



Technology Consulting in the Community

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Final Consulting Report

**Eco-Community and Bio-Enterprise
Development Network**

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Eco-Community and Bio-Enterprise Development Network Executive Summary

Student Consultant, Crystal Rugege
Community Partner, Cecilia Wandiga

I. Background Information

Eco-Community and Bio-Enterprise Development Network (EBDN) was founded in 2008 by Cecilia Wandiga. It is a network of organizations which consists of micro and small enterprises that focus on stimulating and enabling economic growth while protecting the environment.

The mission is to create a social network that facilitates strategic partnerships through the exchange of information. This information will serve as a stimulus to generate economic growth in Kenya through the development of eco-industry enterprises.

Currently, the network consists of 7 partners ranging from farmers and chemists to entrepreneurs and behavioral scientists. The first project of EBDN is called “*Sambaza Wakulima: Empowering Farmers through SMS*”. Its focus is to facilitate the exchange of information between three groups of farmers in Kenya (subsistence food crops, jatropha & eucalyptus) and scientists at the University of Nairobi. Global Ectropy, a Pittsburgh-based startup which is owned and solely operated by Cecilia Wandiga, is spearheading this effort.

The goal of this project is three-fold: 1) to collect data on crop conditions and farming practices of the farmers, 2) to provide scientists with the data collected from farmers for research, and 3) to provide the farmers with recommendations on best practices as well as daily crop prices. The intention is to develop an information collection and dissemination platform for farming communities in Kenya that facilitates economic growth.

II. Consulting Task

The challenge facing EBDN was the lack of information exchange between the farmers and scientists due to infrastructure constraints. The constraint was the rural location of the farmers (i.e. poor transportation infrastructure) combined with a lack of easy access to and familiarity with the internet. The objective of this consultancy was to identify a sustainable technology solution that could effectively collect and disseminate information using low-cost, accessible technology tools. This consulting task required extensive research on identifying technology tools and benchmark solutions that could effectively address this information access problem.

Secondly, the objective was to implement the technology solution based on the conclusion of the research findings. This task included installing and testing an information management system as well as increasing the technical capacity of the community partner by building her knowledge of the system and benchmark business models.

We determined that SMS would be the most cost-effective and technically sustainable medium of communication since mobile phones are widely used in the urban and rural areas of Kenya. In collaboration with the community partner, an SMS management system called Jeyo Mobile Companion was successfully deployed. This application allows the community partner to send, receive, and store information via SMS while managing the exchange of data from her PC.

III. Outcomes Analysis and Recommendations

Through our research, we established a proof of concept by demonstrating that an SMS network is an effective communication tool for rural farmers in Kenya. Furthermore, we proved that an SMS network can be managed effectively with an affordable off-the-shelf solution. We also identified a replicable benchmark case study in Uganda, Collecting and Exchange of Local Agricultural Content (CELAC), that broadcasts information on farming methods to over 300 rural farmers via SMS. This project demonstrates the effectiveness and applicability of such a network in an East African context.

After extensive research and testing, we eliminated several technology alternatives due to telecommunication policy constraints. The community partner's wireless carrier AT&T did not support many of the 3rd party SMS applications that were identified such as Frontline SMS, Bloove. These SMS applications were only tested on open networks in Europe, Africa and Asia where mobile phones are unlocked and wireless carriers don't restrict the content on their network. The US market, in which Cecilia is operating, is dominated by wireless carriers that have the liberty to control the content that operates on their networks.

Therefore, Jeyo Mobile Companion was chosen for deployment because it is one of the few 3rd party applications that can function on US networks and has the necessary functionality to address EBDN's information management problem. Through the deployment of Jeyo Mobile Companion, the community partner has exchanged a total of 56 messages with 20 EBDN partners in Kenya. This demonstrates the community partner's familiarity and knowledge of the tool. Furthermore, 5 out of 13 farmers have responded confirming which crops they are growing and their anticipated benefit of the network.

Due to time constraints, we were only able to deploy the system to a few farmers and the benefits have yet to be documented. The community partner is still defining the content and format for information dissemination. Once she has reached a conclusion, EBDN will have a proof of concept and a technology solution that can effectively exchange information between the farmers and scientists.

Recommendations

The vision of EBDN is to become an information hub for enterprises, non-profits, and individuals to exchange valuable data and case studies that can support their respective needs in the eco-industry and agricultural sector. To support the realization of this vision, I recommend the application of technology in two primary areas: financing and marketing.

I recommend that EBDN use Safaricom's M-Pesa mobile banking application to conduct transactions once they have a supply chain in place. The farmers can use the M-Pesa application to buy and sell agricultural inputs and crops using their mobile phone. This will provide farmers with more negotiating power and transparency when selling their crops since they will be able to conduct transactions directly with people in the market opposed to exchanging money several times through middlemen.

Finally, I recommend that EBDN leverage YouTube, a social networking website, as part of their marketing efforts. The viral nature of YouTube is a great vehicle for promoting an organization to the world at minimal cost. I recommend creating a 5 minute promotional video giving an overview of EBDN as well as farmers giving testimony of their attributed success. By increasing the visibility of the EBDN, it will raise awareness of their projects as well as expand their reach of potential investors to sustain the financial health of the network.

Community Partner

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About the Consultant

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Crystal is graduating in December with a Master's in Information Systems Management. She intends to focus her career on using technology for sustainable development in Africa.

Eco-Community and Bio-Enterprise Development Network Final Consulting Report

Student Consultant, Crystal Rugege
Community Partner, Cecilia Wandiga

I. About the Organization

Organization

Eco-Community and Bio-Enterprise Development Network (EBDN) was founded in 2008 by Cecilia Wandiga. It is a network of organizations which consists of micro and small enterprises that focus on stimulating and enabling economic growth while protecting the environment.

The mission is to create a social network that facilitates strategic partnerships through the exchange of information. This information will serve as a stimulus to generate economic growth in Kenya through the development of eco-industry enterprises.

Currently, the network consists of 7 partners ranging from farmers and chemists to entrepreneurs and behavioral scientists.

1. **Global Ectropy:** Located in Pittsburgh, Pennsylvania, the company is a for-profit start-up focused on identifying markets for eco-industry suppliers. Cecilia Wandiga is President and CEO.
2. **Centre for Science and Technology Innovations (CSTI):** Located in Nairobi, Kenya, CSTI is a non-profit organization focused on scientific research with emphasis on researching climate change in Africa. Prof. Shem Wandiga is the Director and is also the father of Cecilia Wandiga. Prof. Wandiga is a renowned Inorganic Chemist and former Deputy Vice-Chancellor for University of Nairobi as well as former UNESCO delegate for Kenya. CSTI has been assisting subsistence food farmers in the Makeni district.
3. **University of Nairobi, Department of Chemistry:** Located in Nairobi, Kenya. The University of Nairobi is a leading higher-education institution in East Africa. Prof. Evans Kituyi is the Head of Division on Environmental Chemistry. Prof. Kituyi is an Environmental Chemist with focus on Industrial Ecology.
4. **Vanilla Jatropha Development Foundation (VJDF):** Located in Nairobi, Kenya, VJDF is a non-profit organization focused on enabling the profitability and sustainability of Vanilla-Jatropha production (a food crop and bio-fuel crop that can be grown simultaneously) and consumption in East Africa. Prof. Daniel Nyamai is the Executive Director. Farmers in the VJDF network are located in the South Nyanza and Kibwezi districts.
5. **Kenya Enterprise Micro-fund Organization (MEKO):** Located in Nairobi, Kenya, MEKO is a micro-finance institution with a mission to serve the poor to achieve flourishing of life and integrity of creation through integrated community based programs. Tobias Otieno is Chairman of the organization.

6. **Kenya Forest Growers Association (KEFGA):** Located in Nairobi, Kenya, KEFGA is an association of commercial forest growers. The organization focuses on assisting its members to access viable markets for forest and wood products, including obtaining best commercial prices for forest products. The network has eucalyptus farmers who are spread out across the country. Ben Kanyi is the liaison between KEFGA and EBDN.
7. **University of Wisconsin – Milwaukee, Center for Addiction and Behavioral Health Research:** Located in Milwaukee, Wisconsin, the University of Wisconsin is a prominent higher-education institution in the US. Some of the Center’s behavioral research staff are working on social research projects in Kenya and facing difficulties gathering data as well as a lack of information and studies on behavioral characteristics in rural areas. Andrew Muriuki is a Post Doctoral fellow at the Center and alumnus of Carnegie Mellon’s Heinz School for Public Policy and Management. He is Kenyan with a computer science background and experience running a computer service business and internet café in Mombasa

At present, all partners are not actively involved in collaborative projects. However, they have joined EBDN to form strategic partnerships that may be materialized in the future.

Facilities

Eco-Community and Bio-Enterprise Development Network operates out of the home of the coordinator, Cecilia Wandiga in Pittsburgh, Pennsylvania. Cecilia has never met the partners of VJDF or KEFGA in person, but has participated in conference calls with them. She has met all other partners in person.

Programs

Currently, the primary project of EBDN is called “*Sambaza Wakulima: Empowering Farmers through SMS.*” The focus of this project is to facilitate the exchange of information between three groups of farmers in Kenya and scientists at the University of Nairobi, CSTI, and the University of Milwaukee that will provide technical assistance to the farmers. Global Ectropy is spearheading this effort. The farmers are focused on the following:

Subsistence Farming in Arid Conditions

Makueni district is located in Kenya’s Eastern Province and has a very arid climate. This project is part of a multi-country initiative called Integrating Vulnerability and Adaptation to Climate Change into Sustainable Development Policy Planning and Implementation in Eastern and Southern Africa (ACCESA). Funding is provided by the Global Environment Facility (GEF), United Nations Environment Programme (UNEP), and the Netherlands Government. The funding is executed by UNEP and administered by the Africa Centre for Technology Studies.

The project aims are:

1. Enhance the resilience of local agricultural practices to drought
2. Reduce poverty through improved alternative livelihoods
3. Empower women farmers
4. Facilitate the integration of adaptation to climate change into policies related to disaster management and sustainable development of arid and semi-arid lands

Jatropha Biodiesel Production

The Jatropha Biodiesel Production project is run by VJDF which mobilizes farmers to use part of their land to grow jatropha trees. VJDF would use an out-grower model to contract the farmers. An out-grower model refers to an arrangement between the landowners/growers and the company which is processing the commercial product. Farmers would be supplied with seeds, technical assistance and distribution channels. Land ownership is retained by the farmers. Approximately 25 farmers have contracted with VJDF and the hope is to increase this number to 1,000. Farmers are located in the Kibwezi region and VJDF is also working on mobilizing farmers in South Nyanza. Both regions have arid climates which make it impossible for farmers to create sustainable livelihoods growing food crops. At present, there are no large scale biodiesel refineries in Kenya and, as a result, farmers are hesitant to start producing jatropha because they do not see a market for the product. Hence, VJDF also aims to obtain funding to buy production machines that can extract oil from the jatropha plant; this oil must then be processed as biodiesel compliant with international standard EN 14214 and US standard ASTM D6751 and European Union standards B5 and B20.

Eucalyptus Farming

KEFGA has a network of over 12,000 tree growers (both small and medium). It operates 10 regional clusters: 1 in Western Kenya, 2 in the Rift Valley province, 2 in Eastern Kenya, and 1 each in the Coastal region, Nyanza (near Lake Victoria), Central region, Kajiado district (within the Rift Valley), and Nairobi (capital city). KEFGA is interested in using the SMS network as a tool to better organize the farmers in each cluster. Information of most value would be market pricing for wood related products, essential oils, carbon credits. Technical assistance focused on business planning, processing, value chains, distribution channels, fertilizers and pesticides would also be of great value.

Human Resources

The staff of EBDN consists of only one person at present. Cecilia Wandiga is the coordinator of the Eco-Community and Bio-Enterprise Development Network, as well as the CEO of one of the partners, Global Ectropy. She coordinates communication among the network partners. The other partners have no official administrative role in EBDN. Cecilia, as well as the other partners are email proficient and have regular access to internet.

Technical Environment

The organization has one IBM Thinkpad T40 which is approximately 5yrs old. It appears to be stable and has not given Cecilia any problems. It runs on Microsoft XP Pro 2002 w/ Service Pak 3 and MS Office Pro 2002. She uses the computer to perform daily tasks such as email communication with the partners. The other members of the network, with exclusion of the farmers, have PCs in their offices with dial-up connectivity. Cecilia uses an affordable online data storage service called Box.net to store files and recorded conference calls. She also uses a free web hosting service call Freewebs.com to host the website [<http://www.freewebs.com/greenkenya>]. They often use cell phone text messaging communicate with project partners and would like to expand this communication to rural farmers in Kenya. Conference calls with partners are hosted by a service called Budget Conferencing that records and stores calls. On top of the conferencing fee there is a fee of \$10 per call to retrieve recorded calls.

Technical Management

At present, Cecilia Wandiga is managing the technical environment. She setup the website, as well as the other data storage and conference call services. The freewebs website has a built in WYSIWIG editor which Cecilia uses to update the website. She does not have a technical background, but is comfortable using data processing tools like spreadsheets and databases. There is no official technical support for EBDN. Every member operates autonomously from a technology management perspective. They leverage the technical support from their respective institutions, such as the University of Nairobi.

Technology Planning

The organization would like to leverage the use of technology to facilitate effective communication between their partners to realize their mission. Part of the effort of the TCINC partnership is to help Global Ectropy create a technology plan that will align its technology investments with the network's mission. Technology decisions are currently made on an ad-hoc basis to service partner needs, such as conference calls. Decisions are also restrained within the technical and financial capacity of Cecilia since she is funding this out of her personal income.

Internal and External Communication

The network's partners internally communicate via email, conference call and text messages. All of the partners, excluding Cecilia, are based in Kenya. Each partner is a separate legal entity and, currently partners do not collaborate beyond the projects of EBDN. For external communication, they rely on the website that is hosted on freewebs.com.

Currently, partners want Cecilia to use the Freewebs site to help disseminate information on their activities. For example, MEKO has no website. CSTI has a website but preferred the way in which information was formatted on the www.freewebs.com/greenkenya Research and Development page.

The website is also used for promotional purposes to spread awareness of the network, and to help outsiders gain a better understanding of the current projects.

Information Management

Global Ectropy uses MS Excel for data analysis, specifically to analyze information about the crops that farmers are planting. Cecilia also uses Excel to build financial forecasting models that will be used in her business plan. She uses MS Access for data management, MS Outlook & Outlook Express for contact management. She doesn't know the exact count of the contacts in Outlook because her drive is currently being repaired; her cell phone has a list of 1,065 contacts and her Gmail account has a list of 287 contacts (there is overlap between the two databases). The Outlook list was her master database. MS Powerpoint is used for conceptual diagrams, and MS Word for word processing, pdf conversions and desktop publishing.

II. Scope of Work

Identify and deploy a technology solution to collect and disseminate information

Description of Problem

The challenge facing EBDN was the lack of information exchange between the farmers and scientists due to infrastructure constraints. The constraint was the rural location of the farmers (i.e. poor transportation infrastructure) combined with a lack of easy access to and familiarity with the internet. The objective of this consultancy was to identify a sustainable technology solution that could effectively collect and disseminate information using low-cost, accessible technology tools.

Description of Consulting Task

The objective was to identify technology tools and benchmark solutions that could effectively address this information access problem. Secondly, the objective was to implement the technology solution based on the conclusion of the research findings.

This consulting task required the following:

- Identifying SMS-based applications that effectively collect and disseminate information
- Testing alternative technologies
- Analyzing alternative technologies
- Conducting research on benchmark solutions that use SMS as a vehicle for information collection and dissemination
- Installing Jeyo Mobile Companion
- Testing the Application

Implementation of Task

Research

Five different technology tools were researched, installed, and tested. We did a comparative analysis of all of the tools weighing each one's strengths and weaknesses. Initially, we found Frontline SMS and Bloove to be superior technologies. Frontline SMS allowed its users to send and receive messages as well as export the data to a spreadsheet. Another reason it was particularly appealing was because it was created specifically for the development sector. Many of its users had similar projects in rural locations like EBDN and therefore we could leverage their experiences. It also had built in survey functionality which would have been particularly useful in communicating with a large number of farmers. Bloove was another technology we discovered that had great functionality. It's an SMS aggregation tool that also has a web client which wasn't available in other applications we evaluated. Thirdly, we evaluated Twitter which is an SMS-based micro-blogging service. Although Twitter is a great technology, it did not allow us to easily store and track the information that was being exchanged through SMS. It would require converting an XML document to a format more conducive for analysis.

While evaluating these tools, we faced unexpected constraints in international telecommunication policies. The community partner's wireless carrier AT&T did not support many of the 3rd party SMS applications that were identified such as Frontline SMS and Bloove.

These SMS applications were only tested on open networks in Europe, Africa and Asia where mobile phones are unlocked and wireless carriers don't restrict the content on their network. The US market, in which Cecilia is operating, is dominated by wireless carriers that have the liberty to control the content that operates on their networks. Another unexpected constraint was the compatibility of SMS applications on a particular mobile operating system. The Windows Mobile platform, which Cecilia is using, seems to be the least common platform used by those creating 3rd party apps focused on SMS aggregation. Therefore, we were not able to implement our solution using these technologies.

Our research resulted in the identification of Jeyo Mobile Companion as an information communication platform. This low-cost solution allows its users to send, receive, and store information via SMS while managing the exchange of data from a PC. The software runs on a PC platform and links to the user's existing Windows Mobile phone account. Its interface is very similar to Microsoft Outlook and is very easy to navigate.

The community partner installed the application independently has been using it for 2 weeks. She has sent a total of 56 messages to 20 partners in the EBDN network.

Research also led to the discovery of a benchmark case study in Uganda known as Collecting and Exchange of Local Agricultural Content (CELAC). This organization broadcasts information on farming methods to over 300 farmers. The CELAC website provides a log on all SMS that have been sent to their farmers over the past 2 years. The community partner intends to use CELAC case as a model for the information dissemination process.

During the course of the project, Andrew Muriuki was able to arrange for a connection in Mombasa to provide daily pricing on food crops at the Kongowea wholesale market. It was originally anticipated that crop pricing would fit into 1 SMS message (160 characters). However, the daily updates comprise of 880 and 895 characters. This means that on a regular mobile phone the update spans across 8 to 10 SMS messages. The partner liaisons do not anticipate this will be a problem for the farmers but actual reactions from farmers have yet to be obtained. Pricing for jatropha seeds, wood related products and essential oils is still being researched. The community partner hopes to add other wholesale markets as soon as there is a demonstrated benefit to farmers of receiving this data.

The largest portion of our time in this project was focused on the research task. Since we ran into several obstacles that delayed our progress, the test phase of implementation was not concluded and we were not able to realize the functional benefits of the new system as yet.

III. Outcomes and Recommendations

Identify and deploy a technology solution to collect and disseminate information

The benefit of using Jeyo Mobile Companion is that it creates a low-cost, daily communication mechanism between the agriculturalist and the farmers. Most importantly, the communication can be logged and share with other technical assistance providers as needed. Without such a tool, the agriculturalist would have to send someone into the field to observe the farmers' activities, document the observations, and then return back the agriculturalist to deliver the information. The community partner would then wait for the agriculturalist to send this

information via email, or would setup a conference with the agriculturalist in Nairobi to get an update on the farmers' activities.

Through our research, we have established a proof of concept by demonstrating that an SMS network is an effective communication tool for rural farmers in Kenya. Furthermore, we proved that an SMS network can be managed effectively with an affordable off-the-shelf solution. By identifying a benchmark case study in Uganda, it demonstrates the effectiveness and applicability of such a network in an East African context.

The new communication network is already gathering useful information from farmers in the network. 5 out of 13 farmers have responded confirming which crops they are growing and their anticipated benefit of the network.

In summary, we were able to:

- Enable the exchange of information among network partners through the deployment of Jeyo Mobile Companion
- Build knowledge capacity through the identification of a model framework for implementation

Capacity Building

The community partner has used Jeyo Mobile to exchange 56 messages with partners in the work which demonstrates her familiarity and knowledge of the tool. This project has increased the capacity of the organization by enabling the community partner with a tool that she can use to request and collect information efficiently and systematically. In the long term, this information will be used to develop a business plan for her parallel business Global Ectropy. The ultimate goal of Global Ectropy is to create and stimulate economic growth while preserving the environment. The new information gathering process is a catalyst to the success of this business.

Capacity Not Yet Reached

The community partner, in collaboration with the scientists, is still defining the content and format for information dissemination. Once she has reached a conclusion, they will have a technology solution in place that will allow them to effectively exchange information between the farmers, scientists and other technical assistance providers.

Sustainability

Not only has it increased the capacity of the organization, it also addresses the issue of sustainability. It is a sustainable outcome from a cost perspective and a technology perspective. From a cost perspective, the software itself is only \$20 annually and the cost of SMS is \$0.20 per message; the community partner already has an international plan which allows her to send and receive 100 SMS messages for \$9.99/month.

From a technology perspective, SMS is sustainable because the mobile penetration in Kenya is significantly high. Access to mobile phones is widely available and affordable to the rural communities. Mobile network penetration is also significantly higher than internet penetration, especially since internet connections require computers and reliable electricity supplies both of which are limited and costly in rural areas.

Cecilia has used the software for 2 consecutive weeks and has sent a total of 56 messages so I would now consider her a regular user; therefore, it would be hard for her to forget how to use the software. She has also successfully exported the data into a spreadsheet so she is familiar with this functionality as well.

Risks

One possible risk is that the other farmers don't actively participate when we are ready to roll it out to everyone. The long-term success of this project is to continually expand the network of farmers, thus their buy-in is critical. Going forward, Cecilia will be tracking the progress of the project to see if it has improved the livelihood of farmers, at this stage, it is premature to measure the impact.

Transformation of Technology Vision

This outcome has demonstrated that the use of technology is critical in the success of the organization's mission. The premise of the Eco-Community and Bio-Enterprise network is to provide a platform where individuals and organizations with similar visions can exchange information to help them achieve the similar goal of stimulating economic growth while preserving the environment. Since their immediate focus is on Kenyan rural farmers, the Information Communication Technology constraint was very apparent. However, with the mobile penetration rates in Kenya, we were able to recognize an opportunity to leverage mobile technology like SMS to address the communication barriers of the organization.

During our search for information and tooling, we discovered a fantastic case study of the impact of ICT on rural farmers in India through the eChoupal initiative. In this scenario, they actually setup PCs in villages where farmers could come to check agricultural information. In the long term, the community partner would like to see an implementation such as this one; however, it would require a lot more funds and resources to sustain it.

Recommendations

In the short term, I see the Eco-Community and Bio-Enterprise Network (ECBEN) building their network of farmers to at least 50 over the next year. If we can get buy-in from the lead farmers by providing useful feedback on farming practices, pricing and weather, we can sell the idea to other farming communities across Kenya. The sustainability of this project is contingent on the participation of the farmers.

The vision of EBDN is to become an information hub for enterprises, non-profits, and individuals to exchange valuable data and case studies that can support their respective needs in the eco-industry and agricultural sector. To support the realization of this vision, I recommend the application of technology in two primary areas: financing and marketing.

Recommendation 1. Use M-PESA Mobile Banking Services for Transactions

Kenya's leading telecommunications provider, Safaricom, has a free service called M-PESA which allows its network users to transfer money via mobile phones.¹ It provides tremendous value for individuals that do not have a traditional bank account as such by allowing them to make remittances. It also provides those in rural areas with ready access to banking services without requiring them to make long trips to the nearest urban area. M-PESA users are able to deposit and withdraw money through an authorized M-PESA agent, as well as transfer money directly to another person via their mobile.

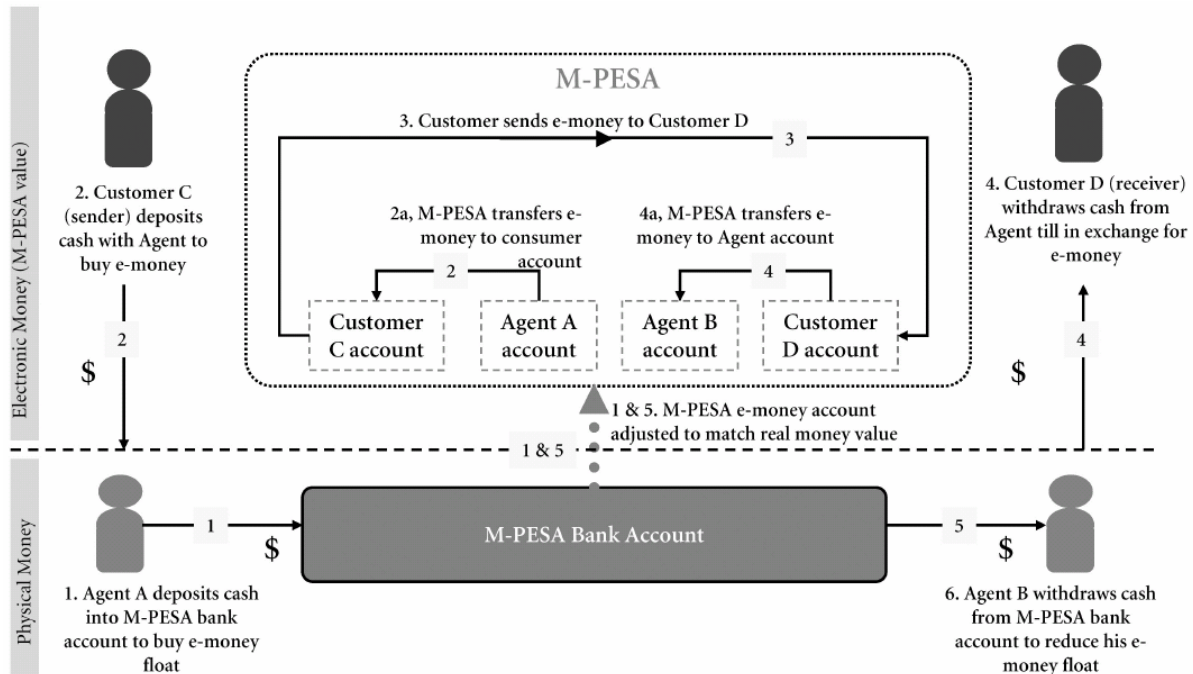


Figure 1. Overview of M-PESA Serviceⁱⁱ

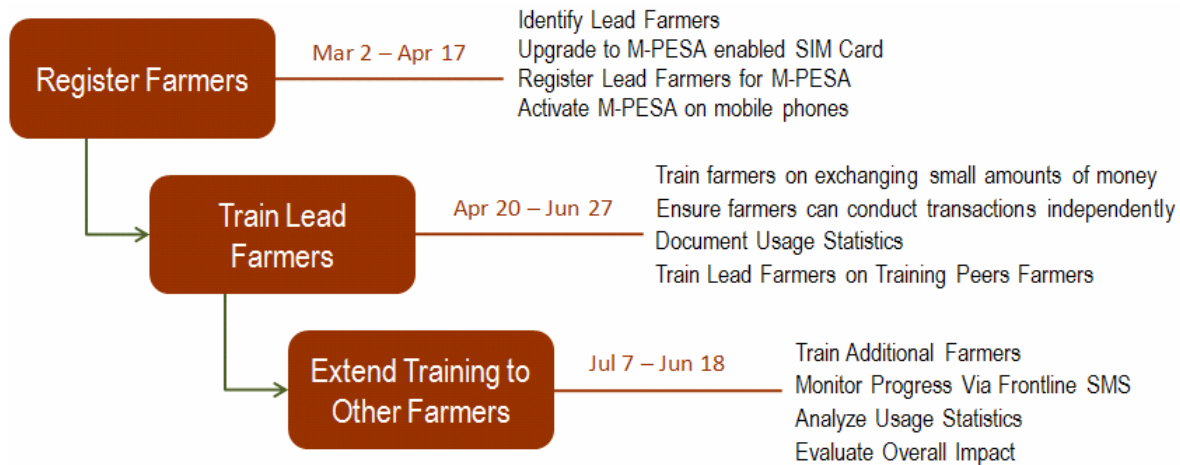
EBDN can leverage Safaricom's M-PESA mobile banking application to conduct transactions once they have a supply chain in place. The farmers can use the M-Pesa application to buy and sell agricultural inputs and crops using their mobile phone. This will provide farmers with more negotiating power and transparency when selling their crops since they will be able to conduct transactions directly with people in the market opposed to exchanging money several times through middlemen. Furthermore, EBDN is hoping to collect a monthly membership fee of 20 shilings from farmers in future for providing an information service. M-PESA can be used collect payment from the farmers.

The community partner should first identify a lead farmer from each of the 3 farming groups to undergo M-PESA training. The trainer should register the farmers by following the instructions on the Safaricom website.ⁱⁱⁱ They need to ensure the farmers have SIM cards that are activated for the M-PESA service. If not, they will need to buy a replacement. MEKO, an existing EBDN is already administering micro-loans and could very readily leverage its training services to help farmers effectively use M-PESA.

We can then leverage our existing SMS platform, Jeyo Mobile Companion, to get feedback on usage. We can conduct surveys to measure how many times a week farmers are using the mobile banking application. We can also measure qualitative data on whether they are satisfied with the service.

The diagram below outlines the proposed project timeline.

Project Timeline: M-PESA Deployment (2009 – 2010)



Recommendation 2. Use YouTube for Viral Video Marketing

YouTube is a social networking website that hosts a vast library of online videos. It has an average of 30 million visitors daily. It allows anyone to upload their video, and share it with the YouTube community for free. It also allows users to associate their videos with keywords such as “African Development” or “Agri-business”, which can direct users to videos of specific interest. It should be noted that viral marketing is heavily dependent on the positive reception of its audience. Therefore, there should be a conscious effort to make the video widely appealing and entertaining.

There are several online resources that the community partner can tap into for guidance on making and editing videos. There a page dedicated to providing these resources on YouTube called “YouTube on a Shoestring.”^{iv} In addition to this, the community partner can also reference an article called “Insider’s Guide to Video and YouTube for Nonprofits.” This article highlights success factors in creating and promoting your organization through online video. It also references case studies such as 24Hours4Darfur which has successfully launched a awareness campaign to stop genocide in Darfur.^v The community partner could also leverage local resources at Carnegie Mellon University through the Tepper School or Heinz College to help develop content for the video. Tepper students have extensive background in marketing and business, whereas Heinz students may have knowledge of international development and public policy related issues. Employing a student consult through programs such as TCINC, is a relatively inexpensive way to leverage consulting services.

Once the community partner has developed a concept for the video, a preliminary transcript will need to be created as well. The video would be shot in Kenya using at least 3 different farmers giving their testimony of success through EBDN. Once the video has been edited, it can be converted into the appropriate digital format for upload. There is no cost incurred to upload the video since YouTube is a free service. It also has a tracking mechanism to report how many times someone has viewed the video. This video can be posted on the organization’s website, as well as all partners’ websites. There is no quantifiable way to track the success of the video other than the number of views. However, there is a feedback utility built into YouTube’s website where you can view the responses of viewers.

The use of viral video marketing will increase the visibility of the organization. Leveraging a widely adopted technology such as YouTube will give the organization access to an existing social network of millions of users. It is essentially free marketing, and we will be able to drive more people to their website for more information by providing the organization's information in the description section. The figure below shows the proposed timeline. The project implementation is postponed until 2011 in order to track significant results in crop yields and profitability.

Project Timeline: Viral Video Marketing Deployment (2011)



Project Costs

The Viral Marketing Video Deployment will have 2 primary costs- the Videographer and the Student Consultant. I suggest the community partner employs a local videographer to shoot the video. The cost is estimated to be \$500.00. I recommend the community partner leverage the resources of the university to develop the marketing plan for the video. The community partner can employ a student from Tepper or Heinz for a stipend of \$500.

For M-PESA deployment, the only cost incurred will be the new SIM cards for the farmers. We are assuming the farmers are not using this service at the moment and therefore will require new SIM cards to be activated. The cost of a SIM card is 20 Kenya Shillings, which is approximately \$0.25.^{vi} A table is provided below with the detailed cost structure.

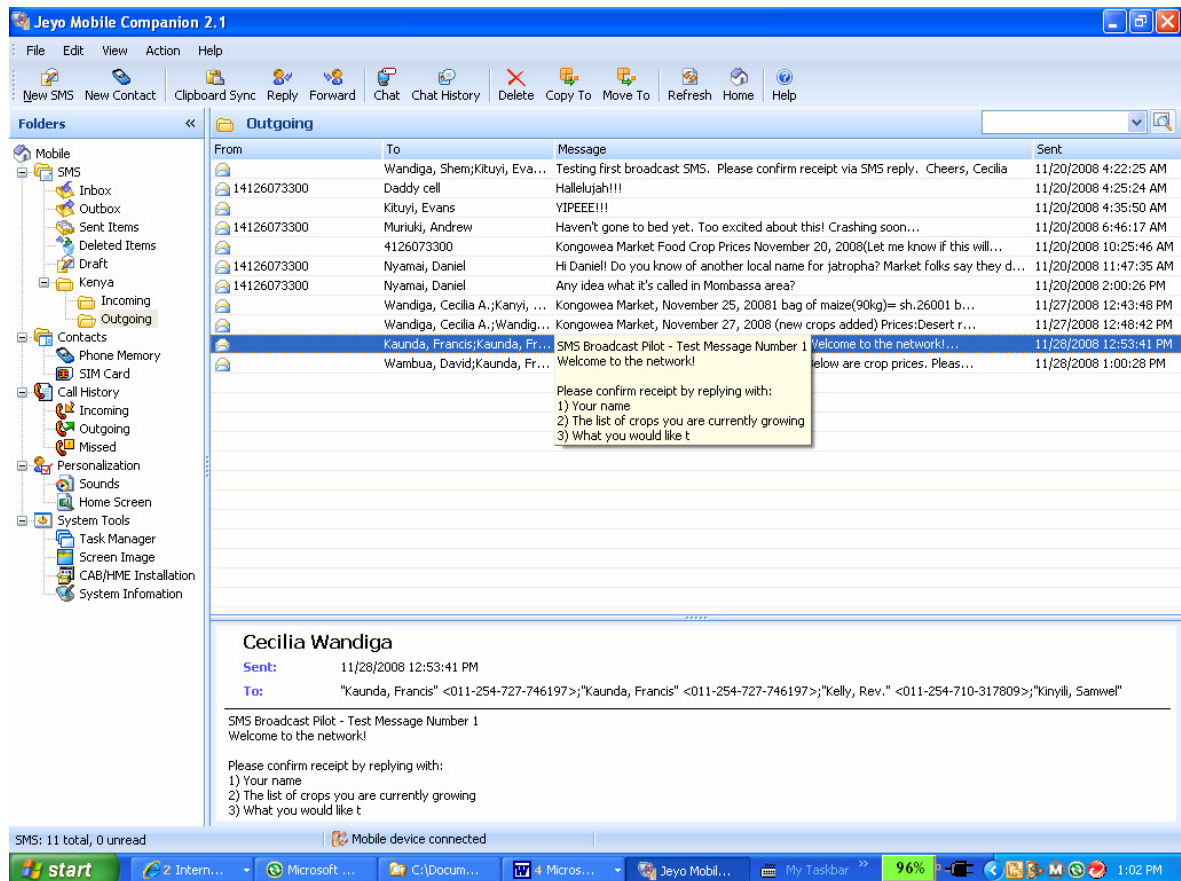
Estimated Project Costs for 2009 -2011	
Viral Marketing Video Deployment	
1. Videographer	\$500.00
2. Student Consultant	\$500.00
<i>Project Total</i>	<i>\$1,000.00</i>
M-PESA Deployment	
1. M-PESA SIM Cards (75 @ \$0.25)	\$18.75
<i>Project Total</i>	<i>\$18.75</i>
Total Cost	\$1,018.75

About the Consultant

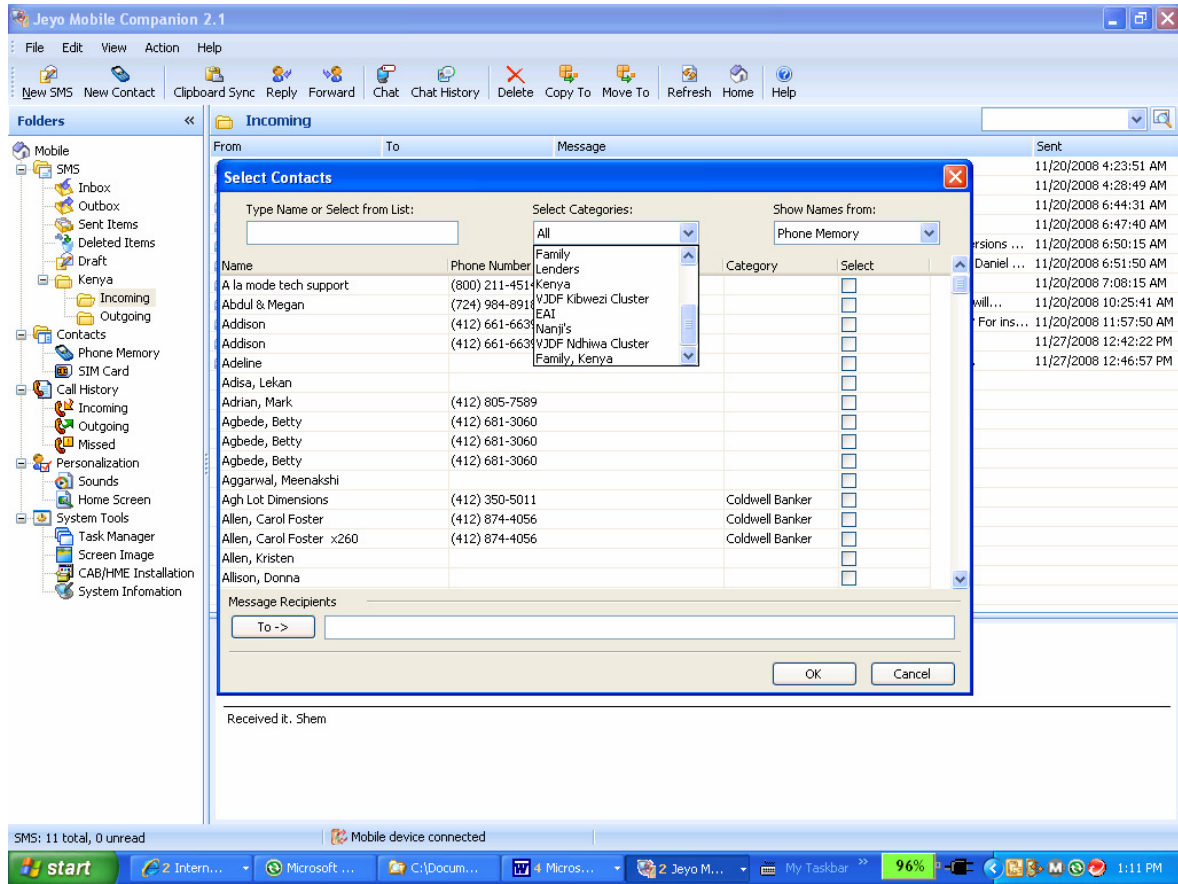
Crystal is pursuing her Master's in Information Systems Management at Carnegie Mellon University. She will be graduating in December of 2008. Prior to coming to Carnegie Mellon, Crystal worked as a Software Engineer for IBM primarily in the data warehousing and data integration sector. She was born in the US, but is half-Rwandan and half-Ugandan and thus has a passion for Africa. After graduation, she intends to focus her career on using technology for sustainable development in Africa.

Appendix A. Screenshots of Jeyo Mobile Companion

1. This screenshot shows a view of outgoing SMS messages.



2. This screenshot shows the ability to categorize contacts into groups.



Appendix B. SMS Message Log

1. Sample of Outgoing Messages from Cecilia Wandiga

November 28, 2008 – VJDF Farmers

SMS Broadcast Pilot - Test Message Number 1 (267 char)

Welcome to the network!

Please confirm receipt by replying with:

- 1) Your name
- 2) The list of crops you are currently growing
- 3) What you would like the network to do for you

Reply by sending SMS to this number.

Asante sana,
Cecilia

SMS Broadcast Pilot - Test Message Number 2 (751 char)

Below are crop prices. Please let us know:

- 1) crops not on the list which you need pricing for
- 2) names of wholesale markets you want prices for

Reply by sending SMS to this number.

Kongowea Market, November 27, 2008

- 1 bag of maize(90kg)= sh.2700
- 1 bag of sura mbaya beans(90kg)= sh.6000
- 1 bag of nyayo beans(90kg)= sh.3900
- 1 bag of roscoco beans(90kg)= sh.6300
- 1 bag of gathika beans(90kg)= sh.6200
- 1 bag of wairimu beans(90kg)= sh.4800
- 1 bag of sorghum(90kg)= sh.3600
- 1 bag of millet(90kg)= sh.2200
- 1 bag of wheat(90kg)= sh.2700
- 1 bag of cowpeas(90kg)= sh.4200
- 1 bag of greengrams(90kg)= sh.4300
- 1 bag of kales= sh.800
- a bunch of bananas= sh.250-450(very large)
- 1 apple= sh.15
- 1 sack(half the size of a bag) of oranges= sh.300

2. Sample of Incoming Messages from Farmer

“2008-11-29 09:16:06 Ongoro, Frederick

Q1.Fredrick Ongoro. Maize,Beans,Sorghum,Onions,Soya beans. Farm inputs and financial support Trainings and tours Marketing. Q2.Onions,Paw paw,Rice,Ground nut,Soyabeans. Wholesale Markets_Kibuye,Kikomba.Thanks and bye God bless @

2008-11-29 10:49:54 Ongoro, Frederick

Type of trainings Farm management and record keeping, Marketing skills. Farm inputs needed_Money marker water pump,Irrigation equipments,Wheelbarrows and fencing wires and posts @”

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