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Africa's Information Revolution: Implications for Crime, Policing, and Citizen Security

by Steven Livingston

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The Africa Center for Strategic Studies

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Africa's Information Revolution: Implications for Crime, Policing, and Citizen Security

by Steven Livingston

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Contents

Executive Summary 1

Crime and Stability in Africa 5

 Public Trust in Africa’s Police Forces 8

 Police Corruption and the Breakdown of Accountability 14

 The Emergence of the Mungiki 18

 Impunity and Political Violence..... 20

ICT’s Role in Fighting Crime in Africa 22

 ICT’s Rise and Broad Utility in Africa 23

 Viability of ICT-Enabled Collective Action to
 Counter Crime in Africa..... 34

Recommendations 35

Notes 44

Acknowledgements 49

About the Author51

Executive Summary

Violent crime represents the most immediate threat to the personal security of most Africans. According to the United Nations Office on Drugs and Crime, 36 percent of all homicides globally occur in Africa. With 17 deaths per 100,000, the homicide rate in Africa is double the global average. Rates of robberies and rape in Africa also exceed global norms. The problem is worse in urban areas, with many of Africa's urban-dwellers "often" worrying about crime.

The risk of violent crime has implications for Africa's development, governance, and stability. Crime ranks as one of the major inhibitors to investment on the continent according to private business owners. Parents choose not to send children to school rather than put them at risk in high-crime areas. Countries with higher rates of violent crime tend to make less progress in reducing poverty and expanding development.

Closely linked to the threat of violent crime is the weakness of many of Africa's police forces. They are often underfunded, understaffed, and undertrained. Surveys show that a majority of Africans see police only infrequently, and therefore do not view the police as a source of protection. In addition to being ineffective in combatting crime, inadequate police training contributes to unprofessional behavior. In some cases, police are active participants in criminal activity. In others, corruption permeates the force. In still others, police use extrajudicial violence to intimidate and coerce suspected criminals, potential witnesses, and even victims. This generates high levels of distrust of the police in many African countries.

The acuteness of the crime challenge has grown with rapid urbanization and the expansion of slums lacking basic services, including police presence. In many urban centers, this vacuum has been filled by gangs and organized criminal organizations that profit from extortion, kidnappings, and violence against the local population. At times these gangs are protected by corrupt police or politicians. As these criminal groups expand into trafficking of illicit goods—drugs, cigarettes, medicines, and arms—they tend to link up with

transnational criminal networks, posing an even more formidable security problem.

Consistently high levels of violence have far-reaching implications for how youth learn to resolve conflict—perpetuating tolerance for higher levels of violence in a society. This, in turn, fosters the acceptability of political violence and threatens the viability of democratic governance, which relies on dialogue, free speech, tolerance of opposing perspectives, and protection for minorities.

The rapid expansion and accessibility of mobile communications technology in Africa is creating new opportunities for combatting crime and strengthening police accountability. Twitter, SMS, and event-mapping technologies are being used to connect communities with police and security forces as never before. This is precedent setting for many citizens, especially those in rural areas who have grown accustomed to fending for themselves. Now at least they are more able to alert one another to potential threats, mobilize the community in self-defense, and inform security sector authorities in the interest of gaining protection. In urban areas, citizens who would not normally have many interactions with the police now have a number they can call in times of trouble.

Information and communications technologies (ICTs) are also connecting societies horizontally in real time. This is forging cross-regional ties and linkages that may not have previously existed and historically have emerged only with the development of a national transportation infrastructure. In the process, both economic and social integration are facilitated. This enhanced cohesiveness can contribute directly to greater stability.

ICTs, often tapping into their crowdsourcing capabilities, also offer opportunities to improve police responsiveness and accountability. Crime maps provide the basis for allocating resources to match prevailing threats. They also establish a benchmark from which to assess the effectiveness of police responses. Bribe-reporting websites create a record and pattern of illegal police behavior that raise the profile of what are often treated as isolated events into a broader, measurable phenomenon requiring a policy response.

While opening opportunities to enhance security and accountability, ICTs are not a panacea for resolving crime and corruption. Information is solely a tool and not the driver of reform. ICTs can be used for nefarious purposes—both by criminal organizations as well as unaccountable police forces. Rather, ICT-generated change requires an organized body of committed individuals who can use the increased accessibility of information to educate the public, engender popular participation, and press authorities for reform. It is this sustained engagement of on-the-ground actors, typically in the form of civil society organizations, that transforms information accessibility into concrete improvements in the lives of ordinary citizens.

By lowering information barriers, ICTs are bringing discussion and analysis of crime in Africa out of the shadows, enhancing the potential for oversight of the security forces, and elevating citizen security. ICTs, therefore, are contributing to improved security through both internal channels via the strengthening of the state's crime data gathering capacity as well as external mechanisms to monitor, critique, and hold the security sector accountable.

Crime and Stability in Africa

Chief Francis Kariuki received a call at 4 a.m. one night informing him that thieves were breaking into a nearby home. Kariuki is Senior Administrative Chief of Lanet Umoja, a Kenyan village about 100 miles northwest of Nairobi. Immediately after getting off the phone Kariuki sent out a message on Twitter about the burglary in progress, and within minutes a number of his followers had gathered outside the house and scared the thieves into fleeing empty handed. A regular user of Twitter to disseminate information about transportation restrictions, government announcements, and local criminal matters, Kariuki has earned a loyal following among Lanet Umoja's 30,000 residents, most of whom are farmers or ranchers who access his tweets via text message on their mobile phones. After he began using Twitter to circulate information in this small farming community about crime, Kariuki noticed that crime dropped significantly. Twitter had connected him to his community in a way that dramatically scaled up his community policing efforts.¹ Meanwhile, he continues to gain new followers (see Figure 1).

Crime in much of Africa poses significant challenges to stability, security, and development. It is often severe and violent. Africa's homicide rate is more than double the global average. This trend is most pronounced in Africa's urban areas, particularly the slums and townships that enjoy meager government services or administration. With so much attention given to violent rebellions and extremist groups, crime in Africa is often overlooked, both by governments on the continent and others.

Policing is similarly neglected. Not only are Africa's police forces typically poorly trained, under-resourced, and overstretched, but, facing minimal oversight, accountability, and incentives to perform professionally, they are themselves a frequent source of criminal behavior. According to South Africa's Independent Police Investigative Directorate, 932 people died while in police custody in 2011-12,² and there were at least 3 cases of police dragging citizens behind police vehicles as a form of extrajudicial punishment since 2012.³ In Nigeria, a presidential commission concluded in 2008 that policing featured a



pattern of “unlawful arrest and detention, extortion, torture, rape, extrajudicial killings and other forms of brutality.”⁴ A 2006 Nigerian government report bluntly concluded that, “The relationship between the Police and the public is largely characterized by mutual mistrust and hostility.”⁵

This cocktail of factors—worsening crime within Africa’s booming urban areas and its largely ineffective and unaccountable police forces—has the potential of devolving into a more serious challenge to African governments. It undermines not only the safety of individuals, but also sows the seeds of instability more generally. A basic obligation of a government is to ensure the safety of its citizens, and “when the state fails to fulfill this obligation or, worse, provides protection to some groups but not to others, the people effectively reclaim their right to use force in the resolution of disputes, often with disastrous consequences.”⁶ At a Kenyatta University concert in Nairobi, for instance, a police officer shot and killed a security guard after the guard denied him entry to the student-only event. Students then beat the policeman to death.⁷ According to Kenyan police statistics, 429 people were killed in mob justice attacks in 2011.⁸ The actual number was probably higher.

In such an environment, the legitimacy of state institutions is weakened and public confidence is undermined. There is a strong connection between rampant domestic crime and police incompetence on the one hand, and instability, underdevelopment, and regional insecurity on the other. Countries that experience high levels of persistent crime and violence, for example, also tend to have lower rates of poverty reduction, according to the World Bank.⁹ Such problems are borne out across Africa, where businesses lose a higher proportion of sales due to crime and spend a higher percentage of revenues on security than in any other region. High levels of crime also fray social cohesion, thereby further complicating efforts to address violence and crime. Frequently, criminal groups in Africa are co-opted by elites, politicians, and regimes to protect personal interests and to sway elections and political events. Nor are these problems limited by national boundaries. Areas of high crime and instability are prone to higher levels of organized crime and illicit trafficking, the effects of which rapidly spill across borders and feed many other forms of

insecurity. And once crime rates begin to climb, they are difficult to reverse. In a recursive downward spiral, crime undermines sustainable economic growth and good governance, which in turn fuels more crime and instability.

This paper considers ways out of this cycle. If high crime coupled with ineffective and unaccountable policing are significant contributors to instability and state fragility, how might police and anticrime initiatives be strengthened? As the example of Chief Kariuki in Kenya demonstrates, one possible way is found in the deft application of already widely available information and communications technologies (ICTs). ICT initiatives can strengthen efforts to obtain accurate crime data, enhance community-police engagement, and create greater police accountability, among other advancements.

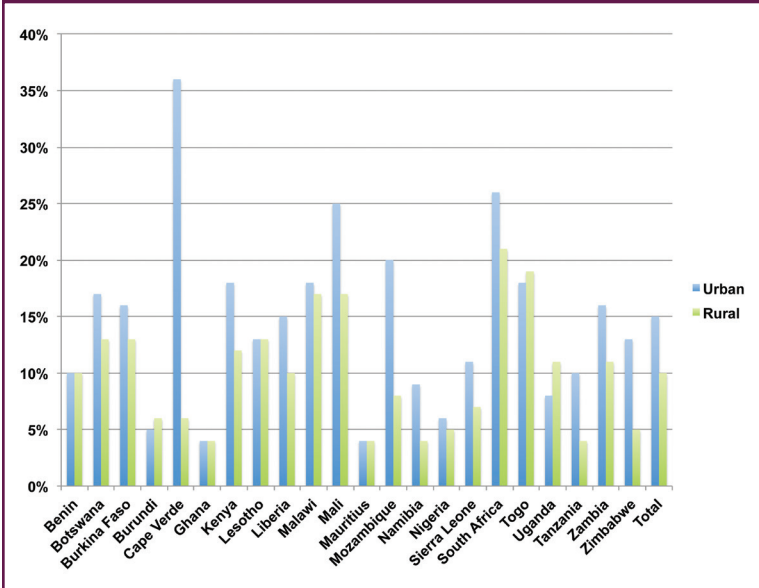
Scholarship concerning the effects of technology on the nature of community initiatives provides a useful conceptual framework. Organizing community initiatives is costly in the sense that it takes time, requires money, and, in some cases, involves considerable personal risk to create and sustain community security initiatives. This analysis reviews the possibility that technologically enabled collective action—community groups pursuing goals with the assistance of ICTs—helps overcome many of these costs.¹⁰ Moreover, some of the governance gaps created by weak and ineffectual police and security services can be alleviated by collective action that leverages ICTs.

This paper is presented in three parts. First, the paper considers the severity of crime and weak policing in Africa. In the second part, the broad-based public benefits realized through several technological innovations are explored to demonstrate the viability of ICT-enabled collective action to enhance public security and to counter crime in Africa. In the final section, the paper offers practical steps for state and nonstate actors to advance ICT-based crime-prevention measures, including initiatives designed to address police corruption and malfeasance.

Public Trust in Africa's Police Forces

According to the United Nations Office on Drugs and Crime, Africa accounted for over a third (36 percent) of the total number of homicides

Table 1. Proportion of Citizens in Select African States Who “Always” or “Many Times” Felt Fearful Walking in Their Neighborhoods, 2011-12

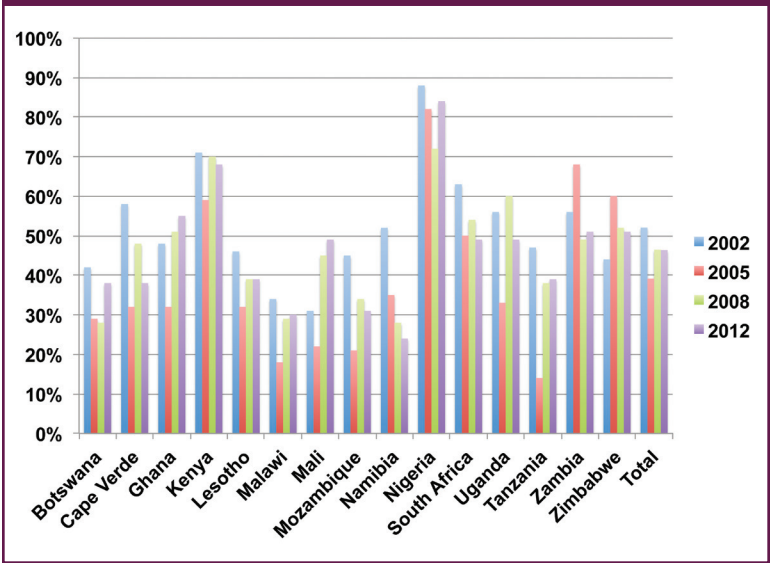


Source: Afrobarometer.¹¹

around the globe in 2010 while representing only a sixth of the global population. At 17 per 100,000 persons, the homicide rate in Africa is *more than double the global average* of 6.9 per 100,000.¹² In South Africa, about 45 people were killed and 182 people were raped or sexually assaulted each day in 2012, making it one of the most dangerous states in the world “outside of a war zone.”¹³ Violence is especially onerous in Africa’s urban areas (see Table 1). Homicide rates in Cape Town, for example, have hovered around 60 per 100,000 since 2001. The Central African Republic, Côte d’Ivoire, the Democratic Republic of the Congo, Malawi, Namibia, Swaziland, Uganda, and Zambia similarly score in the top quartile of homicide rates within Africa.

Surveys also paint a bleak portrait of crime more generally on the continent. In Nairobi, 37 percent of residents have reported being victims of armed robbery, giving rise to the unflattering moniker “Nairobi robbery.”¹⁴

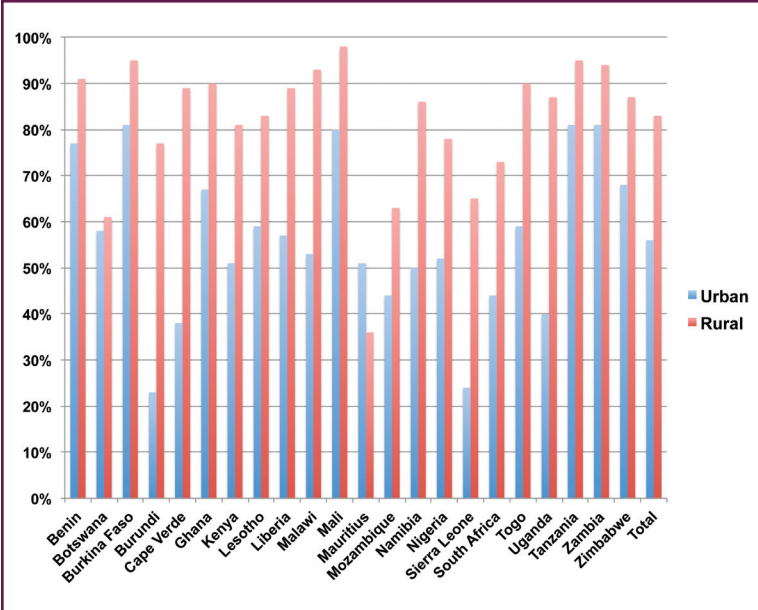
Table 2. Proportion of Citizens Who Trust Police “Not At All” or “Just a Little,” 2002-12



Source: Afrobarometer.

According to one survey, more than half of the citizens of Nairobi worry about crime “all the time” or “very often.”¹⁵ In Lagos, Nigeria, 70 percent of respondents in a citywide survey said they feared becoming crime victims.¹⁶ According to surveys from across the continent, substantial numbers of Africans regularly fear crime in their neighborhoods. Property crimes are certainly serious, but violent crimes such as rape are devastating. In 2002, statistics suggested that a girl born in South Africa had a greater chance of being raped than learning how to read.¹⁷ Estimates are that more than 30 percent of girls have been raped by the time they are 18. More than 37 percent of South African men admitted to raping someone in a 2009 government-funded survey.¹⁸ Behind these cold numbers is a long trail of ruined lives and deep despair.

Meanwhile, public confidence in the police tends to be low. Surveys in 15 African countries demonstrate that police are often viewed as untrustworthy (see Table 2). Nor are they a frequent sight for most Africans, who rarely

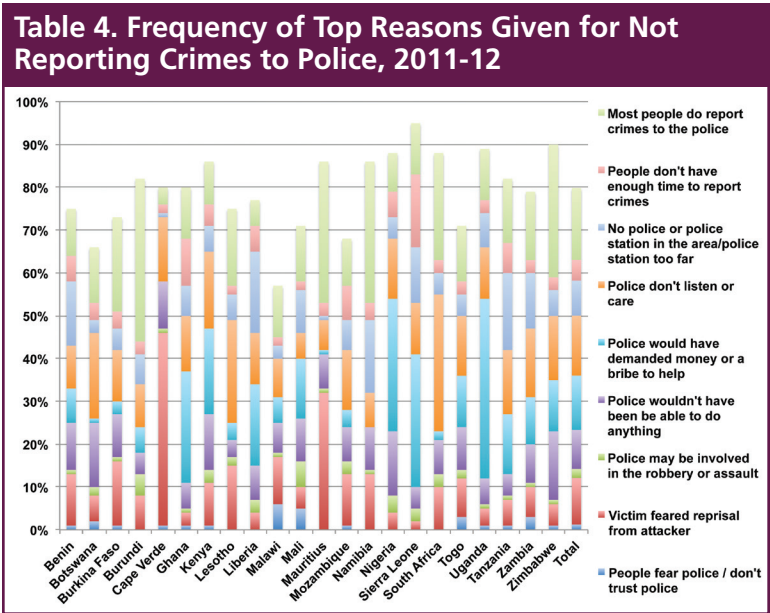
Table 3. Proportion of Citizens Who Do Not See Police or Police Vehicles Frequently, 2011-12

Source: Afrobarometer.

encounter police in their day-to-day lives (see Table 3). There is considerable intercountry variance in perspectives, however. In countries such as Nigeria, Kenya, and South Africa, the majority of the population distrusts the police and views them as overwhelmingly corrupt. In contrast, perceptions in countries like Malawi, Mozambique, and Namibia are mostly positive.

Low confidence in the police may lead to skewed crime statistics, since many civilians will ask themselves “why bother reporting a crime?” Only about a fifth of Africans surveyed across 22 countries report crimes. The three most common explanations provided by those who do not report crimes are a belief that the police “don’t care,” that they would demand a bribe, and a fear of reprisals from attackers (see Table 4).

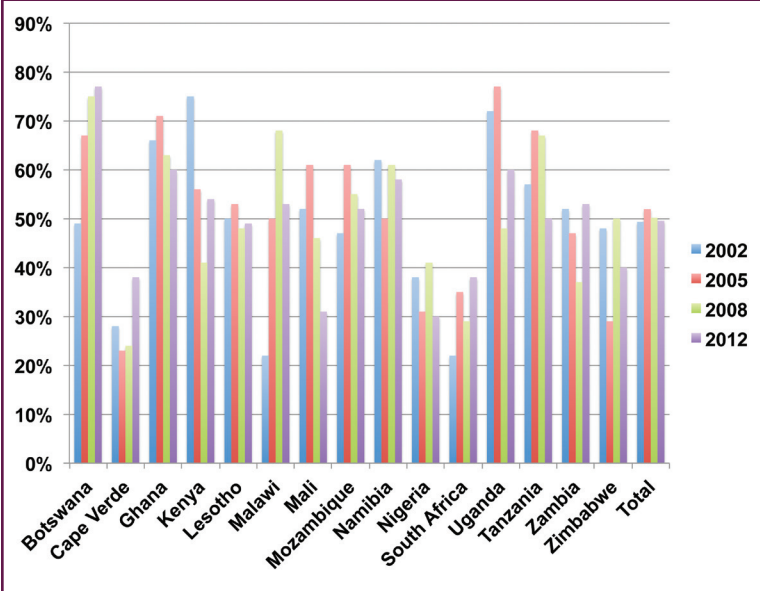
Of course, crime in Africa is complex, making it difficult to generalize without feeding stereotypes or relying on conjecture. With more than a billion people inhabiting one-fifth of the global landmass, generalizations about



Africa of any kind are problematic. A dearth of reliable, comparable crime statistics makes the challenge even greater.¹⁹ Indeed, with few exceptions, most African countries fail to keep reliable crime data of any kind. Available statistics such as homicide rates are often reconstructed from medical and hospital records, not from police reports. Even where data are collected there is reason for skepticism concerning their accuracy. As one analysis put it:

*By far the greatest constraint to understanding trends in armed violence relates to the weak or non-existent surveillance capacities currently in place in Africa.... With some exceptions, African governments often lack the capacities and resources to collect, analyze and report the demographic and spatial distribution of armed violence—particularly in countries devastated by war.*²⁰

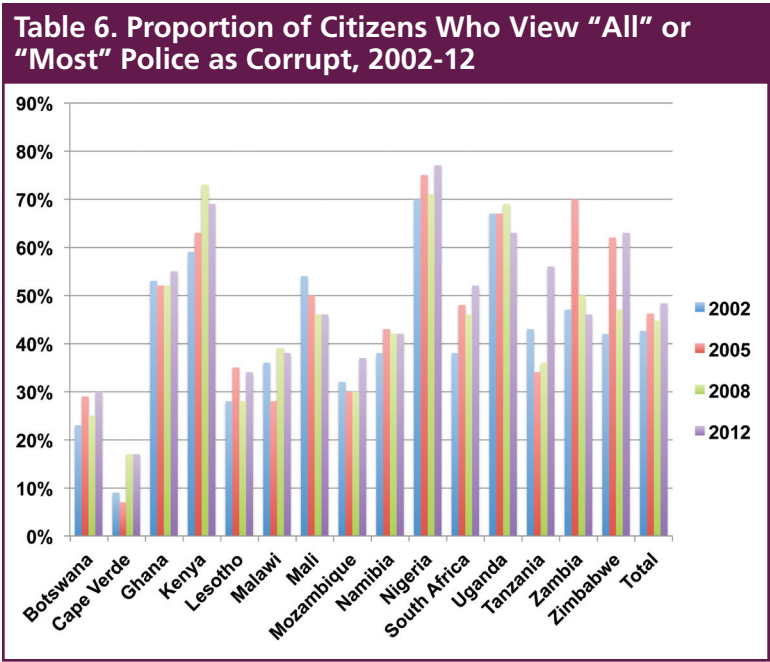
Table 5. Proportion of Respondents in Select African Countries Who Perceive Government is Handling Crime "Very" or "Fairly" Well, 2002-12



Source: Afrobarometer.

Moreover, crime rates and trends vary across Africa. In 2007, for example, surveys found 57 percent of South African households believed crime had increased in their neighborhoods over the previous 4 years, compared to 18 percent who thought it had decreased. Yet by the end of 2011, the picture was quite different. Only 37 percent of households believed crime had increased in their neighborhoods, compared to 42 percent who believed the level of crime had decreased. In other words, while widespread, complex, and deeply entrenched, crime is reducible in Africa.

Surveys in other African countries paint a similarly complex picture. While substantial numbers of Africans are fearful of crime in their own neighborhoods and perceive the police as untrustworthy, many report that their governments are handling crime "very well" or "fairly well" (see Table 5).



Source: Afrobarometer.

Police Corruption and the Breakdown of Accountability

The problem of crime in Africa, then, is tightly intertwined with relations between the police and civilians. High levels of crime are a significant challenge on the continent, particularly in Africa’s large and still growing urban centers. Yet, among the affected, the police are not only distrusted but often entirely dismissed from the crime prevention equation. High levels of corruption and low levels of accountability of many of Africa’s police forces appear to be a major cause of this gap. More often than not, there is little political commitment to police oversight or reform. Instead, the police are frequently used to preserve or advance the personal interests of senior officers, officials, or other influential persons.

As with crime, accurate statistics concerning police corruption are difficult to find.²¹ As one analyst states, “Because most incidents of corruption are never reported or recorded, official data on corruption are best regarded

as measures of a police agency's anti-corruption activity, not actual level of corruption."²³ Intradepartmental norms add to the problem. Police officers and administrators are not inclined to "snitch" on their fellow officers. Yet accurately assessing the nature and severity of police corruption is essential. Despite the lack of data, most Africans already have firm and worrying opinions about their police forces. For example, in Uganda, Kenya, Nigeria, and Zimbabwe substantial numbers report in surveys that "all" or "most" police are corrupt (see Table 6).

There are several varieties of police corruption (see Table 7). Opportunistic theft, shakedowns, and kickbacks are among the most common. Of the types of police misconduct outlined in Table 7, direct criminal activities, particularly extrajudicial killings, are the most destructive to the legitimacy of the police and the government itself. In his 2010 annual report, the United Nations Special Rapporteur on Extrajudicial, Summary, or Arbitrary Executions stated, "All too common are intentional murders in which police shoot to kill alleged criminals without resort[ing] to other appropriate measures." In some countries, the security forces are directly controlled by politicians, and "security officials may conduct politically motivated killings, including of political opposition members or supporters, and election-related killings."²⁴

This is a severe problem in several African countries. In 2011, Action Congress of Nigeria, a prominent opposition political party, called on the national government to take decisive measures to end the recurring killing of innocent civilians by police. The persistent extrajudicial killings would otherwise lead to a situation where "aggrieved persons or groups will take the laws into their own hands, thus precipitating anarchy."²⁵ This claim echoed a 2006 statement by Nigeria's first Presidential Committee on Police Reform:

Extrajudicial killings, summary executions of suspects and revenge killings are also widely reported. Due to a combination of poor training, inadequate infrastructure, and absence of respect for due process and human rights, the police often resort to torture to

Table 7. Types and Dimensions of Police Corruption	
Type	Description
Corruption of Authority	When an officer receives some form of material gain by virtue of their position as a police officer without violating the law per se (e.g., free drinks, meals, services).
Kickbacks	Receipt of goods, services or money for referring business to particular individuals or companies.
Opportunistic Theft	Stealing from arrestees (sometimes referred to as "rolling"), from traffic accident victims, crime victims, and the bodies or property of dead citizens.
Shakedowns	Acceptance of a bribe for not following through a criminal violation (i.e., not making an arrest, filing a complaint, or impounding property).
Protection of Illegal Activities	Police protection of those engaged in illegal activities (e.g. prostitution and drugs) enabling the business to continue operating.
The "Fix"	Undermining criminal investigations or proceedings, or the "loss" of traffic tickets.
Direct Criminal Activities	A police officer commits a crime against person or property for personal gain "in clear violation of both departmental and criminal norms."
Internal Payoffs	Prerogatives available to police officers (holidays, shift allocations, promotion) are bought, bartered, and sold.
"Flaking" or "Padding"	Planting of or adding to evidence.

Source: Roebuck and Barker.²²

*extract confession[s] and information from suspects. . . . Another practice that has brought the Police into disrepute is that of arresting relations of a suspect as substitutes or hostages. In addition, individuals are arrested and detained on flimsy grounds, with a view to extorting money from them.*²⁶

The practice of exacting bribes after detaining suspects creates incentives for preserving the egregiously poor conditions found in jails. The treatment of prisoners may also play a role in the lack of proper recordkeeping:

Many police stations fail to keep adequate records of their detainees and suspects, making it easier to execute them and dispose of their bodies. Victims' relatives... [reported] being denied the opportunity to bury their loved ones. Others reported having to pay significant bribes in order to retrieve the bodies for burial.²⁷

Of the several jails inspected in the course of this research, all were overcrowded and limited to several small, unlit cells with wretched sanitary conditions. At one jail near a Lagos slum, an interview of a district police chief was punctuated by the piercing wails of a young boy in a nearby cell. He was accused of stealing a mobile phone. At another jail, a female inmate who was clearly in the last weeks of her pregnancy sat on the concrete floor just outside a feces-strewn cell where three listless men lay in the dark.

These conditions appear to reflect the norm.²⁸ Of the prisoners held in Nigerian jails in 2006, as many as two-thirds had not been convicted of a crime.²⁹ According to Amnesty International, "The circumstances under which the Nigerian government locks up its inmates are appalling. Many inmates are left for years awaiting trial in filthy overcrowded cells with children and adults often held together."³⁰ With conditions like these, people caught up in police bribing schemes are more willing to pay whatever they can to avoid jail. Police corruption, then, develops a feedback loop. Left unaddressed it incentivizes further erosion of policing capacity, which in turn creates new opportunities for extortion and corruption. Besides the human toll, much harm is done to the legitimacy of the police—and to the state more generally.

To fill this gap, communities that can afford it have increasingly turned to private security firms. According to one estimate, some 1,500 to 2,000 security firms employ about 100,000 people in Nigeria. Kenya has about 2,000 such companies, some of which have expanded operations to meet demand throughout East and Central Africa.³¹ There are as many as 430,000 active private security officers in South Africa alone.³² This mishmash of private groups in Africa varies dramatically in competency and integrity and typically

lacks any standards of accountability or regulation. The results of such informal and private security efforts can often be entirely counterproductive.

The Emergence of the Mungiki

While the rich and middle class in Africa hire trained guards, the poor rely on various self-help strategies. In Kenya, this too often takes the form of vigilantism.³³ While some of these groups provide a vital community service in the absence of effective policing, vigilante groups often degenerate into protection rackets and eventually become predatory gangs in their own right. One such self-defense group that strayed into criminality in Kenya is the Mungiki. This gang, dominated by members of the Kikuyu ethnic group, reflects the precipitous slide from weak state and failed governance to rampant criminality.

The Mungiki were established in the Kenyan highlands in the late 1980s to protect kindred farmers in land disputes with neighboring Maasai herders and with security forces loyal to the Kalenjin-dominated local government. The founders claimed to have modeled the group after the Mau Mau, the Kikuyu religious and anti-imperial guerrilla movement that fought British colonial rule in the 1950s.³⁴ With accelerating urbanization and demographic pressures, the group migrated to Nairobi in the 1990s. In Nairobi, in places such as Mathare, one of Africa's largest and most violent urban slums, the Mungiki transformed into a militia, plying its trade of extortion and racketeering. What started as an effort to fill a security gap in the face of an ineffective and partisan police force became itself a criminal gang, further exacerbating violent criminality. As the Waki Commission, a government body launched to investigate violence in Kenya following the 2007-8 elections, noted:

Initially, the Mungiki were seen as substituting for a lack of public services in the slums. Later it started bullying individuals and businesses, including matatus [minibus taxi drivers] and owners of real estate, into making payments for services which it would

*provide, including connecting electricity, providing pit latrines, and meting out justice. Mungiki and other gangs across the country (e.g. Taliban, Chinkororo, Kamjeshi, Baghdad Boys and many others) grew and multiplied within the context of a political culture that both used and tolerated extra-state violence.*³⁵

In 2011, some matatu drivers staged a strike in protest of the extortion.³⁶ In Mathare, violence has repeatedly erupted in response to Mungiki “taxes” on producers of a locally brewed illicit alcohol known as chang’aa. Other communities also developed their own “protection forces,” frequently along ethnic lines. Rivalry and conflict among the various groups often degenerate into gang warfare, especially in the slums.³⁷

Faced with a violent and well-organized threat, the police often respond with equally fierce and indiscriminate methods. In June 2007, the Mungiki was accused of killing 15 police officers and 27 civilians, many of them by beheading.³⁸ In response, police claimed to have detained 2,464 “suspected” Mungiki members. However, this may have been only a small part of the police response. In November 2007, the Oscar Foundation Free Legal Aid Clinic Kenya, a human rights organization, reported that Kenyan police had killed over 8,000 people in crackdowns against the Mungiki between 2002 and 2007, and that another 4,000 people were missing.³⁹ Although the police denied these claims, the Kenya National Commission on Human Rights (KNCHR) linked the police to the execution of at least 500 Mungiki in a 5-month period alone. As a possible retaliation by the police, in March 2009 the head of the Oscar Foundation and a colleague were assassinated in broad daylight in central Nairobi as they were driving to a meeting at the offices of the KNCHR. Just hours before, a government spokesman had publicly accused the Oscar Foundation of being a “fundraising body for...the Mungiki.”⁴⁰

In addition to racketeering and extortion, the Mungiki has been involved in the struggle for control of political office. Prominent political parties and politicians have used the Mungiki as a means of mobilizing supporters

and intimidating opponents during election campaigns. During the 2002 presidential race, several legislators threatened to “unleash” the Mungiki on those opposed to their preferred presidential candidate. Several Mungiki leaders also attempted to run for key leadership positions in 2002 in a top political party, the Forum for the Restoration of Democracy-Kenya (FORD-Kenya).⁴¹ In 2011, the International Criminal Court (ICC) alleged that then Deputy Prime Minister Uhuru Kenyatta, Head of Civil Service Francis Muthaura, and President Mwai Kibaki, met with Mungiki members on November 25, 2007, to organize attacks in the Rift Valley towns of Nakuru and Naivasha during waves of postelectoral violence.⁴² Collaboration between criminal groups like the Mungiki and politicians is often short lived. Once in office, politicians will maintain ties with the groups but mostly with a view to the next campaign while the groups return to their typical criminality.

Impunity and Political Violence

With 31 African countries scoring in the bottom tier of Transparency International's 2012 corruption perception index, corruption is a serious problem on the continent. Yet attempts to shed light on corruption have often been met with police violence. Police are regularly used to intimidate African journalists, raid media offices, take radio and television stations off the air, and destroy communications equipment. In 2012, 46 African journalists were imprisoned.⁴³

In this context, political violence is merely one permutation of a larger cycle of crime, corruption, and weak-state disorder. Police incompetence, corruption, and unaccountability play central roles. Of the 1,133 fatal shootings during Kenya's 2007-8 postelection period, 405 were at the hands of the police, and many of those killed were shot in the back.⁴⁴ In some instances, the police “were so hostile that the local community could not make any reports. They would be told, ‘You are the perpetrators.’”⁴⁵ Dozens of rapes were also reportedly perpetrated by police. Eighty-two percent of the victims of rape did not file a report with the police, and in 32 percent of those cases the reason given to investigators from the Waki Commission was that

the police were themselves the attackers.⁴⁶ Not a single police officer has been convicted of any crimes from this period.

Owing to institutional reforms taken in the aftermath of the 2007-8 postelection debacle, including the passing of a new constitution and the creation of a more independent national electoral commission, the 2013 presidential election process in Kenya exhibited marked improvements in levels of political violence and allegations of police misconduct. Nonetheless, patterns of unprofessional police behavior remain. According to a *Daily Nation* newspaper investigation, Kenya's police were exploiting stiff new laws for speeding and illegal overtaking (passing) of vehicles to demand higher bribes.⁴⁷ Matatu companies and passengers were also affected by the higher costs of police bribes—commuters in Nairobi endured delayed trips on unpaved, deeply rutted roads in an effort to avoid police roadblocks on main thoroughfares where bribes were routinely solicited. More worrisome, Human Rights Watch reported in 2013 that Nairobi police exploited vulnerable communities, such as Somali refugees, in order to enrich themselves:

*Interviewees...spoke about how police entered their homes, often in the middle of the night, and businesses to steal large amounts of money and other personal belongings and to extort money from them to secure their release. And they explained how police arbitrarily detained them...sometimes for many days, in inhuman and degrading conditions while threatening to charge them, without any evidence, on terrorism or public order charges.*⁴⁸

Whether the misconduct is egregious, such as rapes, beatings, and illegal detentions, or nettlesome, such as bribes, the result is the same. The legitimacy and respect upon which effective policing relies is undermined. It weakens key state institutions responsible for providing a central public good: stability and security. Such a governance vacuum is often filled by groups such as the

Mungiki, that without systems of accountability degenerate into criminal gangs further exacerbating the situation. Ham-fisted police responses then lead to worsening conditions and more violence. A feedback loop ensues steadily amplifying the problem. Grievances against the heavy-handed tactics of the police are at times exploited by extremist groups to recruit new members and justify acts of terror against the civilian population opening a more serious threat to state security. Such has been the case in northern Nigeria and parts of Kenya.⁴⁹

If weak state institutions, straining under the burden of so many large-scale challenges, are a principal factor contributing to crime, how can ICT affect positive change?

ICT's Role in Fighting Crime in Africa

In 2012, two armed men in Johannesburg commandeered an automobile, forced its driver into the rear luggage compartment, and drove away. Kidnapping in the course of a carjacking often ends tragically for the victim. In this case, the carjacking victim avoided such an outcome with an astute use of technology. Using his mobile phone, the victim sent a text message to a companion telling her of his predicament. She then used Twitter to send a tweet to her followers who, in turn, retweeted her message to their respective followers. With each retweet the network of those aware of the situation grew exponentially. The retweet soon made its way to "Pigspotter," a popular though controversial Twitter hashtag devoted to circulating warnings about police speed traps. With 110,000 followers, including a private security company and a local volunteer fire and rescue service, the posting on Pigspotter immediately elevated awareness of the incident. Using the mobile phone signal, the car's location was soon identified. Two hours after the start of the drama, a tweet read, "Just received a call, the police have found him in Ventersburg! He is OK just shaken up thank you to everyone for all the help!!" The hijackers had driven into a roadblock set up in response to information gathered by those who responded to the original tweet.⁵⁰ This is the sort of outcome made possible by the rapid growth in mobile telephony and related technologies.

ICT's Rise and Broad Utility in Africa

Africa has seen a 20 percent increase in mobile phone subscriptions for each of the past 5 years, growing from 2 percent of the population in 2000 to 63 percent by the end of 2012. In early 2013, Africa had the second fastest mobile telephony growth rate (after China) in the world with 775 million cellular connections across the continent.⁵¹ In South Africa, Ghana, Gabon, and Kenya, there are already nearly as many mobile accounts as there are people.⁵² By 2015, Sub-Saharan Africa may have more people with mobile network access than with access to electricity at home. These individuals will increasingly be able to make video calls, watch video clips, or access the Internet on their mobile phones.⁵³ While much of the growth in mobile telephony in Africa involves simple first- and second-generation handsets, more recent growth includes Internet-enabled smartphones. By 2018, 40-50 percent of all mobiles in Africa may have access to the Internet.⁵⁴

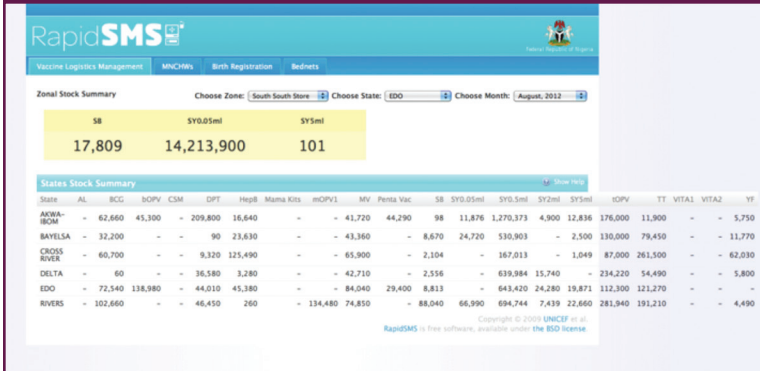
The social relevance of mobile telephony has been deepened by innovations developed by African technologists. Leading-edge innovation centers are now found in a number of African cities. Cape Town's "Silicon Cape" has a counterpart in Nairobi's "Silicon Savannah." A technology innovation center in Nairobi, iHub, is perhaps the most well-known component of Nairobi's ICT sector.⁵⁵ Another is the Safaricom Academy, a joint venture between Safaricom, a major mobile service provider, and Strathmore University (Kenya). It offers advanced degrees in telecommunications and engineering and hosts the "Incubation Center," a technical and mentoring program for ICT entrepreneurs. In Lagos, Nigeria, the Co-Creation Hub (CcHUB) is another example of an innovation space for social entrepreneurs, investors, and technologists. Nokia partnered with CcHub in 2012 to launch the Growth Academy, an incubator for mobile technology startups.⁵⁶ Internet giant Google has also set up offices in Accra, Nairobi, Lagos, Dakar, Johannesburg, and Kampala. These are just a few examples of the rapid and homegrown expansion of the ICT sector in Africa.

With growth in the mobile phone market and an expanding number of broadband services, Africa is also experiencing important growth in search

services. Google has reported 50 percent annual growth in search requests. Not surprisingly, 40 percent of the Google searches come from mobile phones. Videos viewed on YouTube, another Google service, are also doubling each year in Africa.⁵⁷ Facebook is estimated to have over 55 million African users in 2013.⁵⁸

The technological innovations sweeping across Africa are not limited to mobile phones. Another important technology is privately owned and operated remote sensing satellites. A multinational fleet of observation satellites now offer high-resolution photographs of an object on the ground as small as 32 centimeters in diameter. They also produce geographical reference data that situates features on the ground according to highly accurate navigational references. Geographical information systems (GIS)—digital maps—are possible as a result of the explosion in high-resolution satellite imagery data. Satellites and GIS create a platform for managing and visualizing input from people with mobile phones. FrontlineSMS is open-source software used to collect and distribute information on standard mobile phones using text messages, facilitating input from hundreds, even thousands of users via SMS (short message service) text messages. Although it does not require an Internet connection, if Internet access is available, FrontlineSMS can be connected to online SMS services and set up to feed incoming messages to other web or email services.

FrontlineSMS has been used in a variety of circumstances, all characterized by a lack of public services and an otherwise isolated or scattered population. For instance, in the absence of a state agricultural extension service, a variety of nongovernmental organizations (NGOs) have established information services for African farmers. The Grameen Foundation's Community Knowledge Workers offers one example. Farmers are provided with information about crops, international market prices, and other services via mobile phones and FrontlineSMS.⁵⁹ M-Farm in Kenya offers a similar service by providing real-time market prices for various crops and by linking farmers directly to buyers.

Figure 2. RapidSMS and Medical Stocks Inventory

Source: UNICEF, available at <<http://rapidsmsnigeria.org/vlm/ss>>.

A similar technology, RapidSMS, was developed as a communication tool by the United Nations Children's Fund (UNICEF) as a way to contact its teams in the field via SMS. Since then it has expanded to a wide array of uses. It can, for example, record and store audio voice messages that can be redistributed by community radio stations. This is a powerful feature for illiterate users.

In Nigeria, RapidSMS was used to manage the distribution of almost 70 million insecticide-treated nets to combat malaria.⁶⁰ UNICEF's Innovations Unit, in collaboration with tech-for-change developer Dimagi, developed an application called Rapid Android.⁶¹ Android is an open-source operating system for mobile phones. Rapid Android is a version of RapidSMS that turns a phone into a device for collecting and analyzing information to assist humanitarian aid workers in their efforts to distribute aid more efficiently. Members of the local population can be trained to use inexpensive and user-friendly mobile phones to transmit their community's health, food supply, and bed net usage statistics to authorities via text message. Aid workers can aggregate and process the data wherever there is a wireless connection. Essentially, it has been used as an inexpensive but highly effective supply-chain management device. Figure 2 shows a RapidSMS "dashboard" used to keep track of medical data in Edo State, Nigeria. Using mobile devices for data

input, the dashboard presents a real-time update of what medical stocks are where. Whether it is bed nets or vaccines, the same distributed network logic can be applied to manage other challenges.

In the absence of mobile telephony and RapidSMS (or FrontlineSMS) the only alternative means of achieving the same level of situational awareness and information management would be an elaborate and extraordinarily expensive bureaucracy of hundreds of field workers and supervisory and administrative staff with transportation and logistical support. Of course, it is exactly this sort of administrative capacity that is missing in Africa. Rather than elaborate, expensive, and difficult to sustain bureaucracies, UNICEF's work in Nigeria relies on "crowdsourcing." Villagers armed with user-friendly mobile devices accomplish what a bureaucracy would be strained to accomplish.

Crowdsourcing refers to the mobilization of the general public—the crowd—to perform what are usually small, incremental tasks that, taken together, accomplish significant goals. Today, one finds examples of crowdsourcing wherever there is an electronically enabled network available to connect people to tasks. For example, the U.S. National Archives invites the public to assist with archived photograph and document tagging. One example was a project to tag photographs of the 1963 civil rights march in Washington, DC. Accuracy is achieved in the cross-checking and review freely provided by members of the public. Another more elaborate example of crowdsourcing is Foldit, an online puzzle video game about protein folding that invites anyone to "play." In 2011, participants produced an accurate three-dimensional model of an AIDS-related enzyme in 10 days, something scientists had been trying to do for over a decade.⁶²

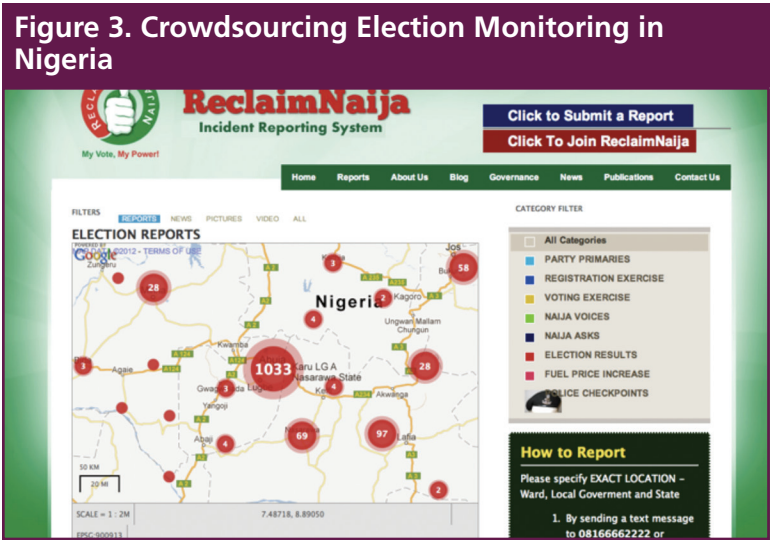
Another example of crowdsourcing is the Vancouver, British Columbia, Police Department's response to widespread hockey riots in 2011. Dozens of people were injured in wanton violence that erupted after the Vancouver hockey team lost the championship series. A website maintained by the police asked people to identify photographs of those involved in the rioting and to contribute pictures or video taken during the riot to identify

participants and perpetrators. As of December 2012 the Integrated Riot Investigation Team had recommended 1,040 criminal charges against 315 suspected rioters.⁶³

Crowdsourcing taps into the latent capabilities of those in the general public with an interest in a particular issue or undertaking, such as crime prevention and police accountability. The power of crowdsourced data collection is paired with the data management and visualization power of GIS to permit “crisis mapping” or “crime mapping.” In actuality, it can be used to map whatever a “crowd” wants to acknowledge. Open-source GIS mapping is merely a way to store and visualize crowdsourced inputs concerning a particular issue. Ushahidi is the most commonly used and noteworthy example of an open-source GIS mapping platform.

Ushahidi, which means “witness” or “testimony” in Swahili, is an open-source software platform founded by Kenyan technologists following the 2007 general election to record and map episodes of electoral violence using mobile phones, GIS, and geographical positioning satellites (GPS). GPS is a satellite navigation system that provides location and time information. Built into most mobile phones, GPS enables one to know precisely where one is at any given moment. Ushahidi allows activists to leverage mobile telephony to crowdsource reports of occurrences of important conditions or events. It has been used in a wide variety of circumstances, from monitoring wildfires in Russia to tracking humanitarian needs in Haiti after the earthquake in 2010. In 2008, Ushahidi was also used to track anti-immigrant violence in South Africa as well as violence in the Democratic Republic of the Congo.⁶⁴

Another illustration is ReclaimNaija, which relied on crowdsourcing and Ushahidi to monitor Nigeria's 2011 elections (see Figure 3). People called or texted reports of various types of events or activities relevant to the Nigerian elections. Each red dot in Figure 3 is an aggregation of reported events or incidents associated with the election. In an active, Internet-based, digital map one can click on a dot and zoom in to a new map specific to that smaller geographical location. One can also look at crowdsourced reports, news, pictures, and video relevant to that location. Questions such as “What

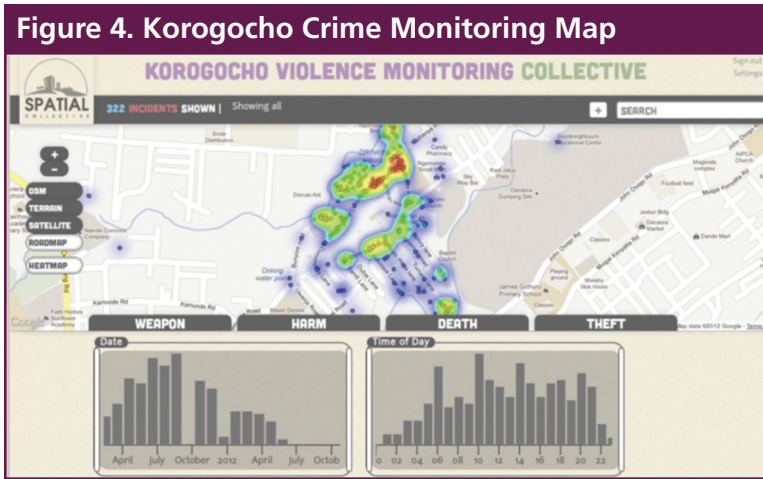


Source: ReclaimNaija, available at <<http://reclaimnaija.net/>>.

happened?”, “When and where did it happen?”, and, on occasion, “Who did it?” can also be addressed at little to no cost.

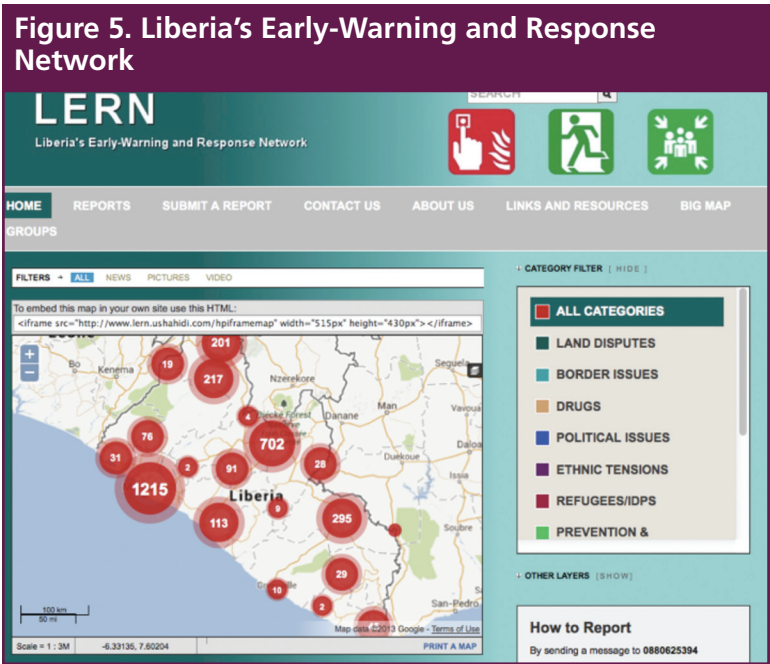
GIS and distributed-reporting mechanisms, usually mobile phones, are also used to report, visualize, and analyze crime occurrences and geographical patterns. Today, one finds a wide variety of crime-mapping platforms in North America and Europe. Such technology-enabled policing is also emerging in Africa. In South Africa, the Crime and Justice Program of the Institute for Security Studies monitors crime as part of its effort to improve public safety and the performance of police agencies. A part of this effort involves Crime Map Viewer, a public GIS platform that allows citizens to see crime statistics for each police precinct in South Africa as recorded by the South African Police Service. Crime Map Viewer relies on police crime data. Of course, as noted earlier, the shortcoming of this technology-enabled effort is that reliable official crime data are often hard to come by in Africa. Crowdsourcing crime data collection, therefore, is an obvious alternative method.

Beginning in 2011, the World Bank supported a crime-mapping program in Nairobi’s Korogocho informal settlement to monitor conflict, crime, and



Source: Spatial Collective, available at <<http://www.spatialcollective.com/>>.

violence. The project was initiated by the African Institute for Health and Development and implemented by Spatial Collective, a social enterprise that develops technological solutions in support of collective action. The project involved an elected local assembly that met on a regular basis to discuss the community's problems and identify the causes of conflict, crime, and violence. As part of this, the program supported community members in the collection of data on incidents of violence that occurred in select villages. Robberies, murders, thefts, rapes, stabbings, gang violence, and similar incidents were documented in detail, though with safeguards to preserve the anonymity of those who reported crime. A map of Korogocho was created identifying all major amenities (schools, hospitals, police, pilot project sites, etc.) and detailing geographic locations of the incidents related to conflict, crime, and violence. In 1 year, the local team recorded 322 incidents with clearly visible clusters of crime in some areas of the settlement. To ensure sustainability of the program, Spatial Collective created a customized monitoring platform that enabled almost real-time data entry and analytics, such as type of crime, and a timeline to display the pattern of crime by time of day, by day of week, or throughout a month (see Figure 4).⁶⁵



Source: LERN, available at <<http://www.lern.ushahidi.com/>>.

Liberia’s Early Warning and Response Network (LERN) offers another illustration of an ICT-enabled crime-monitoring platform. The Early Warning and Early Response Working Group is a consortium of 18 civil society organizations, government agencies, UN agencies, and NGOs. Over 2 years beginning on January 1, 2010, 2,335 reports were recorded on the LERN platform, including assault, homicide, gender-based violence, and corruption (see Figure 5).

ICT-enabled solutions are not foolproof, however. Hatari, an Ushahidi initiative in Kenya, met with limited success, owing almost entirely to a lack of public engagement with the service. Hatari (“danger” in Swahili) allowed anyone in Nairobi to submit reports about crime and corruption in the city (see Figure 6). It is worth underscoring that police accountability was built into Hatari’s crime-mapping deployment. Information from contributors was presented via text reports (text messages, emails, website visits, and tweets),



Source: Hatari, available at <<http://www.hatari.co.ke>>.

pictures, and video. Hatari should have been a successful initiative. Yet, there were very few episodes of crime reported on Hatari during its active operation between September 2009 and November 2012.

What explains the failure? Crowdsourcing is only successful when there is an organized and effective mobilization effort, as was the case in the ReclaimNaija deployment in Nigeria. Otherwise, the crowd remains dormant. The effectiveness of open-source GIS crowdsourced platforms is not solely a supply-driven phenomenon. One cannot assume that the public will engage the platform even if the subject is a priority. Rather, community outreach is as important as the technology being introduced.

Indeed, in an analysis of over 15,000 Ushahidi Crowdfmap deployments, only about 500 realized sustained public engagement.⁶⁶ There are two general categories of Ushahidi deployments: those in response to natural disasters and those in response to civil and political developments. In the case of natural disasters, the public is readily mobilized—which is to say they are already motivated to use a related Ushahidi platform deployment to call, text, or tweet reports, pictures, and video—by the enormity of a sudden calamity and the focus given it by local and global media. In the case of the second

sort of deployment, those centered on civil and political developments, the success of a mobilization is more dependent on community mobilization by civil society groups.

In the ReclaimNaija deployment, months of preparatory work for a single predictable event—an election—made all the difference. A civil society organization called Community Life Project (CLP) organized and mobilized a broad array of Nigerian stakeholders, including youths, neighborhoods, and professional associations to spread the word of ReclaimNaija's Ushahidi deployment and how it worked. The ReclaimNaija website describes the coalition of civil society organizations this way:

*The platform brings together a vast network of grassroots organizations across the country comprising mostly informal sector workers and trade-based-groups [sic] such as associations of mechanics, carpenters, vulcanisers, welders, okada [motorcycle taxi] riders and owners, market women and men, electricians, tailors, hairdressers, community development associations, activists, patriotic professionals, civil society and faith-based organisations.*⁶⁷

A key partner of CLP was the Federation of Muslim Women's Associations in Nigeria (FOMWAN). FOMWAN was established in 1985 and, at the time of the 2011 election, was present in 34 of Nigeria's 36 states with 500 affiliate groups.⁶⁸ This broad, multisector coalition was essential to the success of ReclaimNaija. Through FOMWAN, CLP opened up participation to thousands of Nigerians. They did so in novel ways, including using stickers on ubiquitous delivery and transportation motorcycles and colorful wristbands that provided the telephone number to SMS reports of election fraud.

In contrast to ReclaimNaija, the Hatari example demonstrates how a crowdsourcing deployment is unlikely to reach critical mass without some real-world community mobilization. With a launch by Ushahidi staff from

iHub in Nairobi, Hatari's technical feasibility was all but assured. But no community meetings were held. No one engaged any civil society groups to adopt and promote the platform. Technology is only one part of the answer. A civil society engagement strategy to mobilize the public is the other essential ingredient.

The combination of information technology and engaged civil society, however, can be a powerful mechanism for reducing corruption. Bribing for basic government services, a mark of weak governance, is endemic in many parts of the world. "The going rate to get a child who has already passed the entrance requirements into high school in Nairobi, Kenya? 20,000 shillings. The expense of obtaining a driver's license after having passed the test in Karachi, Pakistan? 3,000 rupees."⁶⁹ Crowdsourced monitoring systems such as www.ipaidabribe.com, operated by a nonprofit organization called Janaagraha in India, allow citizens to submit anonymous reports of petty bribes.⁷⁰ In Lagos, StoptheBribes! (StB) is an Ushahidi platform launched by the CLEEN Foundation (previously the Center for Law Enforcement Education in Nigeria) that crowdsources bribe solicitation by the police in Lagos. Motorists in Lagos are always at risk of being stopped by a police shakedown that is as unsettling as it is frequent. A group of police officers will surround the vehicle, then direct the driver to a local spot shielded from public view. From there threats are followed by offers to remedy the situation with payment of a certain sum. StB is intended to monitor the occurrence of these incidents and, eventually, through naming and shaming the officers involved, put a stop to them. Citizens are asked to submit SMS's outlining the occurrence of a bribing encounter, providing the time, place, amount of the bribe, and the name(s) and badge number(s) of offending officer(s).⁷¹

Whether it is via mobile phone, a broadband connection, or a GPS coordinate on a GIS map, Africa's growing information sharing is empowering communities in new ways. In short, *ICTs change the nature of community mobilization*, though they are not a substitute.

Viability of ICT-Enabled Collective Action to Counter Crime in Africa

Although crime results from several factors, weak and dysfunctional state institutions play a central role. Professional police forces that do their job well are the best deterrent to crime. But when the police are seen as corrupt and ineffectual (or when they are themselves criminals) the public feels insecure while criminals feel unencumbered. Vulnerable populations then resort to desperate measures, including handing over a central element of governance—the provision of community security—to vigilante groups that can become predatory and criminal.

The long-term solution to weak and ineffectual state institutions is found in building strong, capable, and accountable institutions. Ultimately, the best source of security is a government that is accountable to the public it serves and is transparent in its conduct. Civilian protection by a responsible, accountable, and politically neutral security force should be the end goal of law enforcement capacity building. However, for much of Africa such developments are long-term processes—while crime remains an immediate and severe threat.

Technologically enabled collective action offers a viable near-term complement to traditional crime fighting efforts. ICT makes it easier for community groups and NGOs to organize responses to crime and even to highlight and thereby decrease instances of police incompetence and corruption. Higher levels of transparency and accountability can be achieved by mobile phones linked together in common cause by FrontlineSMS or RapidSMS, with much the same effect as a vast array of closed-circuit television cameras. Ushahidi or other data management platforms help visualize and organize data to optimize planning and the application of limited resources. In short, ICT can empower citizens to organize for community protection quickly and at low cost. Nigerians wanted a clean and fair election in 2011. Through the convergence of mobile phones, Ushahidi, and a strong show of support from civil society organizations, ReclaimNaija contributed to the realization of that community intention as well as to a

significant improvement in electoral credibility in Nigeria.

Still, ICT and its many applications are insufficient to effect positive political and social change on their own. Technology has no intent, no inherent purpose, and no moral bearing. It is a tool. Like a hammer, it can be used to build or destroy. At times, ICT-enabled collective action can lead to even greater violence, not less. While true in certain instances, this argument misses the key point: ICT can be put to any purpose subject to the intent of the users. For ICT to have a positive impact, civil society groups that link the motivation for societal reform to technology are indispensable. This is how civil society groups such as CLP, which spearheaded the ReclaimNiaja deployment, have been able to harness the power afforded by increasingly accessible ICT. Active civil society participation is essential to the realization of the potential found in ICT-enabled initiatives, particularly for the continual and widespread nature of efforts like community crime fighting.

ICT-enabled collective action serves to steer government institutions on a path to greater efficiency and accountability. In some cases it is through naming and shaming, as when a website publicly documents police soliciting bribes. In other instances ICTs offer a means of measuring the severity of a condition, whether it is crime in a Nairobi slum or the number of homes destroyed in a police operation in northern Nigeria. ICTs can also form the basis of enhanced community-police engagement and raise the capacity and effectiveness of Africa's police forces in an accountable and transparent manner. It is, hopefully, regulation by revelation. By revealing inadequacies or measuring the severity of a problem, the police, communities, and government officials are given an opportunity to address a more clearly identified problem.

Recommendations

The rapid absorption and adaptation of new information and communications technology across Africa creates numerous opportunities to address widespread insecurity and crime, particularly in Africa's urban slums. Advances in imaging and data management can improve police effectiveness

and optimize the application of scarce state resources, while ubiquitous mobile telephony and other ICTs can lay the groundwork for collective action and police-community engagement in previously inconceivable ways. Together, these types of initiatives can chip away at high crime rates, which have become a significant and entrenched security challenge as well as an inhibitor of development.

ICTs also provide the tools to confront deeper institutional challenges. Public security is broadly regarded as the chief responsibility of government. Police forces that fail to provide citizens with protection from crime constitute a major failing of the government, which in turn undermines its credibility and legitimacy. This is especially true when the police are themselves the source of crime and insecurity, which is too often the case in Africa. Correcting weak and unaccountable state institutions, particularly the police, then, can mitigate this deeper crisis of legitimacy and latent instability. The locus of improvements in transparency, however, must not rely only on institutional reforms and the good intentions of those in positions of power within those institutions. ICTs and crowdsourcing allow for the strengthening of *external*, nongovernmental sources of oversight to complement and spur internal reforms. They are new tools with the potential to improve transparency and performance in Africa's police forces.

In short, the growing ubiquity of ICTs in Africa creates new opportunities to advance:

- ◆ Collective action to improve community security
- ◆ Police effectiveness
- ◆ Community-police engagement
- ◆ Police accountability.

Three particular types of ICTs underpin these potential advancements: high-fidelity imaging, data processing and management, and communication, whether by telephone, SMS, or Internet-enabled smartphones. Yet, as we have seen, well-intentioned, technology-savvy interventions are insufficient

without the most important element of community initiatives: the local community. The success of ICT-based initiatives is contingent upon the strength, size, and competency of the networks and groups that launch and sustain them. Moreover, new technologies are prone to abuse as well, both by criminals and the state or police. Hence, raising police accountability and ensuring appropriate protections and restrictions are vital to maximizing and sustaining the potential benefits of ICT-enabled collective action.

Collective Action to Improve Community Security

ICTs provide African communities versatile tools to quickly and cheaply improve their individual and collective security. The ubiquity of the mobile phone in Africa allows communities to establish methods for transmitting information about crime in real time so that community members can avoid crime hotspots or inform local leaders about percolating disputes to prevent further escalation. Freely available mapping software and applications can allow communities to perform some rudimentary tracking of criminal activity in their areas by computer and smartphone, thereby enhancing understanding of the causes and contributors to local crime. In conjunction with communication by mobile phones, communities could then organize safe routes and designate times for collective travel to key nodes of activity, such as markets, transportation hubs, or sanitation facilities.⁷²

These are immediate steps that communities can pursue to mitigate crime with limited outside intervention, but their success will depend upon the degree to which community members are organized. Even rudimentary initiatives require some modicum of organization since the input and output of many individuals is essential to their performance. What made ReclaimNaija such a success in Nigeria was not the Ushahidi platform or mobile telephony, though these technologies were vital to the initiative. The key element to its achievement was the vast reach of the local sponsoring organization and its network of community organizers who got the word out, far and wide, to remote communities that something as esoteric as a GIS open-source mapping platform could be used to prevent corrupt polling practices.

For this reason, international NGOs, international organizations, and funding agencies interested in strengthening ICT-based crime-mitigating capacity should facilitate rather than instigate such initiatives and let locally based community organizers lead the operation on the ground. The most appropriate role for international partners is to provide material assistance and perhaps technical assistance, though even the latter can be problematic. Technologists from the global north are often familiar with technical solutions that are complex, costly, and assume access to the latest broadband information systems. Africa is rapidly catching up with the rest of the world, but low bandwidth solutions found in handheld devices are still the most appropriate for initiatives in the region. Technology initiatives in Africa usually have to be homegrown and connected to local networks of citizens to succeed. Fortunately, iHub in Kenya, CcHub in Nigeria, and other African innovation centers are available, as are Ushahidi team members, FrontlineSMS and RapidSMS developers, and a variety of other African ICT innovators.

In short, African problems are being addressed in ingenious ways by African technologists. International partners should focus on more funding, better equipment, and some training. The U.S. Department of State's Bureau of Educational and Cultural Affairs' "TechWomen" initiative, for example, brings emerging women leaders in science, technology, engineering, and mathematics from the Middle East and Africa to the United States for a professional mentorship program. With the expanded program, women working in the technology sector in Cameroon, Kenya, Nigeria, Rwanda, Sierra Leone, South Africa, and Zimbabwe will have the opportunity to visit the United States for a 4-6 week mentoring program with American counterparts.⁷³

Furthermore, the internationally based information sector can practice "data philanthropy." Information is the fuel that feeds ICT initiatives. For example, companies or state agencies specializing in imaging could provide georectified satellite imagery and data, which serve as the maps for crowdsourced event mapping such as the Korogocho crime map described previously.

Police Effectiveness

Information and communications technologies can serve as dramatic force multipliers for Africa's often overwhelmed and cash-strapped police forces. With high-fidelity imaging, police can familiarize themselves with large expanses of places, even the often confusing layout of densely populated slums. Supplemented with simple data management software, police can begin to build vital crime maps so as to better concentrate their limited resources and personnel. Expanding access to mobile phones also means that police can stay in contact with individuals more frequently, easily, and cheaply, thereby enhancing reporting and communication. Even simple ICTs provide surveillance, intelligence, and communication capabilities that broaden the range of police capabilities.

In Uganda, for instance, a researcher affiliated with Duke University partnered with Associazione Volontari per il Servizio Internazionale (The Association of Volunteers in International Service) to study displaced persons as they returned to the Gulu district in northern Uganda. Donated GeoEye satellite imagery was used to create a representative sampling of Ugandan people displaced by the 20-year conflict between the Ugandan Government and the Lord's Resistance Army. The project is mapping the transition process as displaced citizens return to northern Uganda, which has greatly enhanced the stabilization effort, the targeting of interventions and reconstruction, and the streamlining of logistical needs and challenges.⁷⁴ Similar uses of imaging technology and other forms of data management and communications technology can amplify police effectiveness in comparable ways.

The Nigerian police have piloted several programs to enhance surveillance and response using ICTs in major urban areas. In 2011, solar-powered cameras were set up in crime hotspots in four major cities, including Lagos, to provide constant surveillance. Several new police vehicles were also outfitted with locator technology that would allow for rapid and focused police deployment in the event that criminal activity was detected using the camera feeds.⁷⁵ This program was further extended and now includes Abuja, the capital.

The challenge with such applications of ICTs is that greater police accountability is needed to prevent these tools from becoming the source of more efficient extortion or brutality by the police. The adoption of ICTs, then, must be accompanied by strict regulations that require the police to be transparent with the information they collect—for instance, by allowing Nigerian civil society organizations access to the locator logs in new police vehicles and/or to records from camera feeds. Data and reports should be shared publicly and frequently. Penalties and punishment for abuses must be clear and have an adequately deterrent effect. Fortunately, ICTs can empower new forms of community-police engagement and oversight by independent civil society groups to better ensure that they are used to improve police performance rather than to reinforce misbehavior.

Community-Police Engagement

ICT tools provide simple but persistent linkages between African communities and police, potentially in ways that can overcome the lack of trust between these groups. With mobile phones, Africans can more quickly and easily report incidents to the police and provide intelligence on criminal activities. Police, meanwhile, can maintain active links with under-policed areas despite their common personnel shortages. Oftentimes, these linkages can be established anonymously, greatly enabling civilians' abilities to report tips without fear of subsequently being targeted, whether by criminals or wayward police. Ushahidi, for example, ensures confidential reporting and data sharing. Likewise, police can also begin to foster better relations and build trust with reticent or aloof communities by making themselves remotely accessible via ICT. In other words, if heightened police presence makes certain communities uncomfortable, the police can still be quickly reached through ICT. Essentially ICT reinforces community policing principles and offers dramatic benefits from economies of scale.

Such community-police engagement can become more sophisticated over time. It may begin by improving reporting and communication but eventually can include police collecting data on crime through crowdsourcing

in affected communities so that effective countermeasures can be taken to contain and prevent recurring crime patterns. In such scenarios, communities can submit reports of crimes via mobile phones to small teams of police who then can catalogue, crosscheck, and follow up as necessary. This, in fact, was the model used in the lead up to Kenya's successful 2010 constitutional referendum, which passed with minimal disruptions less than 3 years after the widespread violence of the 2007 national elections that led to more than 1,000 deaths. In 2010, Kenyans were able to file reports of hate speech, threats, or violence by SMS to an initiative called Uwiano ("connection" or "cohesion" in Swahili) jointly run by the Ministry of State for Provincial Administration and Internal Security and an NGO called PeaceNet. Analysts in the Uwiano office then triaged the SMS reports based on risk of violence. Tier-one reports were referred to teams of police or other authorities for immediate follow up. Based on information transmitted through Uwiano, police were able to intervene and prevent several attacks, even in areas that had seen high levels of violence in 2007-8, thereby potentially preventing further escalation in the tense electoral atmosphere.⁷⁶ Uwiano was later expanded to be used to detect and prevent violence beyond the electoral calendar, and in 2012, Uwiano completed the launch of coordination centers in 40 counties across Kenya. Other crowdsourcing initiatives using Twitter, email, or online submissions have also been used to similar effect in Kenya.

A lack of crime data is another major barrier to fighting crime more systematically. Therefore, community-based crowdsourcing data-collection exercises in select municipalities could go a long way toward filling the yawning gaps in data about crime in Africa. Such experimental approaches can help guide local police forces in identifying the most relevant factors contributing to crime, and thereby expand and professionalize policing operations. For example, crime-mapping initiatives, such as Liberia's Early Warning and Response Network, can lead to stronger partnerships between local police departments and communities.

Police Accountability

A major contributor to crime in Africa is the dire state of accountability in Africa's police forces. Sadly, the status quo of meager data on crime, minimal community-police interaction, and the ability to commit crimes with limited likelihood of being caught or confronted with adequate evidence for prosecution suits the interests of too many (though certainly not all) police officers in Africa. ICTs have the potential to upend this common scenario.

Mobile telephony, data management software and applications, and widely available imaging technology permit new methods of capturing, aggregating, and disseminating evidence of police abuses, from petty bribery to human rights violations and systematic coverups and corruption. Several examples of such applications of ICT are already underway in Africa. A major satellite imaging firm, DigitalGlobe, provided the Satellite Sentinel Project, which produces reports on the conflict in the border regions between Sudan and South Sudan, with in-kind contributions of more than 300,000 km² of priority-tasked satellite imagery. The DigitalGlobe Analysis Center provided training, analytic support, and imagery analysis to the effort.⁷⁷ This allowed Satellite Sentinel to expose the role of the government of Sudan in the upheaval and destruction caused among rural populations in South Sudan. Similarly, Human Rights Watch used remote sensing satellite imagery to reveal the destruction of homes from a Nigerian military raid on the northern Nigerian town of Baga in April 2013. The satellite imagery undermined the military's claim that "only 30 houses were destroyed" in the operation against the Boko Haram militants. "Community leaders said that immediately after the attack they counted 2,000 burned homes and 183 bodies. Satellite images of the town analyzed by Human Rights Watch corroborate[d] these accounts and identif[ied] 2,275 destroyed buildings, the vast majority likely residences, with another 125 severely damaged."⁷⁸ Other examples are less egregious, but still impactful. In August 2013, Lagos State Police Command dismissed an officer who was caught on film soliciting a bribe from a driver and threatening him with arrest for nonpayment. After announcing the dismissal, the Lagos State Police Command spokesperson said members of the public should

make a habit of reporting such cases, particularly with such clear and detailed evidence.⁷⁹ Meanwhile, the short video clip of the incident has been viewed over 123,000 times on YouTube.

There are multiple initiatives to identify and shame police corruption in Nigeria. The Stopthebribes! crowdsourcing initiative discussed above is one example, as is another initiative in Nigeria called Nigeria Police Watch,⁸⁰ which is a multimedia online platform that aggregates news and reports about policing in Nigeria and generates original reporting based on incidents reported by users. Another example is www.BribeNigeria.com, an ICT-based civil society organization leveraging technology to create greater accountability through transparency.⁸¹

Ineffective responses to crime in Africa sow public fear and distrust, undermine economic development, and bleed state institutions of their legitimacy. This, in turn, fosters a culture of impunity. This study has reviewed a possible way out of this cycle. While ICTs are not a panacea, if used properly and with sufficient community engagement, information technologies can harness greater efficiencies. Rather than building large, bureaucratic institutional structures, ICTs empower communities to watch out for themselves. It also gives communities potent tools to monitor police behavior—and when needed bring misconduct to public attention. In this way, ICTs can incentivize proper police conduct. By so doing, they can facilitate the institutionalization of professional police norms. For, while community-based initiatives are valuable in the short term, accountable, professional police departments are the best way to address crime sustainably over time. While not sufficient on their own, ICTs are an important element of the security-enhancing equation at all stages of the process.

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