EL SALVADOR

2014 Statistics

- **Life expectancy: 74.2 years**
- **Population: 6.1 million (July 2014 est.)**
- **GDP per capita: US$7,500 (2013 est.)**
- **Mobile penetration: 148.3% (est.)**

Sources: CIA World Factbook (https://www.cia.gov/library/publications/the-world- factbook); Internet and mobile penetration from the International Telecommunications Union.

Seguridad Inalámbrica (Wireless Security) – Strengthening Crime Mapping through Telecommunications Technology in El Salvador

Seguridad Inalámbrica uses mobile and web-based applications to enable law enforcement and municipal government personnel to increase public safety. The system allows participants in several municipalities to collect, map and analyze real-time crime data. The success of the project supports its potential to be implemented in other cities in El Salvador and in other countries in the region.

Challenge

- Murders in El Salvador spiked again to a new high in May 2014.[1]
- In 2013, homicide statistics show that El Salvador had 2,492 murders with the per capita murder rate at 43.3 homicides per 100,000 inhabitants. San Salvador, the capital of El Salvador was rated the 27th most violent city in the world with 44 homicides per 100,000 inhabitants.[2]
- National and municipal police in El Salvador are struggling to make the most effective use of the resources they have to prevent and reduce violence.
- Current best-practice policing models reflect problem-oriented, community-oriented, intelligence-led, and security and counter-terrorism policing approaches.[3,4]
- These models focus on proactive policing and cross-agency communication, with increased use of crime data to drive social policy.[5]
- The adoption of data-driven practices emphasizes the need for high-quality data to be readily available for analytic and operational use. Lacking such data, municipalities are hampered in modernizing their policing policies.

Solution

- Law enforcement officers were issued Qualcomm-enabled Android™ smartphones with an easy-to-use software application for reporting crimes. Officers used the smartphone application, built-in camera, Global Positioning System (GPS) capability and other features to create detailed reports on incidents of crime. Once a report was complete, the officer could immediately send it from the 3G smartphone to an Internet crime database.
- Authorized officers at each municipality monitored incoming reports via an easy-to-use, secure website; they classified and verified the data as it came in, and could add reports to the system through a web-based form. The website enabled officers to quickly and easily monitor and analyze the geographic distribution of incidents over time or export the data to other systems.
- Once the information was transmitted into the database, officials from a municipal violence prevention observatory in each municipality could access the data in real-time for analysis. The system displayed incidents on detailed maps, and also interfaced with dedicated geographic information systems to assist in identifying high-risk locations and tracking changes in crime patterns over time. This allowed for analysis of program effectiveness as law enforcement agencies' crime and violence prevention measures were introduced.
- The handset and website applications were designed with a simple user interface to minimize training requirements. RTI International (RTI), used a "Training-of Trainers" model so that instruction and technical support in participating municipalities could be provided locally. This promoted local ownership of the system, strengthened the technical and leadership skills of law enforcement personnel, and enhanced inter-municipal cooperation and support.
- In addition to planning the expanded use of the system to additional municipalities, project stakeholders worked together to increase integration between national and municipal crime reporting systems to improve efficiency and the quality of data available to municipal crime observatories for analysis and reporting.

EL SALVADOR

Technology

- Smartphones using Qualcomm® Snapdragon™ processors, a product of Qualcomm Technologies, Inc.
- Tigo's 3G HSDPA network
- A client application that runs on Android
- Free and open source software to reduce system costs

Impact

- The Corps of Metropolitan Agents (CAM), the National Civilian Police (PNC), and observatories in six municipalities have access to mobile and web-based crime mapping and reporting databases.
- More than 11,000 total reports have been submitted using the system. Of the reports submitted, 97 percent have been reviewed and approved by website monitors in each municipality.
- 588 law enforcement agents have been trained in the use of the Seguridad Inalámbrica crime reporting and mapping system.
- Incident information reported by law enforcement agents is available immediately to the municipal observatories on an interactive platform. Prior to the project implementation, data were sent on a monthly basis to the observatories by either the PNC or CAM.
- In 2014, an evaluation of the system showed that municipalities were using the data to adjust deployment of law enforcement resources and improve crime prevention programs. For example, San Salvador increased combined municipal and national police patrols in hot spots based on locations and times identified by the data.
- The Seguridad Inalámbrica system was developed with free and open source software making it an attainable solution for crime reporting and mapping. Affordable costs encourage local sustainability and scalability.

Project Stakeholders

- The National Civilian Police, the Corps of Metropolitan Agents, and the municipal crime and violence prevention observatories of several municipalities participated in testing, training and rolling out the system.
- The Planning Office for the San Salvador Metropolitan Area (OPAMSS)/Council of San Salvador's Metropolitan Area Mayors (COAMSS), coordinated the institutional relationships and information sharing among stakeholders.
- Qualcomm Wireless Reach was the primary project funder and provided project management and oversight.
- RTI International supported system design and development, training, implementation, management, and monitoring and evaluation.
- Tigo provided smartphones and 3G data services for a one-year period, along with technical assistance.
- The United States Agency for International Development (USAID) Community-Based Crime and Violence Prevention Project (CVPP) strengthened crime prevention efforts, supported municipal violence prevention observatories, and provided logistical support and coordination.

[1] Reuters, (2014) "Murders in El Salvador spike to record high for May" http://www.reuters.com/article/2014/05/27/us-elsavlador-violence-idUSBREA4Q00120140527
[2] United States Department of State, Overseas Security Advisory Council (OSAC), Bureau of Diplomatic Security, 3 June 2014. "El Salvador 2014 Crime and Safety Report"
[3] CSIS. (2012). "Police reform in Latin America: Implications for U.S. Policy" Center for Strategic and International Studies, Washington, DC.
[4] Oliver, W.M. (2006). "The Fourth Era of policing: Homeland security" International Review of Law, Computers, & Technology, 20(1&2), pp. 49–62.
[5] Klofas, J., Hipple, N.K., McGarrell, E. (2010). "The New Criminal Justice: American communities and the changing world of crime control." Routledge: New York, NY.

Qualcomm® Wireless Reach™
Qualcomm believes access to advanced wireless technologies can improve people's lives. Qualcomm Wireless Reach is a strategic initiative that brings wireless technology to underserved communities globally. Wireless Reach invests in projects that foster entrepreneurship, aid in public safety, enhance the delivery of health care, enrich teaching and learning and improve environmental sustainability. For more information, please visit www.qualcomm.com/wirelessreach.

INDIA

2018 Statistics*

Population (2017 est.)	1.28 billion
Life Expectancy	68.8 years
GDP Per Capita (est.)	US$7,200
Mobile Penetration	86.14%

Fisher Friend

Helping to Save Lives and Improve Incomes of Fishermen

Generations of fishermen in India's coastal regions have practiced and perfected their craft for years. However, with changing environmental conditions after the 2004 Indian Ocean tsunami and its devastating impact, a new generation of fishermen are using wireless technology to earn their livelihoods in a safer and more profitable manner. The Fisher Friend mobile application provides critical information about weather and ocean conditions up to 100 kilometers (about 62 miles) from shore, including disaster alerts, Potential Fishing Zones (PFZ) and current market prices of fish, helping the fishermen improve their catch and their incomes.

Challenge

- For generations, fishermen in India's coastal communities earned their livelihood by relying on their traditional knowledge of the sea and fishing grounds.
- The devastating 2004 Indian Ocean tsunami changed the sea's conditions, making the fisherfolk's traditional knowledge obsolete.
- Fishermen have difficulty judging when it is safe to venture out to sea and sometimes have trouble finding the best places to fish.
- The International Border Line between Tamil Nadu and Sri Lanka runs through the ocean close to the coast of Tamil Nadu and is not marked, making it possible for fishermen to accidentally cross the line and face penalties under Sri Lankan law.

Solution

- Fisher Friend mobile application provides comprehensive information on ocean conditions such as wind speed, wind direction and wave height along with early warning information on disasters like cyclones, high waves and heavy rainfall. Fishermen use this information to determine when it is safe to go to sea and which type of fishing gear they should take with them.
- The mobile app leverages the smartphone's GPS feature to map the coordinates of PFZ Advisories, provided by the Indian National Centre for Ocean Information Services, and chart a course to the PFZ and then back to their harbor locations.
- Fishermen use the GPS feature of the mobile app to communicate their location to the coast guard when stranded at sea.
- The mobile app alerts the fishermen of Tamil Nadu when they're approaching the international border of Sri Lanka, enabling them to change course and avoid crossing the border.
- Fishermen also use the mobile app to obtain current market prices, enabling them to negotiate the best price for their catch.
- Usage of the mobile app is tracked through Google Analytics to provide information about the services deemed most useful by fishermen, which enables customization for each fishing community.

*Sources: CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook); Mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence.

Impact

Over 16,000 Users

The Fisher Friend program was launched in Tamil Nadu and Puducherry and has now scaled to Andhra Pradesh, Karnataka, Kerala, Orissa and West Bengal. More than 16,000 fishermen from these states have used the mobile app.

GPS Navigation

The fishermen find the GPS capabilities of the mobile app and the smartphone useful to navigate to PFZ coordinates and back to their harbor locations.

More Than 40 Rescues to Date

Fisher Friend has helped in the rescue of more than 40 fishermen who were caught in bad weather conditions. They used the mobile app to communicate their GPS location to the coast guard.

Avoiding Dangerous Waters

Many fishermen have saved their boats' fishing gear and avoided harm to themselves by avoiding dangerous sea conditions based on advisories of wind speeds and wave heights provided by the mobile app.

Increased Incomes

Fishermen have improved their incomes by over Rs. 10,000 (US$ 150) on average when they followed the Potential Fishing Zone advisory provided through the application.

Program Stakeholders

July 24, 2018

INDONESIA

Statistics*

Population (est.) — **262.7 million***

Life Expectancy — **73.2 years**

GDP Per Capita (est.) — **US $12,400**

Mobile Penetration — **151%**

AtmaGo

Increasing Public Safety and Climate Resilience Through a Mobile App and Web-based Technology

Globally, the increasing threat of disasters far outpaces the ability of humanitarian and government agencies to respond. The total cost of disasters in 2017 was US $306 billion, nearly double the cost in 2016.[1] Tens of millions of people, particularly those in emerging regions, face growing risks from natural disasters and human-caused dangers. The AtmaGo mobile app connects and empowers local communities to share emergency warnings, take action to reduce their risk, and build social cohesion to improve their resilience.

Challenge

- A United Nations Office for Disaster Risk Reduction Report notes that climate change has made hurricanes, heatwaves, droughts and floods more frequent and deadly. People in low- and middle-income countries are seven times more likely to die from natural disasters.[2] Women and children are 14 times more likely than men to die in a disaster.[3]
- Globally, people are at risk from human-caused dangers, including armed conflict, terrorism, pandemic disease, crime and unsafe development.[4]
- From 2005-2014, global damage from disasters totaled US $1.4 trillion. Approximately 1.7 billion people were affected, and nearly one million people were killed.[5] Indonesia[6] ranks fourth on a list of countries with the most disasters.
- Neighborhoods with high levels of community interaction and organization fare far better than others in the aftermath of a disaster.[7]
- There is a need for Early Warning Systems to reach and serve the most vulnerable communities.

Solution

- AtmaGo aligns with the Indonesian government's vision for using Information and Communication Technologies (ICT) to improve disaster management.[8] It aligns with UN Sustainable Development Goals, specifically Goal 9: target to build resilient infrastructure, and Goal 13: Take urgent action to combat climate change and its impacts.
- AtmaGo was launched in 2015 in Indonesia by Atma Connect as a neighborhood-level social network that can be accessed via Android app or a mobile-optimized website. The app is tailored for low-end mobile phones and environments with intermittent internet access, and addresses the need for effective, low-cost, place-based communication.
- AtmaGo crowdsources real-time, user-generated, disaster-related information, such as reports of fires and floods; geographically organizes the content; and then delivers the information to users' mobile phones via mobile web and Android app.
- The tool is also used to communicate emergency reports and disaster risk reduction (DRR) information. In the Jakarta area, AtmaGo provides alerts from government sources directly to users via the mobile app.
- Atma Connect organizes citizen journalism camps to train women to publish posts on AtmaGo.
- A 2017 study in five neighborhoods in the Greater Jakarta area focused on the potential impact of AtmaGo in improving disaster preparedness and response. The research sought to understand how people get emergency warnings and DRR information, whether AtmaGo can provide these warnings in an actionable way, and the potential benefits of successful warning systems in terms of avoided damages and the prevention of mortality and morbidity.

*Sources: CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook); mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence

1 https://www.swissre.com/media/news-releases/2017/nr20171220_sigma_estimates.html
2 https://www.unisdr.org/archive/61121
3 https://www.unisdr.org/files/48152_disasterandgenderstatistics.pdf
4 Ostadtaghizadeh, et al, 2015
5 UNISDR: EM-DAT Database. Centre for Research on the Epidemiology of Disasters (CRED). Infographic. https://www.flickr.com/photos/isdr/16111599814/ https://www.citylab.com/solutions/2017/02/recovering-from-disasters-social-networks-matter-more-than-bottled-water-and-batteries/516726/
6. pg 19; https://www.emdat.be/sites/default/files/adsr_2016.pdf
7. https://www.newyorker.com/magazine/2013/01/07/adaptation-2
8 According to Law No. 24/2007, science and technology are one of the key principles of disaster management in Indonesia.

Impact

2.5 million users across Indonesia

More than 2.5 million users, most of whom are economically disadvantaged, have benefitted from AtmaGo. In addition to providing disaster alerts, the tool allows users to share information about roads and infrastructure, job fairs, entrepreneurship and government services.

Improved social cohesion

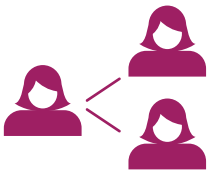
Sixty eight percent of surveyed users report sharing AtmaGo posts and, on average, each user shares AtmaGo posts with 28 other people, helping to quickly and efficiently spread news and information during emergencies. Additionally, 79 percent of users found AtmaGo "very" and "extremely" helpful in connecting them with the community.

Effective preventive action

Thirty percent of surveyed users who receive warnings take preventive action such as moving valuables, warning neighbors or evacuating.

Reduced morbidity and mortality

Taking effective action can reduce the impact of disasters by about 50 percent. AtmaGo has the potential to reduce morbidity and mortality caused by floods and other disasters by 643 years of healthy life lost per 100,000 population.



Increased women's access to disaster-related information

By increasing women's access to disaster-related information, AtmaGo addresses a lack of local and supportive peer networks among women and empowers them as key agents of community change and social cohesion.

Avoided property damage and loss

AtmaGo emergency alerts have the potential to reduce property damage caused by floods and other disasters by US $324 per household per year for residents of the Jakarta region. If AtmaGo reaches a scale of five to ten percent of households in this area, this would equate to an avoided damage benefit of US $53 million to US $106 million per year.

Note – All Impact statistics are from the Impact evaluation report https://atmaconnect.org/wp-content/uploads/2018/10/AtmaGo-CIPG-2018-Can-mobile-phones-improve-disaster-preparedness_fin.pdf

Program Stakeholders

atma CONNECT

cipg Innovation Policy Governance

American Red Cross

Qualcomm wireless reach

MERCY CORPS

cisco Foundation

plan-C INSTITUTE

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July 1, 2019

Qualcomm® Wireless Reach™

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