Miller Center
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GSBI Replication Toolkit: Water Social Enterprises

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Global Social Benefit Fellowship
December 13, 2016

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Introduction

The authors of this report conducted a community needs assessment in several communities of northern Nicaragua in order to develop a business model for a potential water social enterprise in the area. The purpose of this report is to provide a toolkit to replicate this project in other areas with similar needs. It acts as a guide, laying out the necessary steps to gather, analyze, and use data in creating a viable social enterprise model. The report refers to our own project, "AguaNic: Proposal to ASDENIC for Launching a Drinking Water Social Enterprise," with examples of the work we did along the way and sample documents when relevant. This should allow future research teams to learn from our experiences when conducting similar projects.

Replication Toolkit

1. Conduct Contextual Market Research

Contextual market research is the foundation for understanding the background of the issue. What is the problem? What is the population involved? What is the current socio-economic, geopolitical, economic, and health status of the general region? For us, that meant researching articles and journals on water, water technologies, improved drinking water solutions, and current water drinking organizations established in Nicaragua.

- Understand the problem: What's the issue? Identify the population
- Gather social and economic information on potential customers
- Research potential competitors: businesses and NGO's
- Gather informal data on market from in-field experience

Examples:

- *We worked closely with a librarian to locate useful articles about the history of water in Nicaragua from a political, economic, cultural, and health perspective.*
- *We then identified key data that would set the context for our study, and developed a bibliography.*

This gave us a jumping off point and organized our base information that we could easily look back on for reference.

2. Develop Research Questions

This section outlines research questions that combine the information learned from the contextual market research with research goals that surround the topic of interest. In addition, finding out what information can be obtained easily through literature, websites, or accessible resources and information that can only be obtained in-field is a crucial aspect of this section. For our team, we knew the general background information regarding water, health, and economics from information provided to us by our partner organization, ASDENIC, but we did not know the specifics. Thus, major research goals that we formulated prior to departing included willingness-to-pay, health, and water security questions. In summary, this section aims to identify what we do not know, and how we can potentially fill in the gaps while in the field.

- Find what information can be researched in the library or online

- How much can be obtained from existing organizations and the work they have already done?
- Pinpoint what kind of information can only be researched while in-field

Example:

- *We realized that we needed a method for determining willingness to pay. The economic questions section of our interviews covered this but when we returned we thought of different questions that we should have asked. Developing strong, complex research questions guided our efforts in collecting data.*

Having retroactively wished that we asked different questions, putting more emphasis on developing extensive and thorough research questions/goals can help prevent these situations.

3. Analyze Relevant Case Studies

The case study analysis is an in-depth look at current social enterprises around the world and what makes these enterprises successful. Social enterprises relevant to the topic of interest are broken down into their specific business model aspects: what are their channels, their sources of revenue, their target population, their technology, their social value proposition? Understanding the individual parts these enterprises help inform why, as an entity, these social enterprises are successful. For our research project, we analyzed five water social enterprises: Naandi, Jibu, Nazava, Safe Water Network, and Hydraid. All of these social enterprises have different models and methods of business; some are based on a subscription model while others are pay-as-you-go. Others sell water filters, while others sell a "service". Some serve small villages while others serve dense, city populations.

- Compare models and strategies of existing, relevant social enterprises
- Analyze the basic building blocks that must be determined for the potential enterprise

Example:

- *Business model analysis of water social enterprises around the world: Naandi, Jibu, Nazava, Safe Water Network, Hydraid etc.*

Comparing and contrasting these models helped identify the factors that make these enterprises successful so that when we are developing a business model for a potential social enterprise in Nicaragua, we can incorporate the best and most relevant aspects of differing social enterprises into our business.

4. Develop Survey and Interview Questions

Survey and interview questions should be sorted by category. In our study there were three categories of questions; water, health, and economics. The survey should be short enough to complete in a 20-30 minute span of time and the questions should not be too confusing. In order to get an accurate idea of what the health and economic status is of participant it is important to ask a variety of questions that touch on different aspects. For health this involves nutrition, sickness, and emotional health. For economics it is necessary to address jobs, income, items purchased, and cost of necessities. Survey questions should be closed and lead to the collection of quantitative data. For the interviews, questions need to be more open-ended for the collection of qualitative. Follow-up questions should be prepared for the potential responses and should build on the topics introduced in the survey questions. Lastly it is essential to establish an ethical code of conduct for interview and survey answer collection. This plan needs to include an example of a script that will be used before conducting research and it needs to be shared and discussed with the host organization. An example of our survey and interviews are shown below.

- Establish code of ethics for data collection in the field
- What kind of data needs to be obtained? If quantitative, direct, numerical, closed-ended questions are useful. If qualitative, broad, opinion-based, open-ended questions are useful.

Examples:

- *We administered survey that contained health, water accessibility survey and willingness-to-pay questions. The survey responses were coded into quantitative data.*

Finding out water accessibility, quality, and time spent obtaining water provided information to help inform the type of business model we would recommend.

5. Conduct Interviews with Key Informants

The main goal of collecting information from key informants is to find out what is already known so that time is not wasted by gathering data that could be accessed through an easier means. The information collected from these interviews will mostly be qualitative but it is possible that they can end up sharing quantitative data as well. For example, if a non-profit organization has data from surveys they conducted and are willing to share it this could be a valuable resource [KW13]. Identifying key informants such as businesses, nonprofit organizations, or government organizations in the area who can be interviewed is essential. These informants may have useful information regarding the market, the outcomes of previous similar enterprises, or

other context clues that are understood only through direct experience. In our research we conducted phone interviews with Potters for Peace, El Porvenir, and ENACAL (the local water provider in Estelí) to name a few.

- Gather contextual knowledge of market and problem/opportunity, including potential competitors
- Learn what they/others have done that has succeeded/failed
- Meet with mentors from academic backgrounds
- Get feedback on proposed research methodology

Examples:

- *We took a tour of a small ceramic filter factory in Managua. We held meetings with different ASDENIC team members with expertise in various fields. We contacted and had phone interviews with different Non-governmental organizations that work or have worked in the same region of Nicaragua on similar issues of drinking water. Through this process we learned about the impact that filters have already had in the region and how, if at all, they had reached markets.*

Interview Question Examples:

- "In your experience, what makes the people here trust or not trust a water source?"
- "What are the goals of your organization and what were the specific challenges for meeting those goals in this location?"
- "When do people have the most money to spend?"
- "Do you think people would buy a water filter at this price?"

These interviews not only gave us the answers to these questions but also a new set of questions to be answered by our situational analysis.

6. Conduct Situation Analysis

The situation analysis involves gauging the physical conditions of the area as they relate to the topic of research. For water, this meant testing the water in relevant locations, learning about the agricultural patterns of the region, and understanding any climate conditions that may be affect-

ing the region such as drought or in increase in seasonal flooding. Our situation analysis included speaking with an expert on local agriculture from the organization who explained the lives of farmers as it related to their crops and incomes as well as the water quality. Professional water tests were done before we arrived in Nicaragua that confirmed that the contaminants we were dealing with were only bacteriological and viral, not chemical. Also, we performed 48 water tests using Petrifilms with water samples taken from the taps at the homes of our interview participants. For comparison we also tested the water at our hotel and from the local bottled water. Once we had a good idea of the physical situation we were able to craft our interview and survey questions.

- Determine the present conditions with regard to water, energy, climate, economic climate, cultural habits, etc.
- How do these conditions affect the prospective market the social enterprise would be serving?

Examples:

- *We took water sample tests using 3M™ Petrifilms™ at select locations. The results were included in our report and used to support our evidence that there is a need for water filters in the market.*

Using 3M™ Petrifilm™ was key in determining the water quality at point-of-use water sources. See AguaNic document for more information on how they were used.

7. Conduct Surveys, Interviews, and Focus Groups

The next step is to work with the organization to create a schedule for surveys and interviews. The field schedule should be planned to allow for a representative sample of the participants to be reached. Hopefully the organization has connections with the communities that will be visited and can prepare them so that participants are available once the team arrives. If a translator is available make sure they have a good understanding of the project and are able to accurately convey the consent information. If there is no translator and language proficiency is not fluent, recording interviews may be necessary. Make sure to also ask for consent before recording anyone and remain transparent in everything you plan to do with the information. In our research, we also conducted interviews in focus group format. The community leaders were gathered into a circle and the questions were posed to the group rather than to the individual. This allowed for an active dialogue where multiple opinions and observations could be shared in the same room.

- Plan a field schedule that will allow for a representative sample of participants to be reached
- Organize with host organization or key informant and translators if necessary to be introduced to participants
- Organize focus groups with community leaders of members of target groups

Examples:

- *Refer to Appendix A for an example survey*

8. Organize Data

This activity is an ongoing process that can start as soon as data is collected. The main purpose is to gather all the information from its various formats into one place so that it can be compared and examined in a cohesive way. Quantitative data can be input into tables, charts, and graphs, which of course allows patterns to appear in the data. This is sometimes appropriate for qualitative data as well. For instance, a bar graph could show the distribution of responses across options a, b, c, or d within a behavioral survey. We created a matrix on Google Sheets to record the frequency of each survey response by question. It may be helpful to keep responses from different visits or different communities separate, or at least create a duplicate of the chart where they are kept separate.

Semi-structured interviews will not fit this format. However, transcribing these interviews into a single document will allow patterns to emerge across participant responses. Finding these themes and noting them in a separate document is an effective way to organize this data. Once our interviews were translated onto the same document, we were able to pick out major themes from our conversations. These were organized into different categories, such as drought concerns, attitudes towards household filters, etc. This allowed us to draw conclusions from our collective conversations much more easily.

- Collect survey data
- Consolidate audio recordings, handwritten notes, and completed surveys into a document or folder of useful information.
- Transcribe and summarize interview data into major themes and patterns
- Create tables, charts, or visual graphics of the relevant data if possible

Example:

- *Throughout our survey and interview process some major themes stuck out to us. We discussed and condensed the responses into a concise document called "Major Themes."*

This helped prepare us to present preliminary findings to stakeholders and guide us towards a business model plan.

9. Discuss Findings and Draw Conclusions

Once the data is organized, the team can begin finding and interpreting trends in the quantitative data. From this step, we saw from the survey responses chart that very few households had to travel far for water and concluded that water kiosks would be perceived as an inconvenience rather than a service. Re-examine the research questions that were developed in the second activity or the questions that arose throughout the in-field portion, and look for answers in the data. Be on the lookout for themes or patterns that are surprising, as the perceptions gathered from the in-field experience may sometimes be at odds with what the data says. Finding a reason for this discrepancy could expose errors in how the data is presented or may instead prove that perception to be misguided. This step is where our team formed our action research summary, concluding most importantly that there was both a need and a market for a water social enterprise.

- How does the data directly or indirectly address the questions developed in part 2?
- What does this mean for the potential social enterprise?
- Based on the findings (from surveys, interviews, in-field tests, etc.), how does this inform aspects of the potential social enterprise? Can certain technologies be ruled out while others more optimal? What business channel will be the best fit? etc.
- Discuss with host organization/key informants to gain feedback and perspective

Examples:

- *We discovered that a vast majority of our participants had water piped into their households which meant that a kiosk model of water enterprise probably would not be the most convenient or appropriate.*

The discussion of our experience and findings with mentors allowed us to rule out water business model options that would not work within the context.

10. Translate Findings Into Social Enterprise Model

The final step is to turn the acquired knowledge into a plan of action. This requires connecting the conclusions from the previous step with the insights about how social enterprises start and operate. This was the purpose of our first deliverable, to provide ASDENIC with a report they could follow like a guide as they evaluated and acted upon this opportunity. Our report was divided into sections that provided answers to each question the organization would face along the way. These included possibilities and recommendations for each aspect of a typical business model, such as marketing channels, pricing, distribution, etc., but also situational issues. For example, ASDENIC has a strong relationship with the local water sanitation committees in the communities, so the role they would play in the enterprise was a point of debate, and therefore had its own section in our report. Lastly, considerations must be made for the human resources necessary to lead and execute the venture. What qualifications and personal qualities would be necessary for this leader to have? Is there already someone within the organization who fits the profile or would they have to be hired from elsewhere? These questions should be answered and recommendations should be made about what the candidates should be like and where they would come from.

This step may represent one of the bigger mental leaps of the process. To break it down into manageable pieces, we created an outline of what information would needed to be included in our report. The outline eventually became the aforementioned sections of the report like marketing and role of ASDENIC, but at the time they were merely categories into which we organized our findings. For example, our finding that in-country products were highly preferred by ASDENIC and the potential consumers led us to recommend ceramic filters in our "Technology" section. After these findings are distributed across appropriate sections, converting each into a paragraph or two explaining the rationale will create the first draft of the deliverable.

- Compare findings to situations in case studies from part 3
- Brainstorm and analyze different methods of sales, distribution, marketing, pricing, etc. as well as the preliminary steps in starting this enterprise
- Create a profile for the ideal candidates to lead and participate in this venture

Examples:

- *In our final report, a large section was dedicated to describing the possible roles that ASDENIC could play. We took into account their power as an organization as well as their reputation among the target market.*

Refer to AguaNic for description of proposed business models.

Appendix

Appendix A. Sample Survey Questionnaire

1.¿Dónde obtiene Ud. el agua para su casa?

a. Mini-Acueducto
b.Tubería de agua potable
c. Puesto público
d. Pozo público
e. Pozo Propio
f. Rio, cañada, manantial
g. Agua de lluvia recogida en un tanque
h. Agua embotellada
i. Otra manera- _____

2. ¿Cuánto tiempo dedica para llevar agua a sus hogares?

a. Menos de 5 minutos
b. De 5 a 15 minutos
c. De 15 a 30 minutos
d. Si es más de media hora, dígame cuántos -_____

3. ¿Qué distancia recorrido para ir por agua?

a. Ninguna distancia. Hay tubería que lleva agua al casa
b. Menos de 2 kilómetros
c. De 2 a 8 kilómetros
d. Si es más de 8 kilómetros, dígame cuántos -_____

4. ¿Cuánto tiempo se abastece de agua?

a. De vez en cuando
b. Dia de por medio
c. De una a cinco horas
d. 6 a 12 horas
e. Mas de 12 horas
f. todo el dia

5. ¿Cuanto litros de agua usa en las siguientes actividades ?

a. Beber_____
b. Banarse_____
c. Lavado las manos_____
d. Lavado los dientes_____
e. Limpiar la casa_____
f. Lavar ropa_____
g. Lavar a la alimentos_____
h. Cocinar los alimentos _____
i. Lavar la letrina_____

6. ¿Da algún tratamiento al agua que bebe de alguna manera? Si escoge *b. no* siga a la pregunta #8.

a. Sí
b. No
c. no lo sé

7. ¿Qué tratamiento da Ud. el agua?

a. La hiervo
b. Uso cloro
c. La filtro con arena
d. La filtro con una tela fina
e. La agito suavemente
f. La dejo al sol
g. Dejo que se asiente el agua en un receptor

h. No lo sé
i. Dígame de qué manera filtra el agua -_____

8. El tipo de tratamiento que Ud. utiliza le da un buen resultado? (agua potable)
   a. Sí
   b. Creo que sí
   c. No estoy muy seguro/a
   d. No creo que funcione
9. El agua que Ud. bebe, ¿le preocupa si estare potable?
   a. Sí
   b. No
   c. No estoy seguro/a porque _____
10. ¿Qué preocupaciones tiene al respecto?

_____

11. ¿ Cuáles cambios, soluciones le gustaría ver?

_____

12. De hacerse realidad estos cambios, ¿En qué le ayudaría?

_____

13. ¿En qué tipo de recipiente / contenedor guarda su familia el agua que bebe?
   a. Pila
   b. Pichinga
   c. Bariles
   d. Bidones
   e. Botellas
   f. Otro-_____
14. En general, cómo se encuentra Ud. de salud?
   a. Excelente
   b. Muy bien
   c. Bien
   d. No muy bien
   e. Mal
15. ¿Alguién en su familia ha tenido diarrea en los últimos 30 días?
   a. Sí
   b. No
   c. No lo sé
16. ¿Y, ¿en los últimos 6 meses?
   a. Sí
   b. No
   c. No lo sé
17. ¿En su familia, ¿alguién ha tenido episodios de vómitos este último mes?
   a. Sí
   b. No
   c. No lo sé
18. ¿En su familia, ¿alguién ha tenido episodios de de vómitos en los últimos 6 meses?
   a. Sí
   b. No
   c. No lo sé
19. ¿Quién tuvo los más episodios de vómitos o diarrea?
   a. La mamá
   b. El papa
   c. Los abuelos
   d. Los niños
   e. Varía mucho
   f. Dígame quién más_____
20. ¿Qué remedios utilizaron?
   a. Remedio casero (medicina natural como hierbas)
   b. Medicamento farmaceutico
   c. Otros_____

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