A Tale of two Homes:
Observations about the information and technology needs of the rural poor in Ensenada, Mexico

Phil Fawcett, 2nd Year Doctoral Student, UW iSchool – philfa@microsoft.com

Motivation
Context: Mexico
A tale of two homes
Review of Field Notes
Some thoughts on a Research Agenda

There exits today a large “Design Reality Gap” between those that create development informatics solutions and those who use them. In fact, based on the review of current literature typical rural informatics professionals tend to develop ICT solutions based on their own perception of the end user requirements, rather than exploring the actual information needs of the rural poor and underserved communities. (UNDP, 2005)

The longer term goal of my research: help to close the “Design Reality Gap” in the context of the Ensenada Colonia’s home building projects using appropriate technology

Community Ownership – Many projects are initiated without community input that leads to equipment theft or deterioration because of lack of a sense of ownership.
Local Content – Most Internet content is irrelevant to the developing world’s poor and is controlled by commercial rules. The demand for telephone, fax, and computer services far exceed the Internet in most rural centers.
Appropriate Technology – Computers themselves remain a luxury, and purchasing decisions appear to be out of step with the needs of communities. The newest hardware/software capacity is generally underused and is not available to be repaired in most local settings. Technology must be appropriate and adequate to the needs of the communities, not in technical terms but in terms of utilization, learning, and adoption.

Language and Culture Pertinence – English dominates the web, and when combined with the Internet’s class and cultural uniformity, creates a new “Apartheid”.
The developing world is also left to inherit a “user culture” because of a lack of opportunities for contribution. Without the presence of local cultural/language, ICTs cannot contribute to the development of their own communities.
The present unbalanced “cultural exchange” must be altered and will occur only if communities are empowered to produce more local content.

Convergence and Networking – Projects are initiated in areas with no history of participation, no convergence with other programs or organizations, and no networking with other ICT projects.
Projects are situated in isolation without alliances amongst each of the communities as a whole.

Average US Microsoft employee salary (~$306 per day)

1 Billion People (> $5)
2 Billion People ($2-$5)
3 Billion People (<$2)

Economic Opportunity Zone
BOP, MOP, and TOP

Source: Alfonso Dargan, “Take Five - A Handful of Essential ICTs in Development”
Multidisciplinary Research Model

Source: Microsoft Research ICT4D Framework

**ECONOMIC CONTEXT MEXICO**

**Mexico**

Source: INEGI

[Map of Mexico, Mapa de Mexico, se muestra la densidad de población – Population Density – Data source: U.S. Census Bureau, 2000]


[Chart showing population by gender and age in millions]
Concentration of rural population in Mexico, percentage by state
Source: SAGARPA with data from INEGI (2001).

Region 1 – Baja, Mexico
Region 2 – Northwest, Mex.
Region 3 – North, Mexico
Region 4 – Northeast, Mex.
Region 5 – Central West, Mexico
Region 6 – Central, Mexico
Region 7 – Gulf and South
Region 8 – Southeast, Mexico
Region 9 – Metropolitan

Source: Telecom CIDE based on data by COFETEL.

Some facts about the housing need in Mexico and Poverty Worldwide
- The percentage of poor Mexicans is about the same now as it was in the early 1980s – a little more than 50 percent, however the population has grown over the same period, from 70 million to 100 million. That translates to approximately 19 million more Mexicans living in poverty than 20 years ago.
- According to the Mexican government and international organizations, about 24 million – nearly one in every four Mexicans – are classified as extremely poor and unable to afford adequate food or housing.
- 50% of Mexican families live on less than $4.25/day.
- 8.1 million Mexican families are estimated to be living in overcrowded or substandard housing.
- Currently there are 3.5 billion people worldwide living on less than $2 per day.

---

4 Source: United Nations CHS
Community Context

Homes of Hope

1. Land. The families we build for must have rights to their land, whether that means that they own it or are making payments.

2. Children. The family has children under the age of 18. Typically we look for families with 3 or more children, however exceptions are made depending on the level of hardship discovered.

3. Income. The families would not otherwise have means to build a home. Typically, homes are built for families who make less than $100 US per week.

4. Living conditions. We look at where the family is living now. Families who have an immediate need for shelter are given the highest priority.

5. Special circumstances. Families who don’t meet all of the above criteria may still qualify due to special circumstances, such as a chronic medical condition.

Criteria for Home Selection

Effect
The need
Positive impacts of housing on a family in the Colonias

Economic impact
- A family’s income is too low to make a down payment on a home
- About 90% of families living in poverty are not able to make monthly mortgage payments

- Reduces incidence of financial stress and poverty
- Provides families with a sense of stability and security

Educational impact
- A child’s family does not have enough money to pay for school
- A child’s family does not have a place to study

- Improves educational outcomes for children
- Increases the likelihood that children will attend and stay in school

Regional Effect of Arian and H. of Hope projects

<table>
<thead>
<tr>
<th>Effect</th>
<th>The need</th>
<th>Positive impacts of housing on a family in the Colonias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health impact</td>
<td>- 2.5% of children under one die of exposure</td>
<td>Reduces incidence of sickness due to dirt floors and exposure to the elements, improves overall quality of life</td>
</tr>
<tr>
<td>Social and emotional impact</td>
<td>- A child’s family has experienced chronic stress and anxiety</td>
<td>Reduces mental and emotional stress for children and families</td>
</tr>
<tr>
<td>Spiritual impact</td>
<td>- A child’s family has struggled to find hope and meaning in their lives</td>
<td>Inspires a response to want to give back to their community</td>
</tr>
</tbody>
</table>

Source: Philfa 2007
### Relative Cost and Useful Life

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>People</th>
<th>Cost/Pers.</th>
<th>Life/yrs.</th>
<th>$/Person/Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>$3,000</td>
<td>5</td>
<td>$ 600</td>
<td>15</td>
<td>$ 40</td>
</tr>
<tr>
<td>2006</td>
<td>$ 900</td>
<td>7</td>
<td>$ 128</td>
<td>52</td>
<td>$ 17</td>
</tr>
</tbody>
</table>

### SELECTED FIELD NOTES AND OBSERVATIONS

These field notes represent an ethnographic narrative based on personal observations during trips to Baja Mexico between 2003 and 2008. The purpose of these trips typically was to build houses for the poor and to do community development activities in that region. My observations were collected during 47 day stays in the region.

### The Colonia’s

Figure 1.1: A typical house in the Colonia, with the majority of homes materials were plastic, wood, Cinder Blocks.

Figure 1.2: Homes in Colonias are located in areas where no one would really want to build. The roads are not paved and most cars do not have their oil checked and many go without essential items. On the left, the homes are made of any kind of material (brick, wood, metal, scrap materials, etc.). On the right, the homes are built from materials that are available.

Figure 1.3: This is a typical house in a Colonia where a family of four is living. The home is a single story built from tin. The fence is made of wood and the fence is not really secure. The water is supplied by a water truck and the electricity is provided by an extension cord from another home.

### Migrant Farm Camp

Figure 2.1: These homes in the Colonia are made from any kind of material that is available. The water is supplied by a water truck and the electricity is provided by an extension cord from another home.

Figure 2.2: The women in the Colonia are very hard working and do a lot of things that are not expected of them. They have to work long hours and are expected to do many tasks that are not expected of them.

Figure 2.3: The water truck brings water to the homes in the Colonia every week. The water is brought in a large tanker truck and the water is delivered directly to the homes.

### A Community of Information Networks

Figure 3.1: The colonia is a community that is very dependent on the internet. The internet is used for communication, education, and entertainment.

Figure 3.2: The internet is an important part of the community. The internet is used for communication, education, and entertainment.

Figure 3.3: The internet is an important part of the community. The internet is used for communication, education, and entertainment.

### Checking in: A visit with a family from a prior build

Figure 4.1: The family is very happy with the house that was built for them. The family has been able to save money and is able to afford to buy food and other necessities.

Figure 4.2: The family is very happy with the house that was built for them. The family has been able to save money and is able to afford to buy food and other necessities.

Figure 4.3: The family is very happy with the house that was built for them. The family has been able to save money and is able to afford to buy food and other necessities.

Figure 4.4: The family is very happy with the house that was built for them. The family has been able to save money and is able to afford to buy food and other necessities.

Figure 4.5: The family is very happy with the house that was built for them. The family has been able to save money and is able to afford to buy food and other necessities.
RESEARCH AGENDA

Phase 1 - Orientation and Field Assessment

Field Observations
Field Observation of Homes of Hope - Ghana (Wood Homes)
Field Observation of Metal Homes - Ghana
Field Observation of Ghanaian Informants

Identification of Cultural Themes (In Progress)
Field Notes (In Progress)
Themes (In Progress)

Phase 1.1 - Summer/Fall 2009 - 2011 Orientation and Field Assessment - Cont’d

Preparation for 1 Week Pilot Study - Spring 2009

SAMPLE RESEARCH METHODS TYING IN THE INFORMATION NEEDS OF DEVELOPING COUNTRIES

Creating User-Generated Artifacts

- Net Map - Ghana A case study and tool for creating user-generated artifacts for the construction of social networks and information maps.
  Case Study: Basin Board Diammis - Ghana, Africa

Research Questions in the sample case study

- What is the water-governance landscape?
- How does multi-stakeholder governance work?
- Do people see influence connected to position in the network?
- Which kind of link is crucial for determining influence?
- Can improved network understanding improve collaboration?
- What are clusters, cut-points, brokers etc.
- How does network develop over time?
1. Theme Analysis helps gain a preliminary understanding of all the relevant aspects of the problem.

2. Profile Analysis is a SWOT (Strength, Weakness, Opportunity, Threat) analysis, which is tailored to the needs of the rural poor in the targeted community, along with the area, country, and region inhabited by the rural community. It highlights the areas that need intervention to bring about development.

3. Existing Information Systems Analysis checks for other community information systems. It may identify operational issues in other areas with a similar profile to uncover success stories and lessons learned.

4. In the Prioritization of Information Needs exercise, governing criteria guide the decision of which critical information needs should be addressed and delivered first. These criteria include information critical to poverty reduction, necessary to facilitate a smooth citizen-government interface, which helps build human capabilities, and on-areaspecific opportunities.

The diagram above was generated by a largely inductive approach, and may serve other researchers and practitioners in the field as a checklist of potential information needs of rural communities in developing countries.

(Source: Information Technology International Development, Winter 2004)

Other Attributes of the INAM Survey

<table>
<thead>
<tr>
<th>Theme</th>
<th>Information Assessment Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Needs</td>
<td>Livelihood, Housing, Work, Transportation, Education, Transports, Emergency Services</td>
</tr>
<tr>
<td>Community</td>
<td>Health Care, Housing, Social Security, Food, Employment, Education, Environment, Education Program, Availability, Epidemic Outbreaks</td>
</tr>
<tr>
<td>Daily</td>
<td>Weather Reports, Market Prices, Inventory Position, Fair Prices in the local market context</td>
</tr>
<tr>
<td>Government Information</td>
<td>Voter List, Published Employment Opportunities, Family List, Emergency Services, Government Contact information published, Licensing and Permits, Government Services, Forms for Govt. services request available, Land Records</td>
</tr>
<tr>
<td>Access to Justice</td>
<td>Court case information, Rights and responsibilities, Grievance Redress</td>
</tr>
<tr>
<td>Classified and Entertainment</td>
<td>Employment Services, Yellow pages, Astrology, Deals, Matrimonial, Entertainment</td>
</tr>
<tr>
<td>Environmental Awareness</td>
<td>Educational program to keep your environment clean, Disaster management notices, Environmental protection guidelines, Pollution levels published</td>
</tr>
<tr>
<td>Self Employment</td>
<td>Setup your own enterprise using local resources, Microenterprise network available, Success stories</td>
</tr>
</tbody>
</table>
| Fact Sheet of the Area | Area Statistics, Census, Niche and opportunities, Successful development initiatives, 

(Source: Information Technology International Development, Winter 2004)

RESEARCH QUESTIONS

References

- Social Network Analysis (e.g. Hanneman 2001)
- Power Mapping (e.g. Schiffer 2007)
- Participatory and Action Research (e.g. Chambers1983; Freire1990)
- Stakeholder Analysis (e.g. DFID and World Bank2003)
Sample Research Questions

- What role do social networks play in the community at large and in neighborhoods such as the Colonia’s?
- Who are the information gatekeepers in the Colonias?
- Can information and technology enhancements be used to close the digital divide in Ensenada and its surrounding area?
- How can we discover which information and technology interventions are best suited for the rural poor in developing countries?
- Can I generalize the research findings of the rural poor in Ensenada Mexico to rural poor populations in developing countries around the world?
  - Design Principles of developing countries
  - Identify Information needs in developing countries

Sample Research Questions – Part 2

- What types of information do the families in the Colonias gather when they tap into their social networks?
- What are the social norms for members of the Colonias community in their neighborhoods?
- What values do the people of the Colonias have? Have these acted out in their daily lives?
- What are the core values of the people of the Colonias? How do these core values help hinder their economic and social progress?
- What types of information do the Colonias do when a member of their family gets ill?
- What does the “economic bump” effect of building a home/health care process? How are the family core values recognized by the “economic as usual” back to a life of serious poverty? Does a new “economic as usual” effect happen?
- What types of information do the families in the Colonias do in order to have a safe, productive home build process?
- Is there a change in community social status by the families who received the new homes?
- Is there any change in social status between the families that received metal or wood homes?
- What technology interventions might have the greatest value for Colonia Communities?
- What applications (employment opportunities, resource availability, etc.) would have the greatest impact in the Colonias?