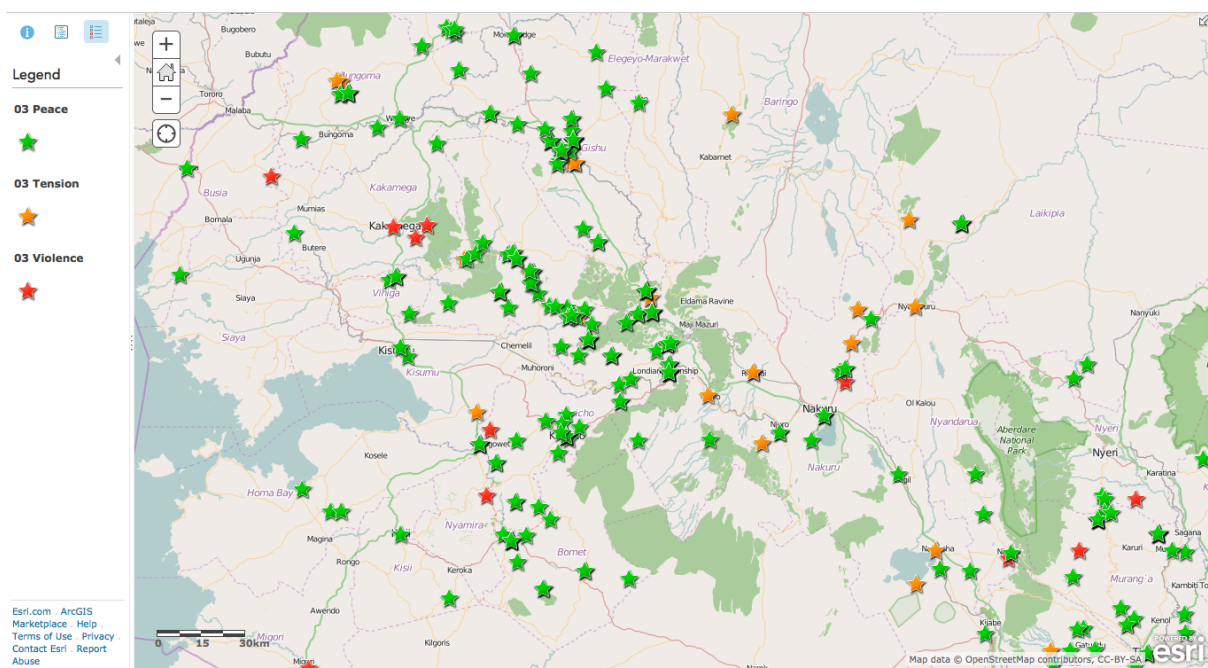
observer reports indicate that polling stations were, ... opened and voting commenced later in the morning. The efforts by the security agencies in restoring calm, thus, enabling the IEBC to commence polling were commendable. (ELOG 2013: 60-62).

The word "No order" can also be interpreted in different ways. It could describe chaotic queue due to poor setup of the polling station, or it could describe a tension among the voters gathered. This one is also categorized as "Tension".

*"04.03.2013, 10:48, MAVOKO, MACHAKOS, MLONGO WE NEED MORE SECURITY THERE IS NO ORDER"  
(#2304)*

In total there were 22 reports filed with the "Code 6", 13 of them from trusted observers using the Code Cards.

### Reports on peace, tension and violence in western Kenya



Map 5: Scattered reports on tension and violence, dominated by peace reports from Western province (Map by author, base layer: OSM, Data: Uchaguzi).

Although scattered and mostly observed on the evening before election day, there are reports on violence also from the western areas of Kenya.

*04.03.2013, 00:35, LURAMBI, KAKAMEGA, Burning car and tension near Kakagema Forest: "Reported from kakamega Former shinyalu mp [NAME] narrowly eascaped and his car was burnt near kakamega forest  
Tension seems to be raising following that incidence" (Uchaguzi ID: 1311)*

Using maps as the above examples gives an geographical overview and enables to se hotspots and clustering of individual reports. As such, they also represent a characteristic of crowdsourced projects, where maps have become a standard part of such projects. To bad then, that this paper version is not able to show the interactive features of online maps. Clicking on each of the dots would reveal the full reports behind it, and thereby reveal details impossible to visualise in a compact format on paper.

## 6 Findings and Conclusions

A body of research investigating the advantages and perils in citizens engaging in political processes using communication tools is emerging. Such tools represent a channel for new groups to engage, different voices to be heard.

Whether it is the broad engagement of civil society in crowdsourced election monitoring that creates value or the actual content of their reports needs more research to prove. The collaboration between Uchaguzi and civic society organisations seems to have been crucial to gain enough support and systematic reporting to the Uchaguzi platform. One prerequisite for such projects to deliver a rich picture seems to be their coverage and presence and an organization to handle the flow of information.

Most Kenyans have access to the use of mobile phones, and access to the communication tools as such does not seem to be the major risk for potentially biases in the Uchaguzi project. As shown - the crowd can be directed in what they feed to the project. There is still some reflection and refinement to do on which questions that should be asked, and how they are formulated.

Despite this, the major comments on election day process from the Carter Center and ELOG are reflected in the Uchaguzi reports. The latter contains a more detailed picture of events not to deeply covered by the others. Disturbances, violence, peace-efforts and bribing of voters are the most important ones. The geographic orientation of such projects can bring forth new understandings on not only what happened, but where - in which community the events are clustered. This might provide a foundation for decision-making on a local level.

Rather than commenting electoral technicalities, the Uchaguzi observers comment situations where the voter experienced obstructions to the act of voting. The crowd did not stick to the subjects presented on forehand, but reported several issues not usually asked for in election monitoring. The workflow applied for the project represent on one side a structure for delivering quality output. The time and energy used on a rigorous workflow might however contradict another characteristic for such projects, namely speed. This is a dilemma in crowdsourced projects and the reason why substantial research is done to develop machine assisted methods for filtering noise from valuable information and for verifying what is correct and not.

The way of formulating issues on the Code Cards, gives the Uchaguzi reports a bias, mostly containing reports on negative event or poor performance. It is therefore difficult to understand if low number of reports on specific issues is because all was fine, or that the observer did not notice. This is to some extent outweighed by the positive peace-reports, although they don't address technical or electoral processes, but confirm the absence of the expected violence.

Utilizing timestamps and geographical information from single reports to create maps or timelines add informational value to the reporting. The speed of crowdsourced information also facilitate the ability not only to register what happened, but for organizations and authorities to react on urgent information.

Unlike passive crowdsourcing - where you harvest and analyse messages that by chance are transmitted through social media - meaningful crowdsourced election monitoring demands more "skills" from the reporter. For an SMS to pass onto the Uchaguzi platform, the message had to contain a description of the event as well as information about the location.

To increase the number of meaningful messages, the crowd therefore had to be informed. This information was transmitted through radio, via flyers and posters. In addition, their trained reporters in the field contributed with a significant portion of the reports. The project therefore resembles ordinary domestic observation, except the fact that their messages are published online in near real-time.

## **6.1 Conclusion**

The emerging research on crowdsourced participation suggests that such methods belong to the toolbox for governance, human rights monitoring, election observation or democratization projects. There is however a need for further development to achieve a better use and better understanding of the potential in such the tools and methodologies.

To measure whether election monitoring contributes to democracy and freedom is certainly disputed. Corrupt and authoritarian regimes invite commissions to observe their elections, and the reports conclusions are often vague. And as others - the Uchaguzi project aimed to contribute to free, fair and peaceful elections in Kenya 2013. Did the project give a relevant account of the elections?

Compared to the massive coverage of the ELOG observation group, the reports of the Uchaguzi project covers far less polling stations, and reports on fewer issues. Despite this, the major findings on election day issues both in the Carter Center report and the ELOG reports are recognized in the Uchaguzi dataset. So yes, the Uchaguzi reports give a relevant, but slightly different picture of the process on election day.

The comparison of issues listed both on the Carter Center, the ELOG and the Uchaguzi Code Cards show that the intention of all three monitoring groups are similar. The two traditional reports cover the whole electoral process where the latter only covers incidents on election day.

Since the Uchaguzi platform seems to be an alternative for crowdsourced election monitoring in a number of countries, the setup might also be modified to highlight its advantages towards traditional observation systems. By opening up for an "alternative" story on the electoral process, the concept might catch information on issues not thought of on forehand.

Crowdsourced ICT assisted monitoring can communicate urgent stories faster than traditional observation methods. Such projects therefore might support traditional monitoring, enabling individual voices to be heard.

The level of accuracy can be disputed in all three reports. Where Carter Center and ELOG summarize and generalize on major issues, the Uchaguzi reports highlight individual events and generates the overview through its categories and geographical visualisation of issues. When single events are clustered on a map, they show hotspots for particular issues that are significant on a local level, but too small to show up as a general phenomenon. The election was mainly peaceful, but not everywhere.

The time-factors - both the information in a time stamped report and the speed of crowdsourced systems are significant differences to traditional reporting systems. Using timelines both for verification and documenting the flow of events can add information not usually seen in traditional reports.

The Code Cards, or checklists provided for the Uchaguzi observers might be reformulated to open-ended questions giving the observer an incentive to also report on positive events and on things going well. An altering of the categorization system, from a hierarchical structure towards a flat, tagged database would ease the possibilities for a single report to cover information on several issues. One might suggest that further

research is done to address the conflict between speed of reporting and a rigorous process for quality check.

It is hard to believe that the civil society will stop interfering with democratic processes given the communication tools available. The logical consequence is therefore for scholars and experts to engage in such projects to enhance the quality of crowdsourced monitoring projects, and familiarize themselves with the new formats for reporting the events.

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# 8 Appendix

## 8.1 Facts and figures

- Constituencies: 290 (Uchaguzi reports from 234)
- Polling stations: 31 977 (Approx 32 400 according to Carter Center)
- Mobile phone users: 38 million of 48 million people. (Barkan 2013)
- ELOG observers: ~7 000 (some reports operate with 7 500)
- CRECO observers: ~2 000 (some reports operate with 2 500)

## 8.2 Table of Hashtags

During the elections in Kenya a set of hashtags were used on twitter, created by media houses or individuals. They were used to monitor the voting activities and release of results (Sambuli et al. 2013b). Very few of these tweets reached the Uchaguzi platform. Observers wanting to use Twitter as their reporting tool, were encouraged to direct the message by using the @Uchaguzi tag. This would lead the message directly to the team. But the thematic and public tag #Uchaguzi was also monitored.

1. #KenyaDecides	10. #Elections2013KE
2. #Decision2013	11. #KEPolls2013
3. #Ballot2013	13. #Polls2013
4. #Maamuzi2013	14. #KenyaDecides2013
5. #KEelections2013	15. #KEpoll2013
6. #Elections2013	16. #KenyaDecides13
7. #Choice2013	17. #DefiningMoment2013
8. #Uchaguzi	18. #Kinyanganyiro2013
9. #UchaguziBora	

Table 9: Hashtags used for searching Twitter during the elections.

### 8.3 Diagram of the Uchaguzi Workflow

How information is flowing through the Uchaguzi project. At the top there are the different sources - or observers if you like. The Translation, Geolocation and report teams can be online volunteers located anywhere. Emergency and verification usually is handled in the situation room.

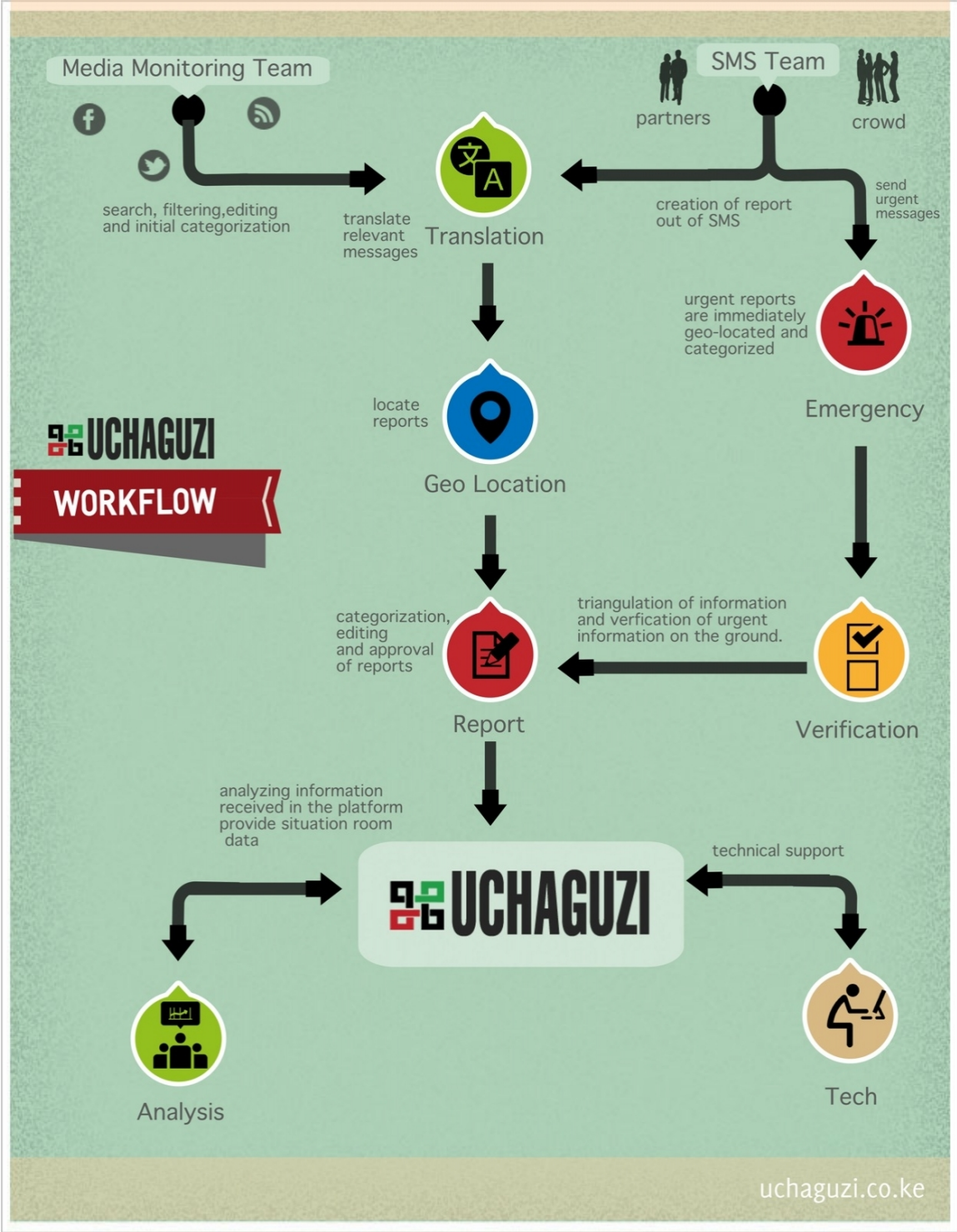


Chart 12: The chart shows the flow of information in the Uchaguzi project. (Source; Uchaguzi)

## 8.4 Table: N reports from each County/Constituency in the Uchaguzi dataset

County	Constituency	N	County	Constituency	N	County	Constituency	N
<b>Baringo</b>	Baringo Central	2	<b>Kakamega</b>	Butere	3	<b>Kisii</b>	Bobasi	3
	Baringo South	6		Ikolomani	15		Bomachoge Borabu	31
	Eldama Ravine	6		Khwisero	6		Bomachoge Chache	1
	Mogotio	2		Likuyani	26		Bonchari	8
SUM	<b>16</b>	Lugari		19	Nyaribari Chache		7	
<b>Bomet</b>	Bomet Central	3		Lurambi	6	SUM	<b>51</b>	
	Bomet East	2		Malava	12	<b>Kisumu</b>	Kisumu Central	19
	Chepalungu	2		Matungu	4		Kisumu East	4
	Sotik	11		Mumias East	20		Kisumu West	3
SUM	<b>18</b>	Mumias West		22	Muhoroni		1	
<b>Bungoma</b>	Bumula	10	Navakholo	9	Nyakach		7	
	Kabuchai	14	Shinyalu	1	Nyando	8		
	Kanduyi	14	SUM	<b>143</b>	Seme	5		
	Mt. Elgon	3	<b>Kericho</b>	Ainamoi	19	SUM	<b>47</b>	
	Sirisia	6		Belgut	6	<b>Kitui</b>	Kitui Central	3
	Tongaren	12		Bureti	5		Kitui East	5
	Webuye East	4		Kaplelartet	1		Kitui Rural	8
	Webuye West	7		Kipkelion East	32		Kitui South	5
SUM	<b>70</b>	Kipkelion West	4	Kitui West	1			
<b>Busia</b>	Budalangi	1	Konoin	4	Mwingi Central	5		
	Funyula	7	Sigowet/Soin	8	Mwingi West	1		
	Matayos	20	SUM	<b>79</b>	SUM	<b>28</b>		
	Nambale	3	<b>Kiambu</b>	Gatundu North	5	<b>Kwale</b>	Kinango	12
	Teso North	17		Gatundu South	8		Lungalunga	6
Teso South	18	Juja		4	Matuga		17	
SUM	<b>66</b>	Kabete		7	Msambweni		11	
<b>Elgeyo -Marakwet</b>	Keiyo North	1		Kiambu	29	SUM	<b>46</b>	
	SUM	<b>1</b>	Kiambaa	5	<b>Laikipia</b>	Laikipia East	7	
<b>Embu</b>	Manyatta	1	Kikuyu	5		SUM	<b>26</b>	
	Mbeere North	3	Lari	2	<b>Lamu</b>	Lamu East	5	
	Mbeere South	1	Limuru	8		SUM	<b>5</b>	
SUM	<b>5</b>	Ruiru	46	<b>Machakos</b>	Kangundo	5		
<b>Garissa</b>	Garissa Townsh.	3	Thika Town		6	Kathiani	6	
	SUM	<b>3</b>	SUM		<b>125</b>	Machakos Town	26	
<b>Homa Bay</b>	Homa Bay Town	5	<b>Kilifi</b>		Ganze	3	Matungulu	3
	Kabondo Kasipul	6			Kaloleni	7	Mavoko	25
	Karachuonyo	2		Kilifi North	27	Mwala	7	
	Kasipul	16		Kilifi South	31	SUM	<b>72</b>	
	Mbita	10		Magarini	2	<b>Makueni</b>	Kibwezi East	3
	Ndhiwa	6		Malindi	2		Kibwezi West	6
	Rangwe	6		Rabai	7		Kilome	4
SUM	<b>51</b>	SUM	<b>79</b>	Makueni	3			
<b>Kajiado</b>	Kajiado East	2	<b>Kirinyaga</b>	Gichugu	5	Mbooni	1	
	Kajiado North	19		Kirinyaga Centr.	6	SUM	<b>17</b>	
	Kajiado South	1		Mwea	3	<b>Mandera</b>	Mandera East	2
	SUM	<b>22</b>		Ndia	5		SUM	<b>2</b>
SUM	<b>19</b>	SUM		<b>19</b>	<b>Marsabit</b>	Saku	5	
				SUM		<b>5</b>		

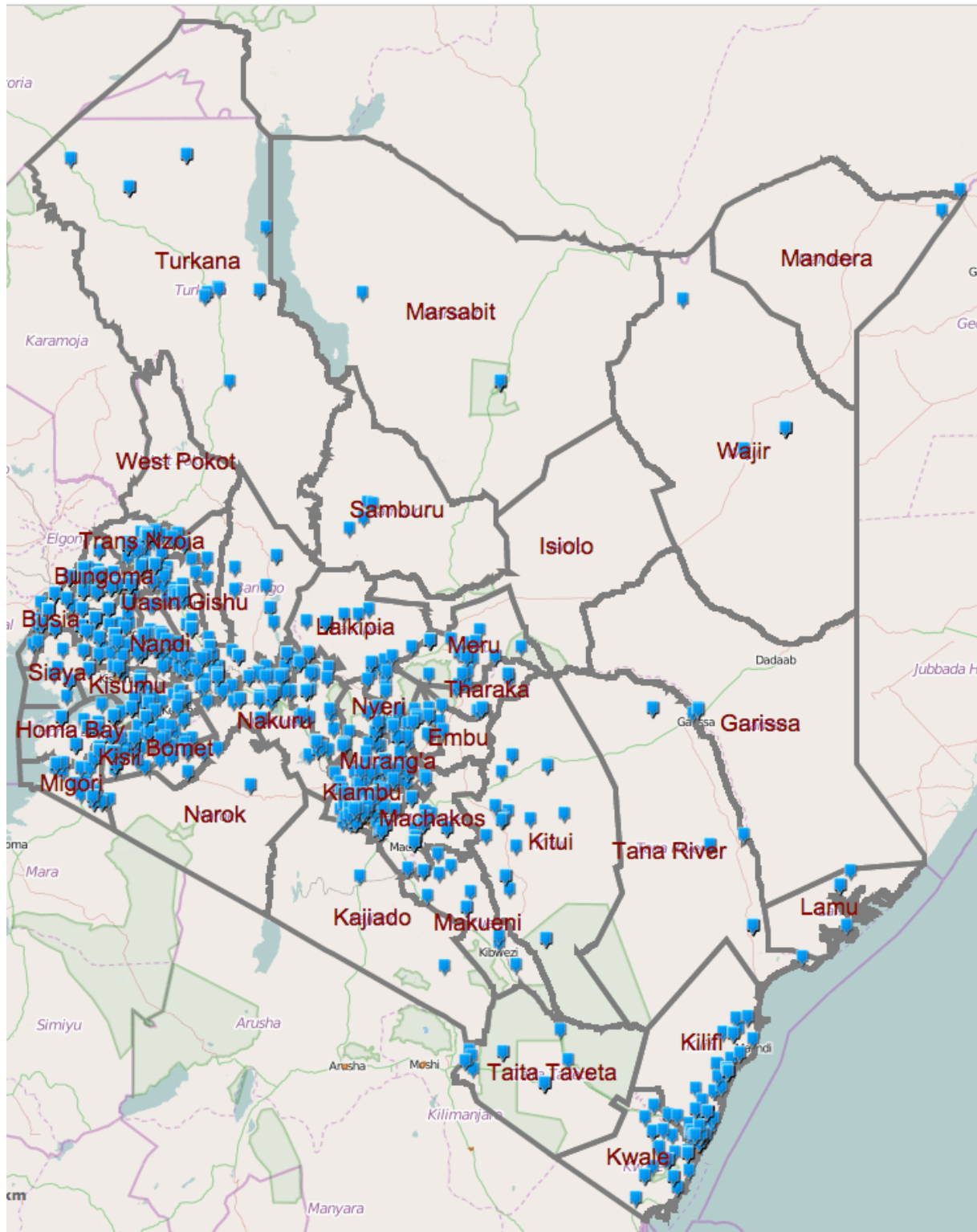


County	Constituency	N	County	Constituency	N	County	Constituency	N
<b>Meru</b>	Buuri	10	<b>Nakuru</b>	Bahati	9	<b>Taita Taveta</b>	Mwatate	9
	Central Imenti	3		Gilgil	6		Taveta	9
	Igembe South	1		Kuresoi North	4		Voi	2
	North Imenti	3		Kuresoi South	2	SUM	<b>20</b>	
	South Imenti	4		Molo	5	<b>Tana River</b>	Bura	5
	Tigania East	1		Naivasha	14		Galole	4
	Tigania West	3		Nakuru Town E	10		Garsen	10
SUM	<b>25</b>	Nakuru Town W	16	SUM	<b>19</b>			
<b>Migori</b>	Awendo	4	Njoro	9	<b>Tharaka - Nithi</b>	Maara	6	
	Kuria East	5	Rongai	8		Tharaka	6	
	Kuria West	46	Subukia	7	SUM	<b>12</b>		
	Nyatike	8	SUM	<b>90</b>	<b>Trans Nzoia</b>	Cherangany	20	
	Rongo	18	<b>Nandi</b>	Aldai		19	Kiminini	13
	Suna East	4		Chesumei		6	Kwanza	31
	Uriri	5		Emgwen	10	Saboti	37	
SUM	<b>90</b>	Mosop	7	SUM	<b>101</b>			
<b>Mombasa</b>	Changamwe	39	Nandi Hills	12	<b>Turkana</b>	Loima	6	
	Jomvu	22	Tinderet	26		Turkana Central	5	
	Kisauni	29	SUM	<b>80</b>		Turkana North	9	
	Likoni	14	<b>Narok</b>	Kilgoris		1	Turkana South	1
	Mvita	7		Narok East	1	Turkana West	10	
	Nyali	31		Narok North	1	SUM	<b>31</b>	
	SUM	<b>142</b>	Narok South	1	<b>Uasin Gishu</b>	Ainabkoi	6	
<b>Murang'a</b>	Gatanga	18	SUM	4		Kapseret	7	
	Kandara	25	<b>Nyamira</b>	Borabu		12	Kesses	25
	Kangema	2		Kitutu Masaba		13	Moiben	3
	Kiharu	15		North Mugirango		9	Soy	6
	Maragwa	9	West Mugirango	5		Turbo	22	
	Mathioya	11	SUM	<b>39</b>	SUM	<b>69</b>		
SUM	<b>80</b>	<b>Nyandarua</b>	Kinangop	9	<b>Vihiga</b>	Emuhaya	6	
<b>Nairobi</b>	Dagoretti North		31	Kipipiri		1	Hamisi	4
	Dagoretti South		16	Ndaragwa		2	Luanda	4
	Embakasi Central		13	OI Jorok		11	Sabatia	9
	Embakasi East	7	OI Kalou	11		Vihiga	2	
	Embakasi North	20	SUM	<b>34</b>	SUM	<b>25</b>		
	Embakasi South	10	<b>Nyeri</b>	Kieni	9	<b>Wajir</b>	Wajir East	12
	Embakasi West	14		Mathira	2		Wajir North	1
	Kamukunji	23		Mukurweini	3	SUM	<b>13</b>	
	Kasarani	15		Nyeri Town	2	<b>West Pokot</b>	Kapenguria	1
	Kibra	50	Othaya	8	SUM		<b>1</b>	
	Langata	34	Tetu	1	<b>Total reports</b>	<b>2333</b>		
Makadara	5	SUM	<b>25</b>					
Mathare	71	<b>Samburu</b>	Samburu North	1				
Roysambu	21		SUM	<b>1</b>				
Ruaraka	24	<b>Siaya</b>		0				
Starehe	33		Bondo	1				
Westlands	31		Gem	4				
SUM	<b>418</b>		Rarieda	7				
			Ugenya	5				
		SUM	<b>17</b>					

Table 10: Number of reports from Counties and Constituencies in the Uchaguzi dataset.

## 8.5 Map: National coverage in the Uchaguzi dataset

Map 6 shows the geographic distribution of total reports in the Uchaguzi dataset.



Map 6: All Uchaguzi reports plotted within County borders. (Map by author, base layer: OSM, county borders: Mikel Maron, Data: Uchaguzi)

## 8.6 Table: N reports, Population, Population density, Voting data

County	N Uchaguzi Reports	Population	Pop / Sq Km	Registered Voters	Valid Votes	Votes Cast	Voter Turnout
Baringo	16	555 561	50	173 653	156 349	157 494	90.69%
Bomet	18	730 129	365	252 358	225 713	227 115	90.00%
Bungoma	70	1 375 063	623	410 462	345 699	351 005	85.51%
Busia	66	743 946	457	251 305	218 656	220 928	87.91%
Elgeyo	-						
Marakwet	1	369 998	121	134 568	122 453	123 474	91.76%
Embu	5	516 212	202	227 286	197 918	199 645	87.84%
Garissa	3	623 060	14	115 202	91 382	91 900	79.77%
Homa Bay	51	963 794	306	325 826	305 666	30 672	94.14%
Isolo	0	143 294	6	54 462	47 358	47 646	87.48%
Kajiado	22	687 312	32	304 346	26 313	265 185	87.13%
Kakamega	143	1 660 651	547	567 460	467 783	474 779	83.67%
Kericho	79	752 396	307	290 458	260 973	262 902	90.51%
Kiambu	125	1 623 282	663	861 828	776 672	781 735	90.71%
Kilifi	79	1 109 735	91	336 132	215 792	218 174	64.91%
Kirinyaga	19	528 054	438	265 290	239 881	241 548	91.05%
Kisii	51	1 152 282	874	412 945	344 064	348 662	84.43%
Kisumu	47	968 909	482	385 820	347 119	348 969	90.45%
Kitui	28	1 012 709	42	324 673	273 475	276 104	85.04%
Kwale	46	649 931	79	174 443	124 626	125 601	72.00%
Laikipia	26	399 227	46	173 905	156 066	156 868	90.20%
Lamu	5	101 539	16	52 346	43 534	44 171	84.38%
Machakos	72	1 098 584	185	445 096	367 238	372 078	83.59%
Makueni	17	884 527	110	298 221	250 048	252 223	84.58%
Mandera	2	1 025 756	40	120 768	101 271	101 617	84.14%
Marsabit	5	291 166	4	104 615	89 561	89 882	85.92%
Meru	25	1 356 301	196	487 265	425 394	429 819	88.21%
Migori	90	917 170	355	283 862	259 892	261 215	92.02%
Mombasa	142	939 370	4421	408 747	269 314	272 318	66.62%
Murang'a	80	942 581	405	452 841	421 283	423 635	93.55%
Nairobi	418	3 138 369	4516	1728 801	1 398 476	1 410 663	81.60%
Nakuru	90	1 603 325	184	695 319	610 803	616 318	88.64%
Nandi	80	752 965	261	263 254	234 008	236 242	89.74%
Narok	4	850 920	47	262 739	234 258	235 906	89.79%
Nyamira	39	598 252	656	219 358	181 232	183 509	83.66%
Nyandarua	34	596 268	192	255 984	237 975	239 747	93.66%
Nyeri	25	693 558	294	356 380	328 559	331 024	92.89%
Samburu	1	223 947	11	61 114	53 772	53 949	88.28%
Siaya	17	842 304	337	311 919	286 712	288 447	92.47%
Taita Taveta	20	284 657	17	113 862	91 333	92 356	81.11%
Tana River	19	240 075	7	79 454	64 080	64 589	81.29%
Tharaka - Nithi	12	365 330	152	155 487	137 942	138 984	89.39%
Trans Nzoia	101	818 757	331	244 640	195 286	199 947	81.73%
Turkana	31	855 399	12	132 885	100 876	101 284	76.22%
Uasin Gishu	69	894 179	303	330 618	281 862	284 728	86.12%
Vihiga	26	554 622	1044	202 822	165 494	167 573	82.62%
Wajir	13	661 941	12	118 091	99 695	100 239	84.88%
West Pokot	1	512 690	61	120 986	108 062	108 783	89.91%
<b>SUM</b>	<b>2 333</b>	<b>38 610 097</b>		<b>14 349 896</b>	<b>11 924 246</b>	<b>11 960 671</b>	

Table 11: Number of Uchaguzi reports pr County. Population and density are derived from Kenyan Bureau of Statistics, voting data are derived from the Carter Center Report.