

# Mobile-based Crowdsourcing Platform for Post-2015 Governance: Possibilities for Developing Countries

Buddhadeb Halder

Dipartimento di Informatica, Università di Torino

Cso Svizzera 185, 10149 Torino, Italy

+39-32-901-42237

[buddhadeb.halder@unito.it](mailto:buddhadeb.halder@unito.it)

## ABSTRACT

The Millennium Development Framework has been criticized, as the progress towards achieving goals has been unequal. It has also been acknowledged that proper utilization of science, technology and information; access to technology and knowledge and good governance are the means of achieving the goals equally. In recent times, ‘crowdsourcing’ has been identified as one of the digital innovative ways to communicate with mass. Several initiatives have been executed through electronic participation model to provide services, collect reports during crisis and gather public opinion. This paper aims to discuss about the use of a potential mobile-based crowdsourcing framework and also suggests an ideal ‘mobile-based crowdsourcing model’ for developing world to reduce ‘digital divide’ and to provide smart governance to achieve the target of post-2015 UN Development agenda.

## Categories and Subject Descriptors

H.4.m [Information Systems Applications]: Miscellaneous; J.1 [Computer Applications]: Administrative Data processing-Government; K.4.3 [Computers and Society]: Organizational Impacts- automation, Computer supported collaborative work; K.6.1. [Management of Computing and Information Systems]: Project and People Management- *Strategic information systems planning, Systems analysis and design, Systems development.*

## General Terms

Management, Measurement, Documentation, Performance, Design, Theory

## Keywords

Crowdsourcing; UN; MDG; ICT; E-Governance; Post-2015; Smart Digital Governance; M-participation; Sustainable Development

## 1. INTRODUCTION

The objective of Millennium Development Goals (MDG) is to achieve specific and measurable improvements in basic standards of living, gender equality, environmental sustainability and global partnership for development by 2015. As the progress towards achieving these goals has been clearly unequal, the MDG framework has been criticized for focusing on the goals but not enough focusing on the ways of achieving those goals. ‘Critics have argued that a number of shortcomings could have been avoided if a more ‘inclusive consultation process’ had taken place

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

ICEGOV2013, October 22-25, 2013, Seoul, Korea.

Copyright 2013 ACM (ISBN 978-1-4503-2456-4) ...\$15.00.

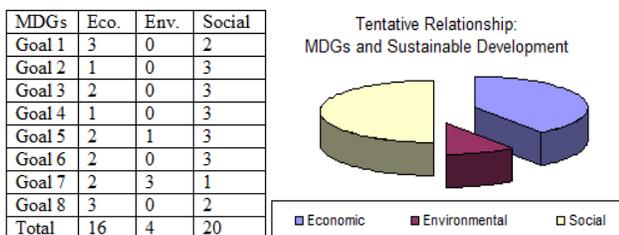
in formulating the MDGs [8]. The values and principles affirmed in the Millennium Declaration and its seven key objectives [9] remain a solid foundation for addressing today’s and tomorrow’s global development challenges and should therefore be used to help shaping the post-2015 UN development agenda [8]. Stating the importance of applying ‘science, technology and information’; ‘access to technology and knowledge’ and ‘good governance’ to fill the gap among the MDGs and the means of achieving them, the report ‘Realizing the Future We Want for All’ recommends, ‘Governance must be based on the rule of law,... institutions must strive to be transparent, accountable, responsive and competent. Stakeholder engagement and participation of all groups in society, judicial independence, access to information and freedom of expression, combined with regular monitoring based on agreed benchmarks, will together form the basis of good governance. Governance is very important as it is the key to the systemic transformations of economies in ways that support rights-based, equitable and sustainable development’[8]. ‘Building on the MDGs to bring sustainable development to the post-2015 development agenda’ identifies some important values, principles and clear relationships between sustainable development and MDGs [7]. Good governance, technology and technology-enabled governance (e-governance) have been identified as key development enablers [8]. Now, based on the background of MDGs and recommendations about the implementation of the post-2015 development agenda, the main concern is finding ways of using ICT to help governments performing better governance in a smarter way to help achieving targets of such type of development agenda beyond 2015. Despite the concern about issues that affect citizen’s daily lives, developing countries are not fully equipped to solve those. Even more importantly, sometimes governments do not know exactly what the ‘crowd’ (i.e. citizens) expectations are. One important sign of a real democracy is to meet or trying to meet expectations of the ‘crowd’. It is a democratic expectation that citizens would have more chance to take part in different consultation process. Without positive involvement and active participation of citizens, no governance system can provide better service.

On this background, this paper presents a possible way to overcome different challenges faced by governments of developing countries in formulating and implementing development agenda. This paper will argue in favor of a ‘mobile-based ‘crowdsourcing’ platform for post-2015 governance; introduce a digital governance framework for post-2015 and will propose a model of m-participation to gather and analyze ‘voice’ of the ‘crowd’ to help governments taking decisions on issues and deal some socio-economic challenges smartly. Eventually, this digital governance framework and the m-participation model will help governments and other organizations to empower common people and bridge the digital gap easily. This proposed ‘model’ is based on mobile-based crowdsourcing as the mobile penetration rate is much higher than Internet penetration rate in developing countries and mobile phones are used more widely than the web.

## 2. STATE OF THE ART

The explosive growth of mobile technologies across the world has reinforced ICT's strategic importance in human development [13] and in different parts of the world, numbers of e-governance projects have been implemented to help achieving the MDGs. After the drought in 2008, the UNICEF used 'RapidSMS' - a mobile SMS-based health care service and likely to meet just one of the six health-related targets under the MDGs by 2015 [12]. 'MedAfrica'- a mobile-based Medical Service contributes to create health awareness and increase interactions and purposeful engagements between health practitioners and common people. In Bangladesh, 200,000 sugarcane farmers around the country are benefiting [11] from *e-Purjee* service; over two million utility bills were paid through mobile phones [12]; General Diary now can be filed online at all 41 police stations under Dhaka Metropolitan Police [10]; vulnerable groups in Sirajgonj and Cox's Bazaar were alerted to disasters via SMS; over 130,000 students applied for admission to Shahjalal and Jagannath universities using SMS [13], and 22 universities supposed to adopt similar systems by mid-2011 [2]. In Palestine, some African countries and the Middle East, 'JobMatch' connects thousands of Job Seekers and employers through a simple, easy-to-use SMS format to help break cycles of poverty and unemployment' [11]. The above-mentioned examples of e-governance initiatives are somehow directly or indirectly related to MDGs.

The report 'Building on the MDGs to bring sustainable development to the post-2015 development agenda' states, 'the MDGs encapsulate social, economic and environmental aspects, but these dimensions are represented in the framework in an unbalanced way and without strong linkages among them' [7]. Now, it is needed to examine how Sustainable Development dimensions are linked to MDGs. To examine this observation, let us divide these relationships among four categories and allocate points against each category. These categories are - Strong (direct) relationship; Medium (direct) relationship; Minimum (direct) relationship and No (direct) relationship at all and allocated points are 3; 2; 1 and 0 respectively.



**Figure 1: Relation among MDGs & Sustainable development**

According to the UN report 'Realising the Future We Want for All'- the 'implementation of a post-2015 development agenda will depend, critically, on effective governance capacities at national, local and municipal levels' and suggests that 'science and technology, and information derived from their application, will be a major source of innovation for development' [8]. It also identifies that 'development enablers' such as 'good governance' and 'access to technology and knowledge' could be used to reduce the gap between the goals and the means of achieving them. The UNDP recognizes, 'as citizens are able to engage more easily and effectively with governing processes through new mobile and online tools, governments are recognizing the need to integrate ICT development into national development agendas' [13]. The think tank, ICEGOV has also identified that in the current post-2015 discussion, governance, technology and e-governance are not systematically addressed [4].

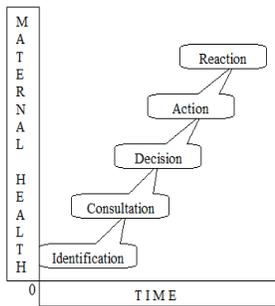
## 2.1. The Gap

Several e-governance initiatives have been taken place to provide health care in Africa; assist farmers, justice seekers, residents in disaster-prone areas, common students and other citizens in Bangladesh and job seekers in Palestine and in other countries. Most of them were 'one-of' type initiatives and used just to spread information but not to interact with citizens to make the service more transparent, democratic and accountable. Secondly, the UNDP identifies that the e-governance system is helping Bangladesh only to 'develop a global partnership for development' 'in cooperation with the private sector, make available the benefits of new technologies, especially information and communications technologies' by expanding telephone, mobile and Internet access. However, ICT has the power to help any government to achieve further development targets beyond 2015. Thirdly, in terms of m-governance for health services, the World Bank has identified some relevant challenges like insufficient financial resources; lack of sustainable business models; privacy and security concerns; limited evidence; difficult coordination of stakeholders and interoperability issues to the greater uptake of mobile-based health service [11]. However, using ICT in a smarter way, it is also possible to resolve challenges identified by the World Bank. Fourthly, the UN Task Team has identified good governance, technology and technology-enabled governance as key development enablers and found unbalanced linkages among MDGs and different dimensions of sustainable development. Fifthly, it has also stated that the "implementation of a post-2015 development agenda will depend, critically, on effective governance capacities at national, local and municipal levels" [8].

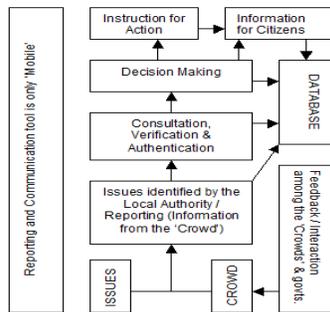
Keeping all points in mind, for post-2015 governance, we should discuss about 'Good e-Governance' not just 'Good Governance'. Now, the question is how the framework of 'Good e-Governance' would look like that engages most of the crowds as they are considered as main pillar of every governance system. Thus, on the basis of several observations made by the World Bank, UN bodies and logically-proved unbalanced linkages, it would be good to propose a new mobile-based e-governance model that has the potentiality to develop balanced linkages among different sustainable development dimensions and MDGs and / post-2015 development agenda for smart governance beyond 2015. After analyzing earlier examples, the ideal mobile application for post-2015 governance deemed to be just one application installed in one mobile phone and would be based on one server.

## 3. PROPOSED DIGITAL GOVERNANCE FRAMEWORK BEYOND 2015

It is now a proved phenomenon that new technologies can play important roles in good governance and help to facilitate transparency and accountability [6]. The ideal post-2015 digital governance framework should involve most of the citizens to gather enough and accurate information about a particular situation on the ground. It would also help governments to provide better and smart services. The proposed framework reflects on different communication levels between government and citizens. The main idea behind this is to develop a participatory digital framework for both common people and government officials to participate at the same time and play important roles to deal different governance issues properly, quickly and smartly. This Digital Governance Framework (Fig 3) would have different communication levels (Fig. 2) - starting from 'receiving primary information' to 'receiving feedback after the final action taken' by the responsible government authorities or development agencies.



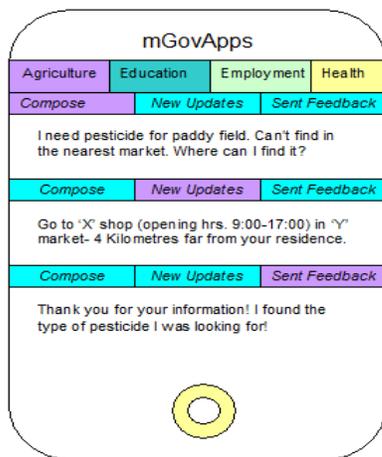
**Figure 2: Communications in Digital Governance Framework**



**Figure 3: Post-2015 Digital Governance Framework**

## 4. PROPOSED MODEL

Issues like 'digital divide'; present Internet and mobile penetration rate etc. have been kept in mind during the model development process. As mobile has the potentiality to ensure the highest level of citizens' participation to have a real impact on the society, inspired by that understanding a sustainable digital active participation model, the 'Peoples' Mobile' (PeMobile) have been developed. While explaining the 'Model', let us consider that 'mGovApps' is pre-installed application in a mobile phone.



**Figure 4: mGovApps**

### 4.1. Functions and Architecture of 'PeMobile'

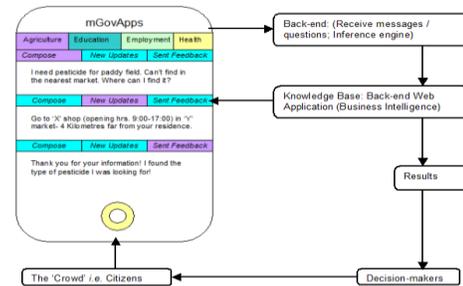
This proposed 'PeMobile' will have some basic functions like making and receiving calls; sending and receiving texts messages i.e. SMSes; taking photographs i.e. camera; and identifying the 'PeMobile' carrier's location i.e. GPRS and at the same time there would be option to stay as anonymous. Different public sector focused pre-installed 'mGovApps' will enable 'PeMobile' carriers to practice some basic rights. In an ideal scenario, all information will be available for citizens in their local language(s) [2].

### 4.2. Functions and Architecture of 'mGovApps'

In spite of the availability of several mobile-apps, it is neither possible nor realistic for a rural citizen to get all development apps just in a single mobile phone. So, the most crucial step is how to develop such a mobile application that would allow

citizens taking part in consultation process and getting real-time updates.

The back-end architecture of the application would allow storing and analyzing data of all communications. The workflow (Fig. 5) of 'mGovApps' would be divided into different steps and there would be different functions in each step.



**Figure 5: Architecture of 'mGovApps'**

## 5. EVALUATION

The intention of this paper was to demonstrate the potentiality of mobile-based 'crowdsourcing' for post-2015 governance. To do so, the observations in regards to 'unbalanced linkages between MDGs and different dimensions of Sustainable Development' made by the UN System Task Team have logically been proved (Fig. 1); examples of e-governance initiatives from different parts of the world have been given and explained why such type of e-governance initiatives are not sustainable and will not bring expected outcome beyond 2015 governance system. Finally, a 'digital governance framework' and an innovative concept of 'mobile-based crowdsourcing platform' (i.e. PeMobile) for smart governance have been introduced. It would be possible to use 'PeMobile' in local and national levels. It is expected that it would provide extremely positive outcome, as implementing post-2015 agenda will critically depend on effective governance capacities at 'national, municipal and local levels' as well. The notion of 'PeMobile' would be unsuccessful without a proper project implementation plan. Before discussing the implementation plan, it would be better to explain some fundamental principles of proposed 'PeMobile' initiative. As the proposed 'PeMobile' would have mobile-based crowdsourcing facilities where common people will take part for different reasons, it would not be unrealistic to define 'PeMobile' as 'Mobile Participation' tool.

### 5.1. Basic Principles of 'PeMobile' Model

The important principle of this model is that the initiative has to come from governments, as ideally, 'PeMobile' would be used to provide better and smart governance to secure wider participation of common citizens. An ideal 'PeMobile' initiative would be government aided and at the same time governments need to be in a position to ensure that every family owns at least one 'PeMobile'. Governments should use 'PPP model' and need to involve business and non-government development organizations to implement the 'PeMobile' project successfully [3]. Thus, it is possible to achieve the target of the goal 8 of the MDG.

### 5.2. Potentiality of proposed 'PeMobile'

There are several reasons behind promoting this concept of digital governance model for post-2015 period. This 'PeMobile' model could potentially help governments and other organisations to meet citizens where they are; promote affordable democratic practice; engage more citizens; offering 'power' to the hands of citizens etc. Apart from those positive reasons, m-participation method has an easier interoperability. In one hand, citizens can

access real-time data at their fingertips. On the other hand, it can provide location-based faster information flow [5]. Irrespective of geographical location, mobile phone has now become a common part of most citizens' daily lives. The price of mobile phones and related service including mobile-web is declining rapidly and cheaper than computer based web services. Governments, non-government organizations, semi-government organizations and other organizations should be encouraged to implement ubiquitous m-participation model for next generation smart governance, as it would provide huge opportunities for all citizens.

## 6. CONCLUSION AND FUTURE WORK

In this paper, it has been explained that how mobile technology could be used for democratic practice through m-participation model. It has also been acknowledged that achieving the ultimate goal of a real democratic world in the era of Information and Communication Technology, there is a need to solve some issues like legal; user generated contents (UGCs); identification and security issues of users, cultural resistance etc. As 'mobile-governance' is a huge shift from 'conventional governance', governments have to conquer all the above-mentioned challenges.

Without the high-level mobile penetration rate, crowdsourcing-based mGovApps of 'PeMobile' for smart and better governance will be at stake. Also governments need to have concrete promotional and strategic implementation plans for 'PeMobile' model. Without a proper promotional plan for this type of digital tool, government will not receive expected outcomes. So, it's the government again, who would have to take major responsibilities to promote the 'PeMobile' among their citizens. Governments could offer some sort of incentives for those who would be using the device on regular basis. If governments provide financial aid, governments might think about introducing policies to ensure that every family has at least one 'PeMobile' device with pre-installed 'mGovApps' in it. Organizations like UN and INGOS, NGOs also could play a bigger role to promote 'PeMobile' among citizens. However, more importantly, they need to carry out a political-health check up of governments to make sure that this 'PeMobile' will not be misused to monitor activities of general public.

Good governance is just impossible without the active support of common citizens and countries from developing world should take necessary steps to use emerging ICTs to ensure better and smart governance for their citizens. The proposed mobile-based crowdsourcing platform for post 2015 governance has the potential to make balanced linkages between the dimensions of sustainable development; and future development agenda beyond 2015.

## 7. ACKNOWLEDGMENTS

The paper has been partially developed under the Ph.D Research title 'Crowdsourcing for Better and Smart Governance in the Global South: Challenges and Possibilities', in partial fulfillment of the requirements for the Erasmus Mundus Joint International Doctoral (Ph.D) Degree in Law, Science and Technology (LAST-JD). I am grateful to the Director of LAST-JD Programme, Prof. Monica Palmirani, Bologna University. Very special thanks to Prof. Guido Boella, the Vice-Director of LAST-JD Programme, University of Torino, where this paper has been finally written. Lastly, I am extremely grateful to my main supervisor for Ph.D. programme - Prof. Pompeu Casanovas of Universitat Autònoma de Barcelona, Barcelona, Spain for his kind support and advice towards my Ph.D. research.

## 8. REFERENCES

- [1] Burgess, S. 2011. *Mobile democracy: How governments can promote equality, participation and customer service*, Accessed 18/11/2012. Available from: <http://govfresh.com/2011/09/mobile-democracy-how-governments-can-promote-equality-participation-and-customer-service/>
- [2] Disaster Management and Relief Division. Report. 2010. *Comprehensive Disaster Management Programme 2010-2014 (CDMP II)*, Government of the People's Republic of Bangladesh. Dhaka, Bangladesh. Annual Progress Report 2010.
- [3] Halder, B., 2013. *SMS2FAX: A Tool to Enhance Public Service in Emergency Situation*, International Journal of Computer & Communication Technology. ISSN (PRINT): 0975 - 7449, Volume-4, Issue-3, 2013. pp. 16-21.
- [4] ICEGOV2013. 2013. *Beyond 2015 – Smart Governance, Smart Development First Call for Papers*, 7th International Conference on Theory and Practice of Electronic Governance: <http://icegov.org/wp-content/uploads/2013/04/ICEGOV2013-First-Call-for-Papers.pdf>
- [5] OECD/International Telecommunication Union (2011), *M-Government: Mobile Technologies for Responsive Governments and Connected Societies*, p 42, OECD Publishing. <http://dx.doi.org/10.1787/9789264118706-en>
- [6] R. Avila, H. Feigenblatt, R. Heacock, N. Heller. 2010. *Global mapping of technology for transparency and accountability: New technologies*. London, UK.
- [7] United Nations. 2012. *Building on the MDGs to bring sustainable development to the post-2015 development agenda-* Report by the UN System Task Team on the Post-2015 UN Development Agenda, the UN, New York, May 2012, pp. 3-6.
- [8] United Nations. 2012. *Realizing the Future We Want for All-Report to the Secretary General by the UN System Task Team on the Post-2015 UN Development Agenda*, the UN, New York, (June 2012). 7-8, 22, 24, 30, 32, 35.
- [9] United Nations. 2000. Resolution adopted by the General Assembly. Resolution 55/2: Fifty-fifth session. Agenda item 60 (b). A/RES/55/2. paras. 1–6. UN. September 2000. New York. <http://www.undemocracy.com/A-RES-55-2.pdf>
- [10] United Nations Development Programme. Quarterly Progress Report (Jan-March, 2010) on Access to Information (A2I) Programme. UNDP. Bangladesh. 2010. [www.undp.org.bd](http://www.undp.org.bd)
- [11] Vital Wave Consulting. *Health Information Systems in Developing Countries: A Landscape Analysis*. Research Paper & Strategic Briefing, May 2009.
- [12] World Bank. 2012. *Information and Communications for Development 2012: Maximizing Mobile*. Washington, DC: World Bank. DOI: 10.1596/978-0-8213-8991-1; <http://www.worldbank.org/ict/IC4D2012>. License: Creative Commons Attribution CC BY 3.0. pp 48-50, 84.
- [13] Zambrano, R. and Seward, R.K. (2013). *From Connectivity to Service Delivery: Case studies in e-governance*. New York: United Nations Development Programme (UNDP). NY, NY 10017, USA. pp. 7-8, 23, 25.