CSE 590 Research Conversation

A Tale of two Homes:

Observations about the information and technology needs of the rural poor in Ensenada, Mexico

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Things to talk about

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

MOTIVATION

….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. *Source: United Nations Development Policy (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**

Some issues with current ICT4D projects :

Community Ownership –
Local Content –
Appropriate Technology -
Language and Culture Pertinence-
Convergence and Networking –

Motivation Drill Down Part 1

- *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 exceeds the demand for 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.

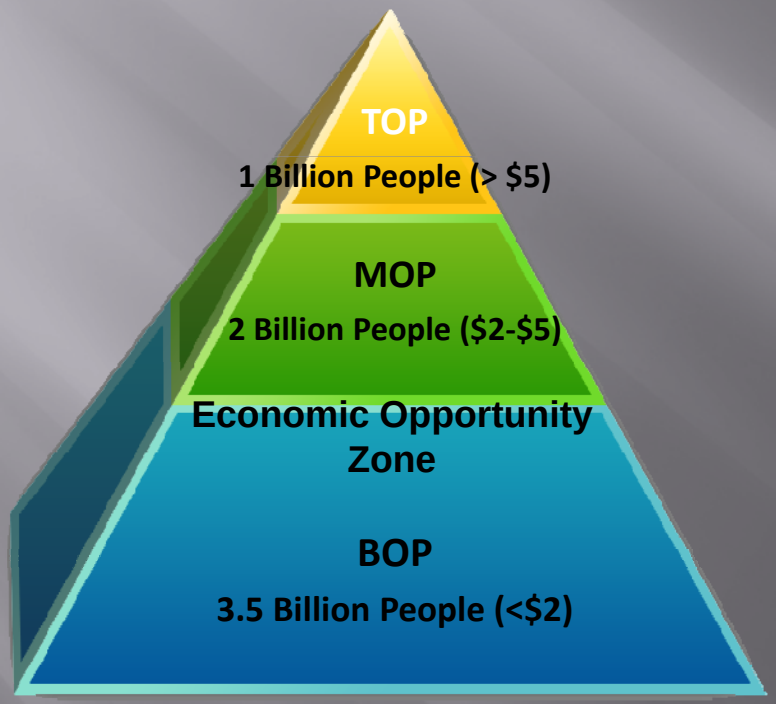
Source: Alfonso Dargan, "Take Five - A Handful of Essential ICTs in Development"

Drill Down Part 2

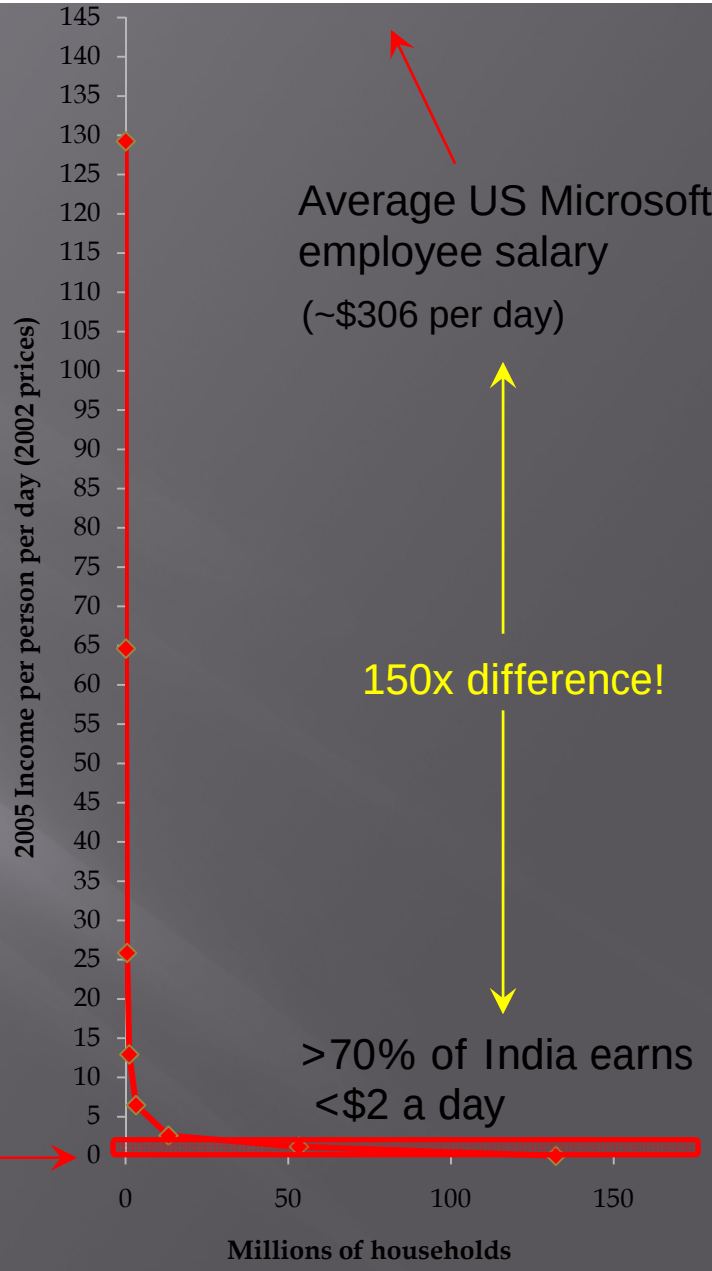
- *Language and Culture Pertinence –*
  - English dominates the web, and when combined with the Internet's class and cultural uniformity, create a new "Apartheid".
  - The developing world is also left to inherit a "user culture "because of a lack of opportunities for contribution. Without the presence of local cultural/language, ICT's 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 instituted in isolation without alliances amongst each of or the community as a whole.

Source: Alfonso Dargan, "Take Five - A Handful of Essential ICTs in Development"

BOP, MOP, and TOP



BOP Target



India's income distribution

Sources: Edelweiss Research, BOP - UN , NCAER

Multidisciplinary Research Model

Society

Group

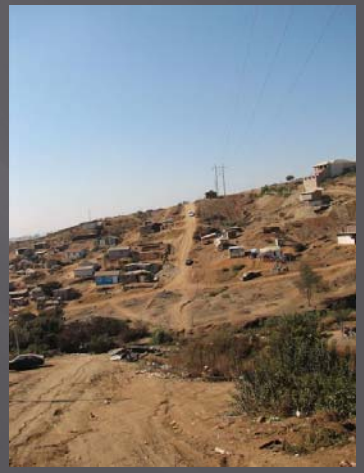
Individual

Technology

Understanding

Impact

Innovation

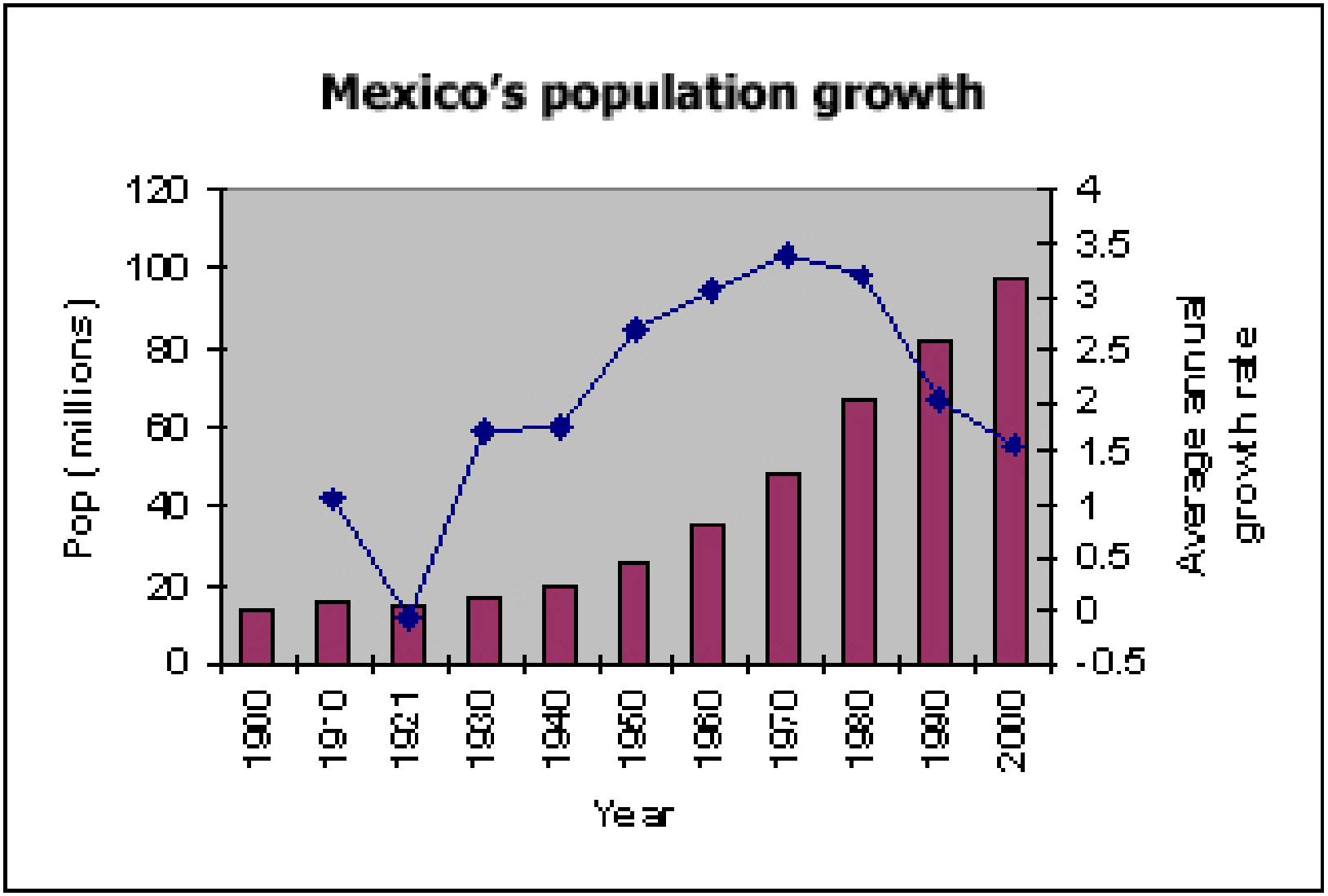


Source: Microsoft Resarch ICT4D Framework

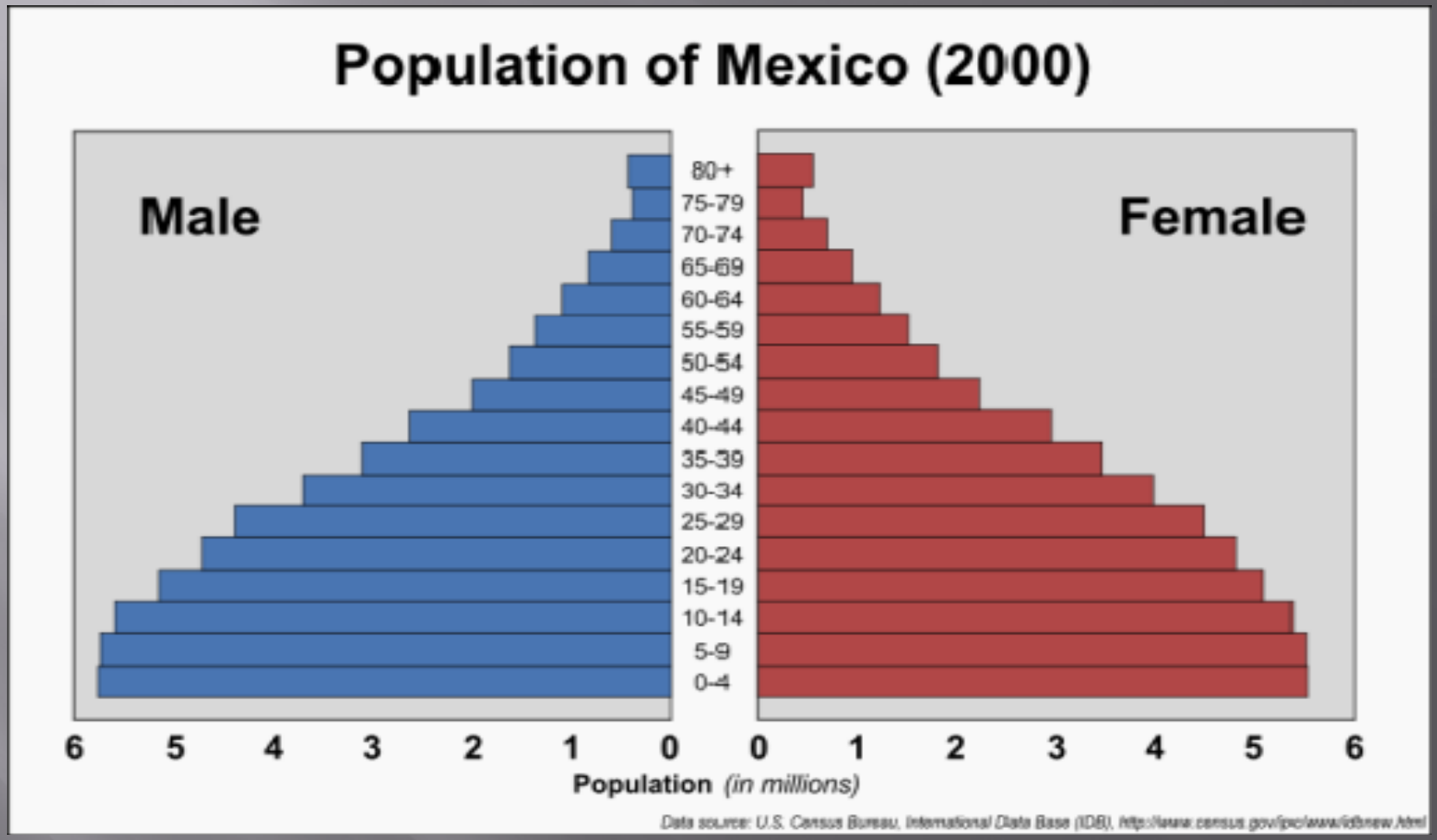
ECONOMIC CONTEXT MEXICO

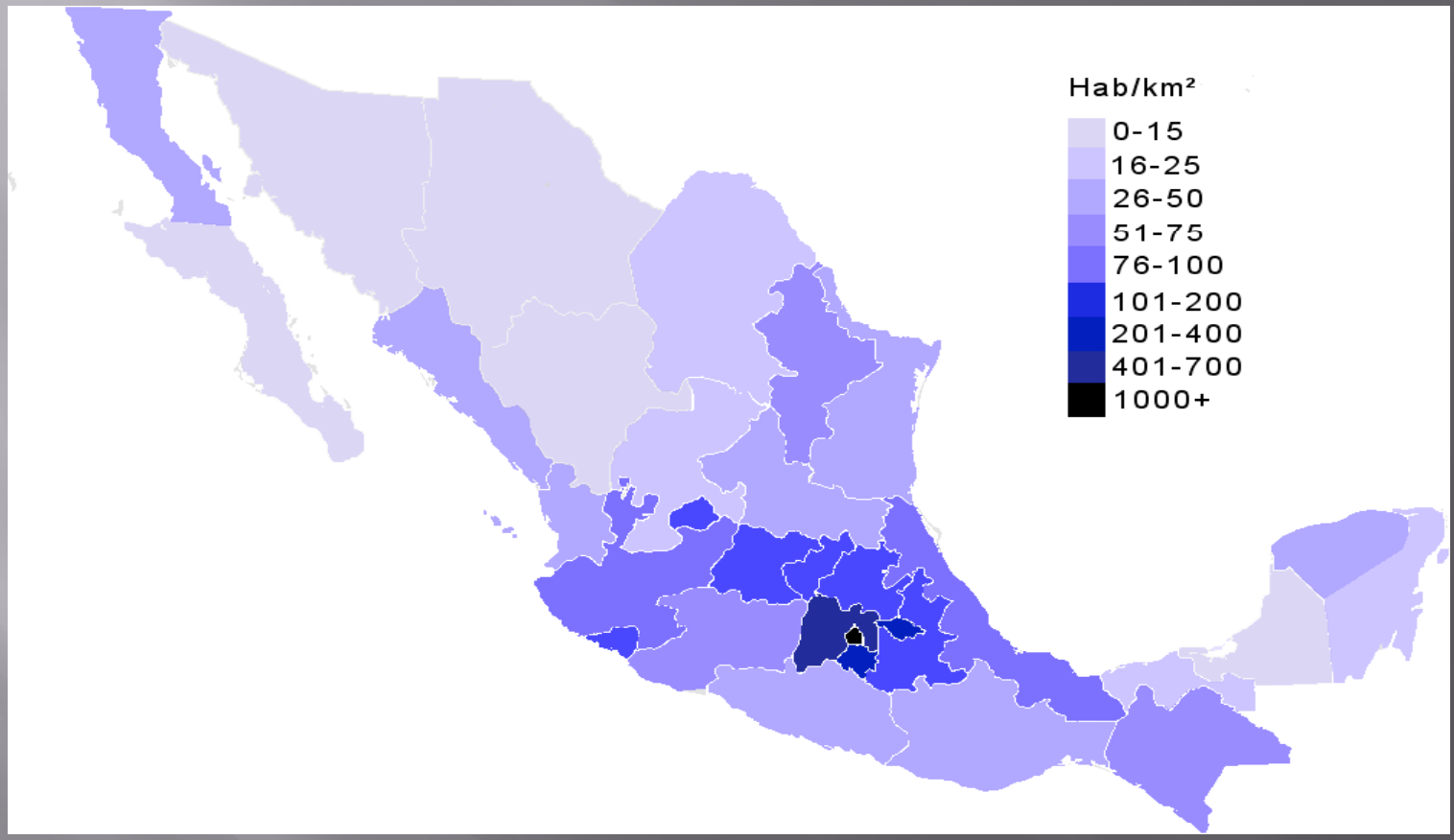
Mexico

United States
San Onofre
Palo Verde
Comanche Peak
Grand Gulf
Joseph M. Farley
River Bend
Waterford
South Texas Project
Laguna Verde
Phoenix
Lubbock
Tuscaloosa
Montgo
Ensenada
Juarez
Austin
San Antonio
New Orleans
Hermosillo
Chihuahua
Corpus
Monclova
Los Mochis
Monterrey
Torreon
La Paz
Durango
Mazatlan
San Luis Potosi
Merida
Guadalajara
Campeche
Morelia
Colima
Orizaba
Taxco
Coatzacoalcos
Chilpancingo
Acapulco
Oaxaca
Belmopan
Puerto Barrios
Guatemala City
San Salvador
34°
32°
30°
28°
26°
24°
22°
20°
18°
16°
14°
International Nuclear Safety Center at ANL, Aug 2005

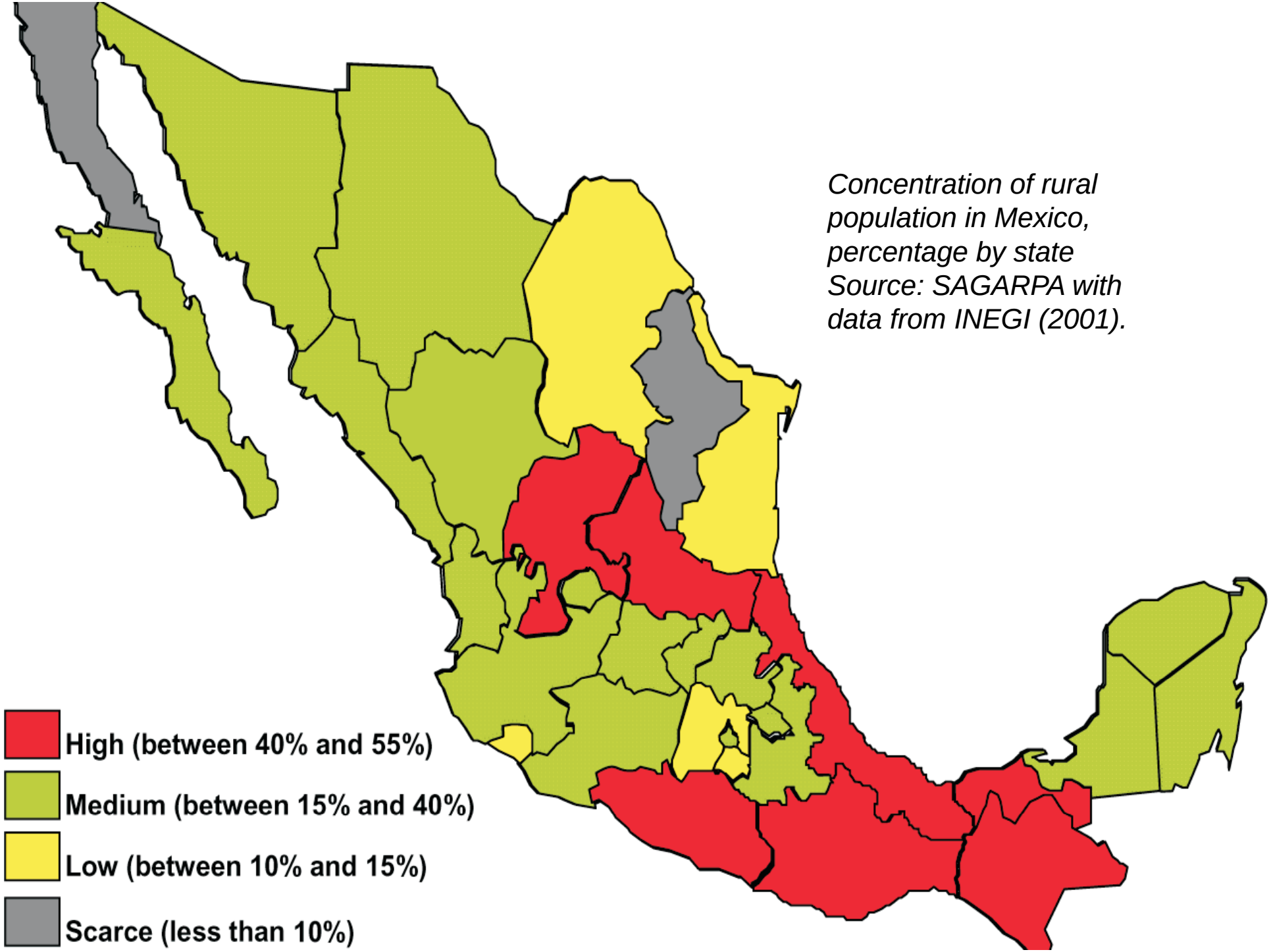


Mexico's Population Growth 1900-2000.
Source: INEGI


Population of Mexico (2000)
Male
Female
80+
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
6 5 4 3 2 1 0
0 1 2 3 4 5 6
Population (in millions)
Data source: U.S. Census Bureau, International Data Base (IDB), http://www.census.gov/ipc/www/idbnew.html

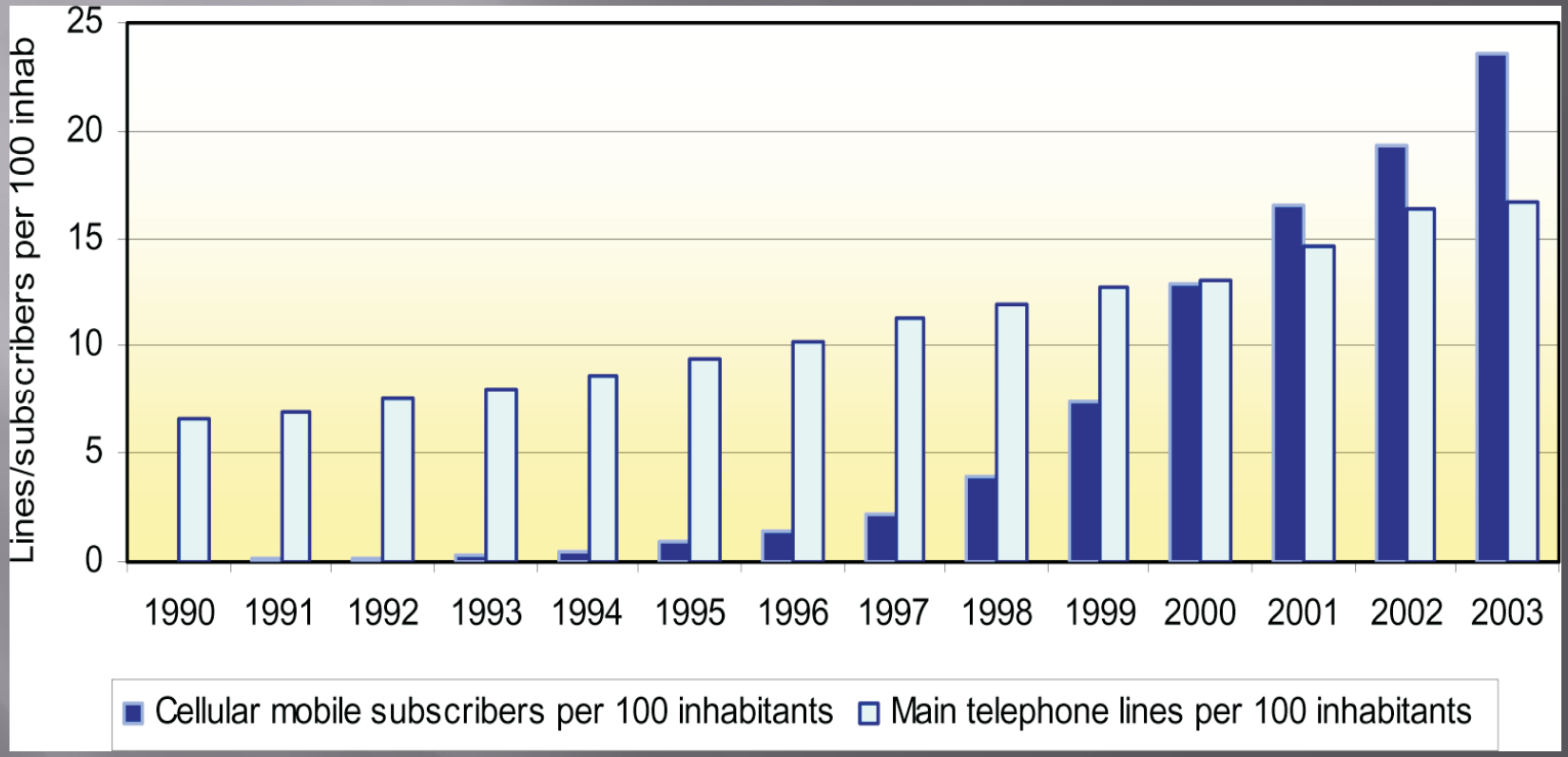


Map of Mexico, Mapa de Mexico, se muestra la densidad de población – Population Density - Data source: U.S. Census Bureau, 2000 IDB



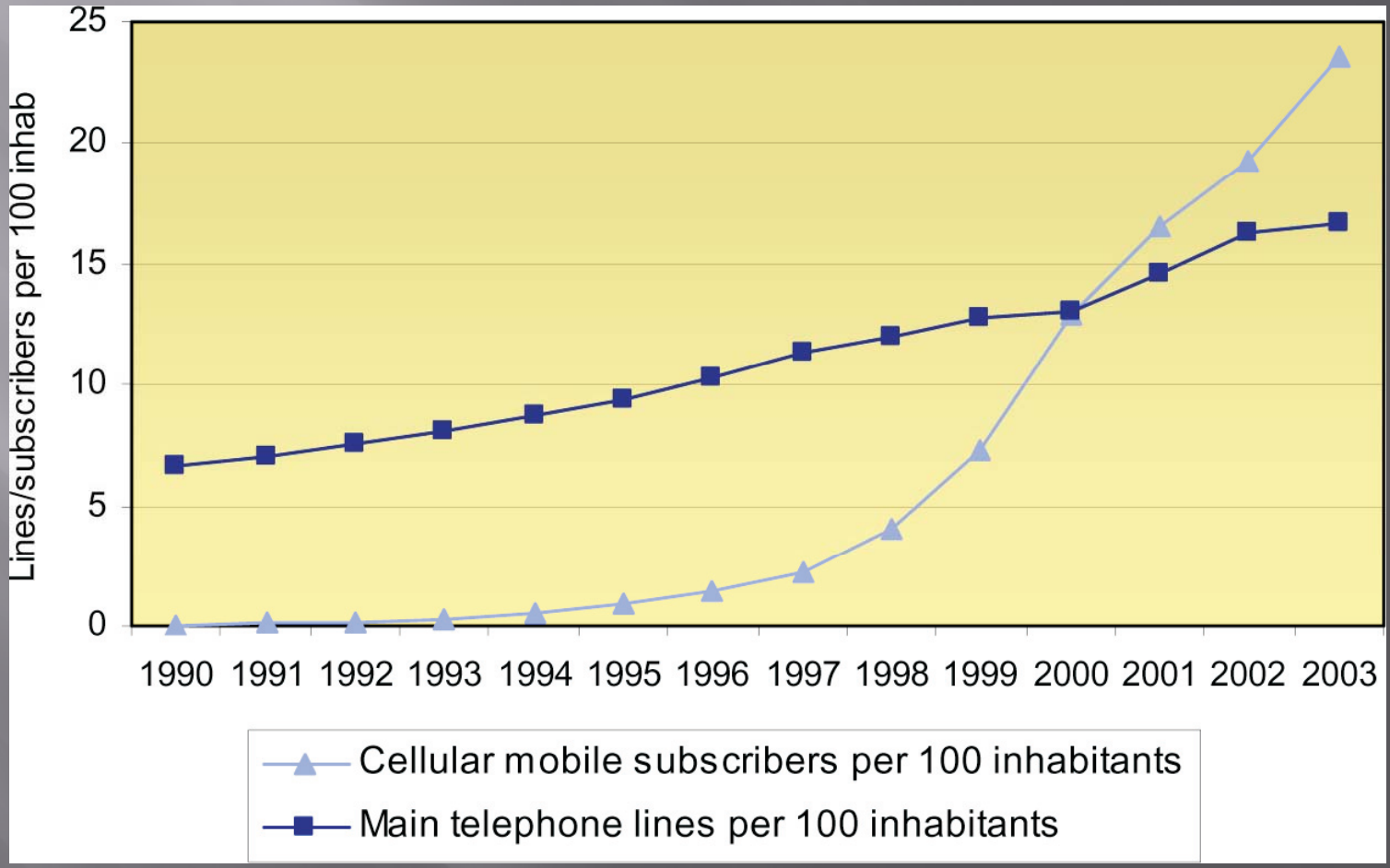
Concentration of rural population in Mexico, percentage by state
Source: SAGARPA with data from INEGI (2001).

Average phone penetration versus mobile in Latin America

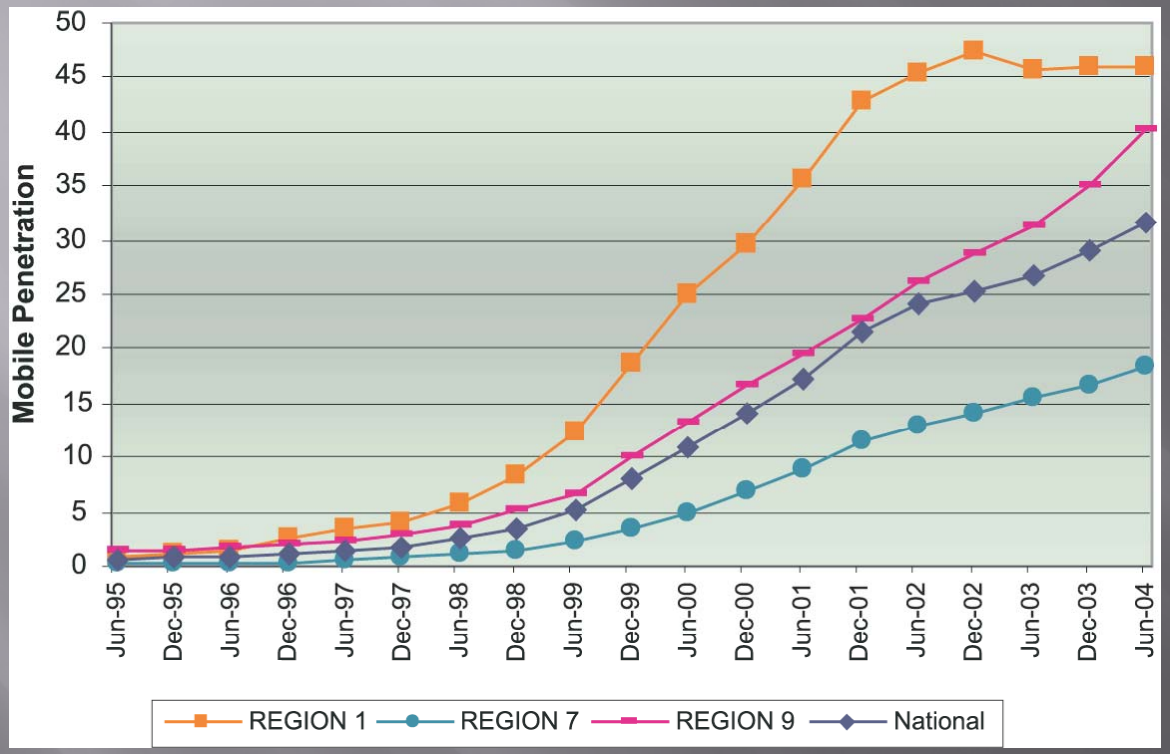


Source: Telecom-Data based on ITU and data obtained from regulators.

Fixed versus Mobile in Latin America



Mexico: Mobile Penetration by Region



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.

Economic Perspectives on Mexico

Some facts about the housing need in Mexico and Poverty World Wide

- 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. [i]

- According to the Mexican government and international organizations, about 24 million – nearly one in very four Mexicans – are classified as extremely poor and unable to afford adequate food or housing[ii]

- 50% of Mexican families live on less than $4.25/ day [iii]!!
  8.1 million Mexican families are estimated to be living in over crowded or substandard housing [iv]

- Currently there are 3.5 billion people worldwide living on less than $2 per day[v]

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[i] Source: Washington Post Foreign Service, 2003
[ii] Source: Washington Post Foreign Service, 2003
[iii] Source: INEGI, http://www.inegi.gob.mx/
[iv] Source: INEGI, http://www.inegi.gob.mx/
[v] Source: United Nations CHS

A TALE OF TWO HOMES

Community Context

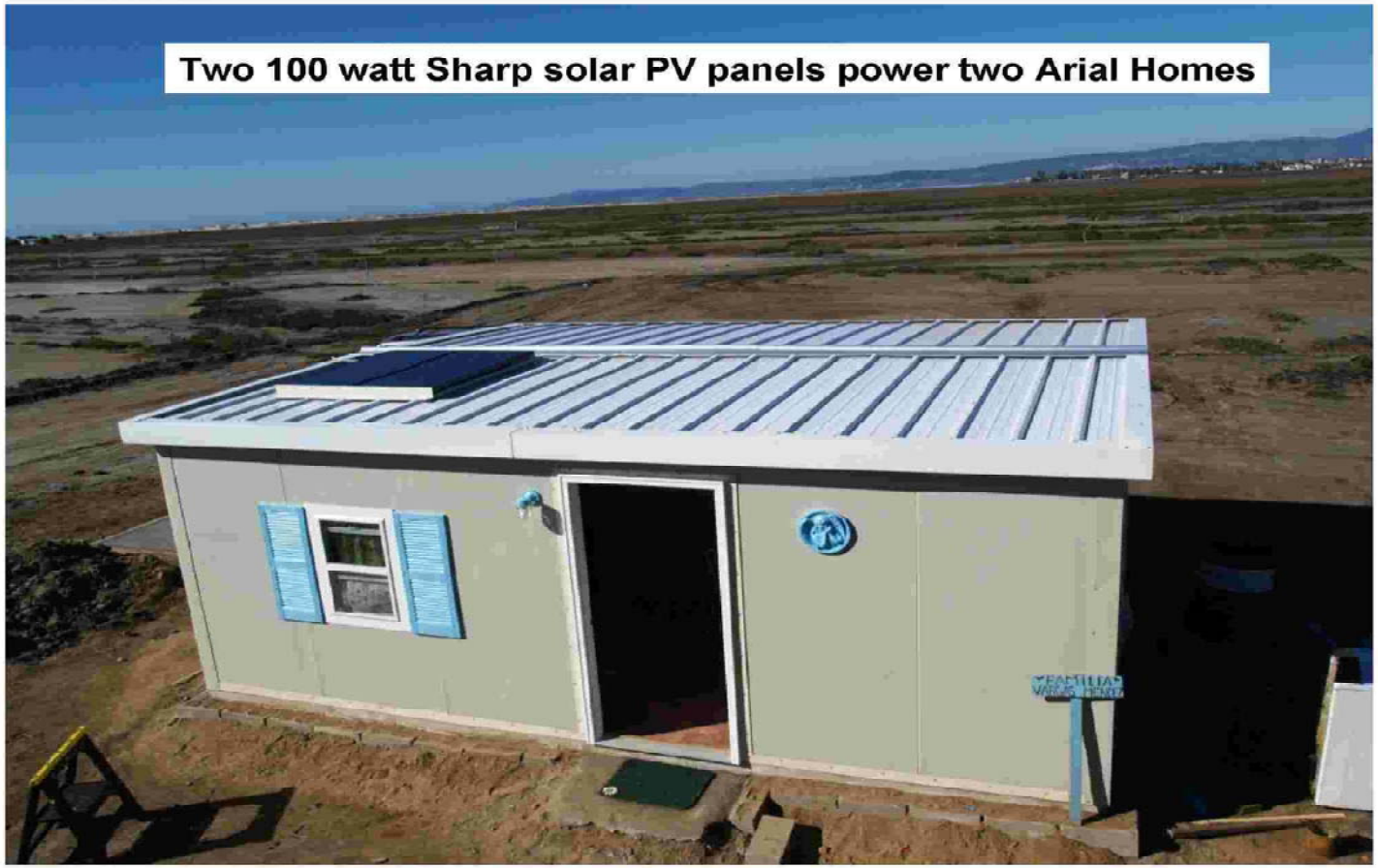
(Colonia Ochenta Nuevo, Ensenada Mexico, 2007)

Source: Philfa 2007

Homes of Hope

See: http://www.youtube.com/watch?v=KFtLIP76vE8
http://www.youtube.com/watch?v=HvzXBBRrVHs&feature=related

Arial Homes



See: http://www.youtube.com/watch?v=6XmNzEgdveA
http://www.youtube.com/watch?v=0_IYkmfZgSg&feature=related
http://www.arialhome.org

Criteria for Home Selection

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.

Regional Effect of Arial and Homes of Hope projects

Effect	The need	Positive impacts of housing on a family in the Colonias
Economic Impact	- In Latin America, households need 5.4 times their annual income to buy a house.[i] - About 50-75% ofFamily dwellings are owner built;[ii]30% of all dwellings are made with rubbish or scrap materials. [iii]	Debt-free home helps pull families out of poverty.When Family Funds are not going to treat sick children and keep them warm; instead they can purchase resources for school and other necessities.
Educational impact	- A child without a home is three times more likely not to attend school.[iv] - A child's poor educational experiences limit future productivity and career prospects.[v]	A stable environment encourages learning and increases the likelihood that children attend and stay in school.

[i] Source: American Housing Society
[ii] Source: JCHS Harvard University
[iii] Source: INEGI, http://www.inegi.gob.mx/
[iv] Source: http://endhomelessness.org
[v] Source: http://endhomelessness.org

Regional Effect of Arial and H. of Hope Home projects

Effect	The need	Positive impacts of housing on a family in the Colonias
Health impact	- 2.5% of children under one die of exposure.[i] - Homeless children are twice as likely to suffer from asthma, ear infections, stomach, and speech problems.[ii] - Moving from dirt to a concrete floor reduces reoccurring diarrhea by 43%iii. Source: nationalhomeless.org.	Reduces incidence of sickness due to dirt floors and exposure to the elements and improves their overall quality of life
Social and emotional impact	- Children without adequate shelter suffer more from mental health problems such as anxiety, depression and withdrawal.[iv] - Children are twice as likely to experience persistent chronic hunger and four times as likely to experience delayed development when homeless.[v]	Stabilizes emotional well- being Strengthens home life and marriage as basic issues of survival are eliminated.
Spiritual impact	- Families struggling to keep their children safe & dry each night, feel trapped. They find it difficult to see beyond their situation.	Inspires a response to want to give back to their community.

Relative Cost and Useful Life

Type	Cost	People	Cost/Pers.	Life/yrs.	$/Person/Yr
Wood (YWAM – Since 1990)	$ 3,000	5	$ 600	15	$ 40
Metal (Arial Homes since 2006)	$ 6,000	7	$ 857	50	$ 17

SELECTED FIELD NOTES AND OBSERVATIONS

These field notes represent an ethnographic narrative based on personal observations during six 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 4-7 day stays in the region.

The Colonia's

Figure 1.1– A typical home in the Colonias, note the variety of scrap materials used (plastic, wood, cinder block).

Figure 1.2 Most Coloninas in Ensenada are located in areas where no one would really wantto build. The roads are so steep that most cars can't make it up and down. In most cases, there are no paved roads, no infrasrtrucure of any kind (electricity, water, sewer, telephone, internet, access). Homes in the Coloninas are built from whatever materials are available.

Figure 1.3 This was the original home for which a family of 4 was living in before a home was built for them via the Homes of Hope program. The red barrel in the center of the picture where all of the fresh water is for cooking, cleaning, and bathing. The water is supplied by the weekly water truck distributor (see Figure next slide) At night the family would all crowd together and sometime would use the couch if the small building got too warm in the summer.

Migrant Farm Camp

Figure 2.1–A picture of the generations to come the young children playing on the left, and the young girls looking onto a pickup soccer game with some of the boys in the camp. Which one of these girls would be next to sold into an arranged marriage so that the family could break the cycle of poverty. See comment below.

Figure 2.2– The mothers in the migrant farm worker camp were very attentive to the children despite the absence of the fathers/husbands, even on a Sunday. In the migrant farm worker camp it became clear to me that there was no "day of rest".

Figure 2.3 The heart of the migrant farm workers camp, the blue plastic houses. In the winter it can get down into the 30's so it was not clear to me how these folks survived with no source of heat. The structure to the right is one of three communal laundry/shower. Each shower served about 100 people in the community.

A Community of Information Networks

Figure 3.1 –The school bus was one example of an an of external social nework in the Colonia. The childen provided a link between the Colonina and the external world bringing back new information and learnings, in some cases Children became the continuing education for pareents and other younger children in the area.

Figure 3.2–Two examples of how how external social networks are created and information exchanged:

On the right the colonina "water truck" bringing the only source of fresh water to the area.

On the left is the modern form of a "Town Crier" who comes by 3 times a day and broadcasts the lastest sales information. The Town Crier also provides a news updates on ocassion inbetween his latest sales offerings. The informaition that is broadcast is from a pre-recorded message and comes from a CD player and speakers put out through the sun roof of the Town Crier vehicle..

Figure 3.3 Mexican Soap operas are a source of information for most of the women in the Colonias. Here a woman reads trough the latest issue (80% pictures). Though there were very few televisions(about 1 every 50 homes) magazines like the one being read by the mother of the family above were in most Tiendas.

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

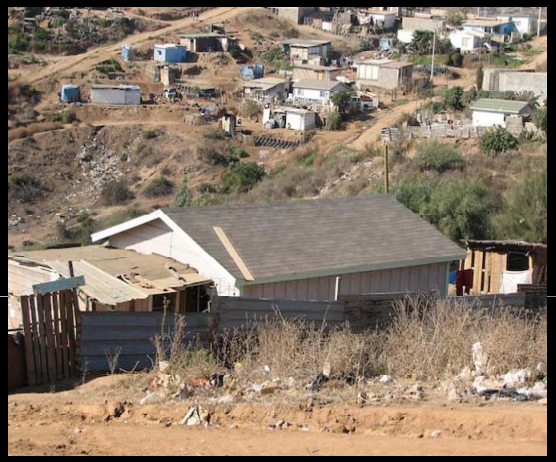


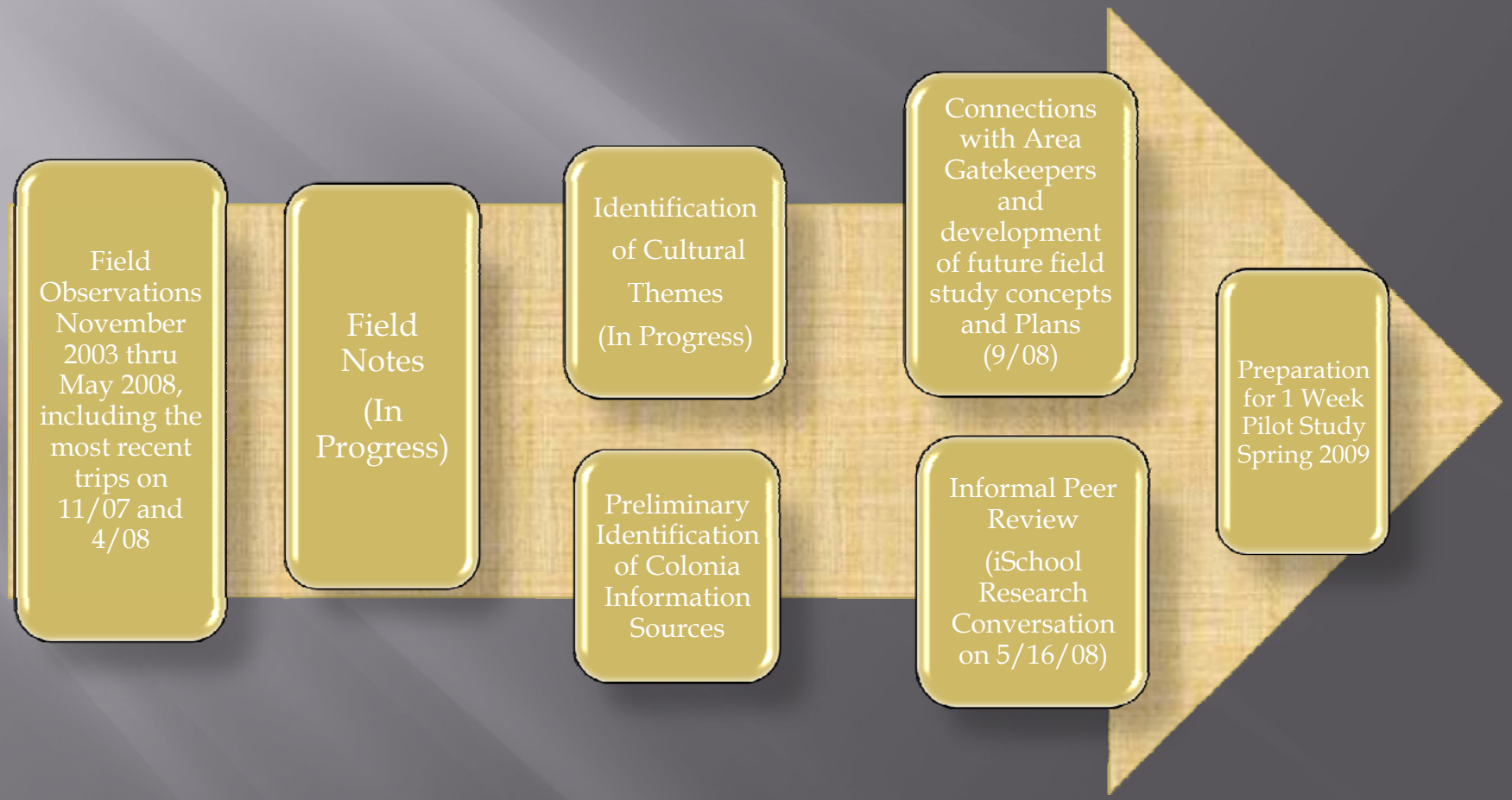
Figure 6.1–A picture of our first build in 2003. When we returned a year later, we we were surprised to find an extension built on to the front part of the home as well as a metal fence around the property. The familes outhouse and the washing area were located in the small structure on the far right hand side of the picutre.

Figure 9.2– Much to our surprise part of the family was "in" during our return visitation a year later. We also were surrpised to see a van parked outside the home when we arrived. The license plate on the car was from the state of Californina date 2001, which was expired for 3 years. The mother, Helena said that she was just learning how to drive but had never held a drivers license.

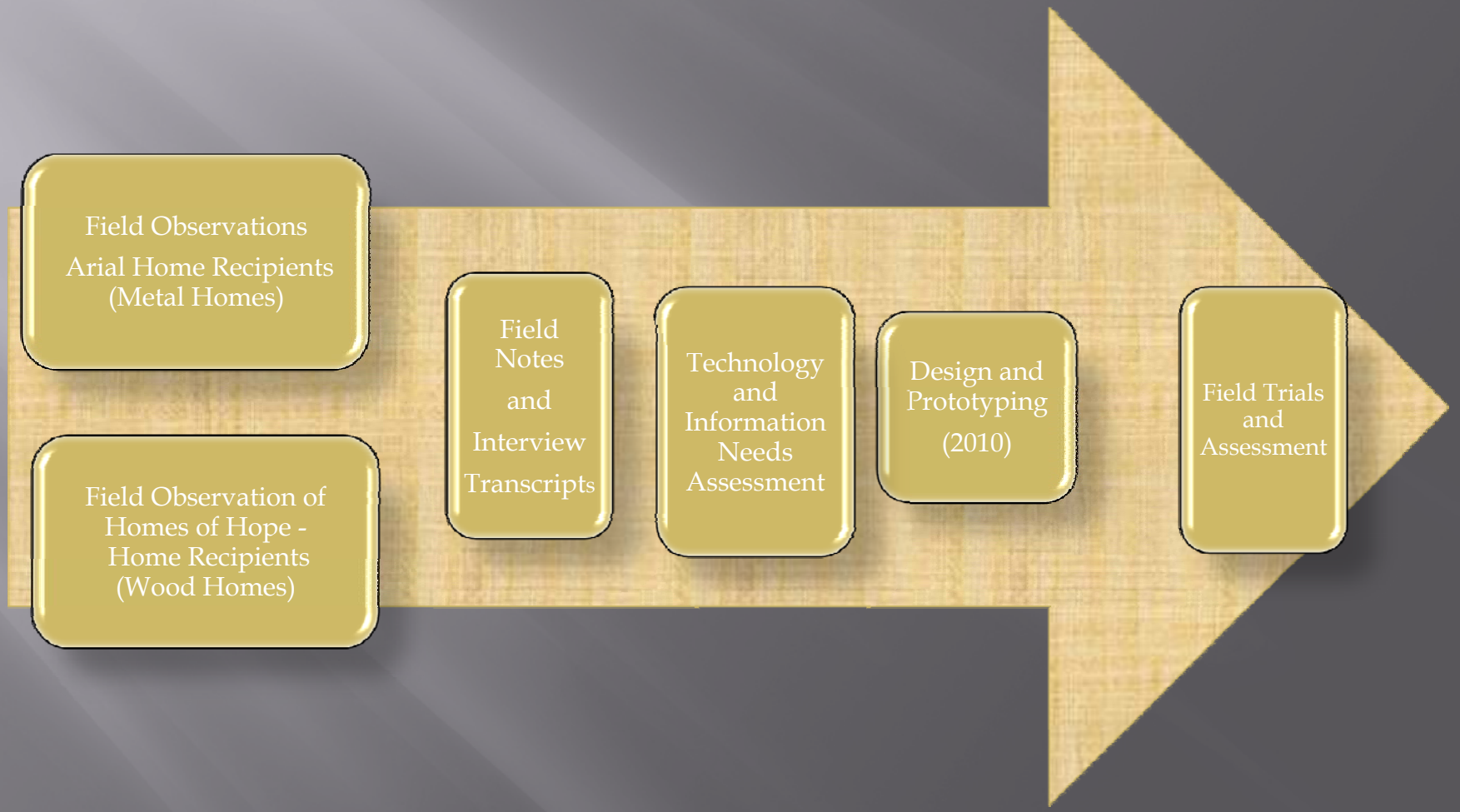
Figure 9.3 In this picure a group shot of 3 generations. The older woman on the left is the "matriacrch" Lorenta, who took two a 5 day bus ride from the lower baja penninsula to be with her daughter (pictured on the right) and her grand children. The matriarch was not around during the build, but was helping to run the household. Lorenta was able to watch the children while Helen was able to work at the facotry and husband Carlos was able to work a construction job. This social structure was very similar to the nuclear family studied during the post world war era.

RESEARCH AGENDA

Phase 1- Orientation and Field Assessment



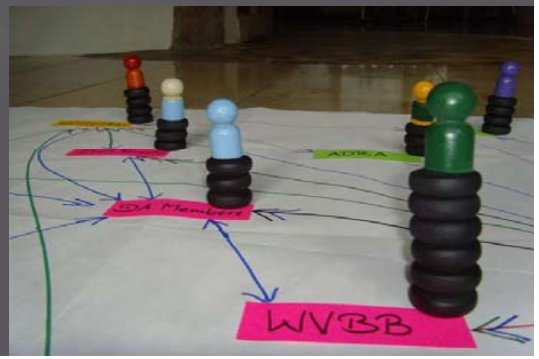
Phase 1.1 – Summer/Fall 2009 - 2011 Orientation and Field Assessment – Cont'd



SAMPLE RESEARCH METHODS TYING IN THE INFORMATION NEEDS OF DEVELOPING COUNTRIES

Creating User- Generated Artifacts

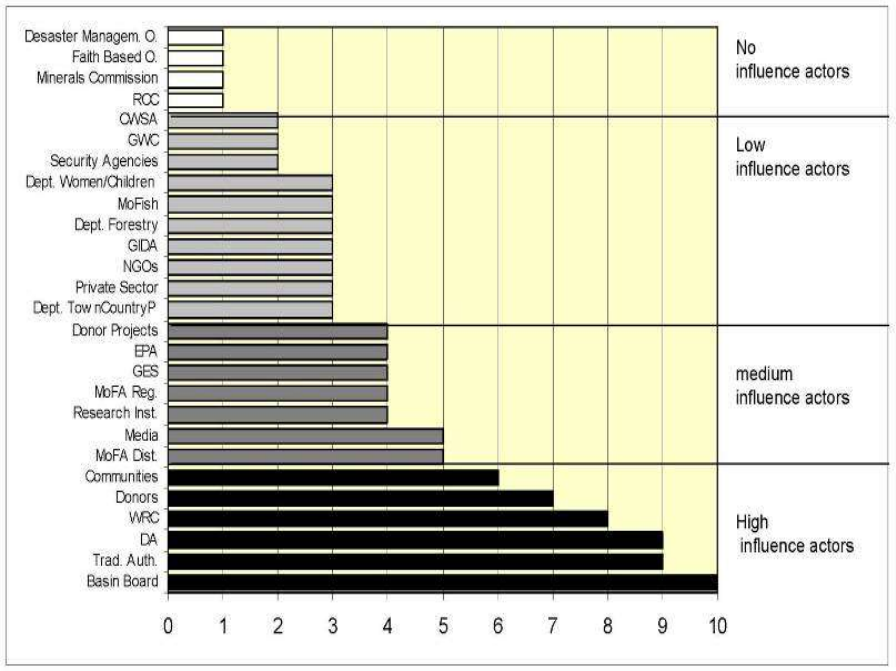
- Net Map - Ghana A case study and tool for creating user-generated artifacts for the construction of social networks and information maps.
  Case Study: Basin Board Dilemma – Ghana, Africa

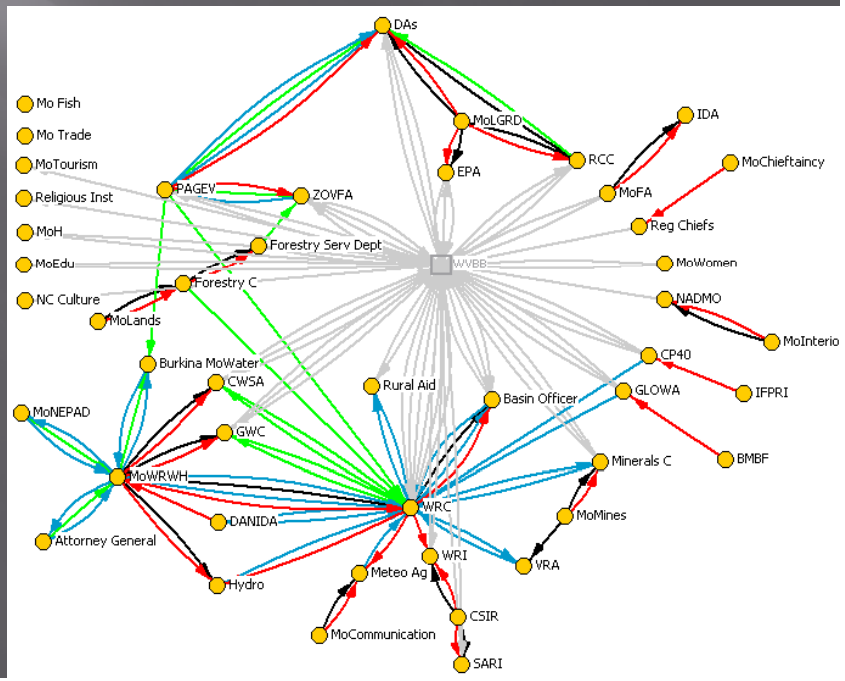


Research Questions in the sample case study

- 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?

Use of Stakeholder Theory





References

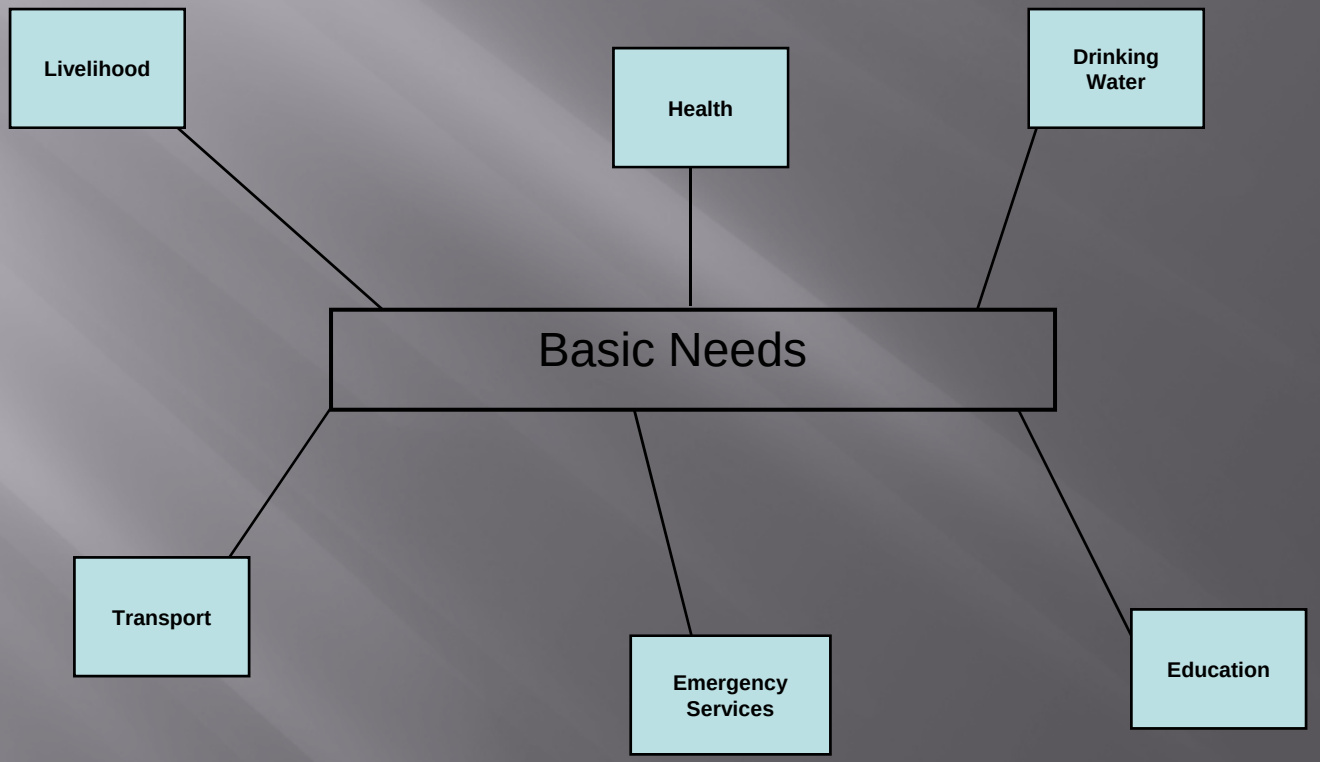
- Social Network Analysis (e.g. Hanneman 2001)
- Power Mapping (e.g. Schiffer 2007)
- Participatory and Action Research (e.g. Chambers1983; Freire1990)
- Stakeholder Analysis (e.g. DFID and World Bank2005)

INAM Survey Components

- 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 also charts the life events 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, which may already be operational in the target area or 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 area-specific 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)

Information Needs Assessment Model for Rural Communities - Survey



(Source: Information Technology International Development, Winter 2004)

Other Attributes of the INAM Survey

Theme	Information Assessment Attributes
Basic Needs	*Livelihood, Drinking Water, Transportation, Education, Transport, Emergency Services*
Community Announcements	*Immunization Program, Seasonal Diseases, Govt. Functionaries Program, Health Camps, Set Help Group, Meetings, Fairs, and Festivals, Vocational Educational Program Availability, Epidemic Outbreaks*
Daily and Basic Information	*News, Weather Reports, Market Prices, Inventory Position, Fair Prices in the local market context*
Government Information	*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*
Access to Justice	*Court case information, Rights and responsibilities, Grievance redress*
Classified and Entertainment	*Employment Services, Yellow pages, Astrology, Deals, Matrimonial, Entertainment*
Environmental Awareness	*Educational program to keep your environment clean, Disaster management notices, Environmental protection guidelines, Pollution levels published*
Self Employment	*Setup you own enterprise using local resources, Microenterprise network available, Success stories*
Fact Sheet of the Area	*Area Statistics, Census, Niche and opportunities, Successful development initiatives,*

(Source: Information Technology International Development, Winter 2004)

RESEARCH QUESTIONS

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 Colonies?
- 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 Colonia's gather when the tap into their social networks?
- What the social norms for members of the Colonia community on its members? Is there any enforcement of these norms?
- What values do the people of the Colonia's have? How are these acted out in their day-to-day lives?
- What are the core values of the people of the Colonia's? How do these core values help/hinder their economic and social progress?
- What does someone do in the Colonia's do when a member of their family gets ill?
- When does the "economic bump" effect of building a home for a family wear off? Does the family ever become relegated to "business as usual" back of a life of severe poverty? Does a new "Business as usual" effect happen?
- What types of information do the build teams use 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 homes vs. those that received 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 Colonies?

QUESTIONS/DISCUSSION