IPRO It takes a team INTERPROFESSIONAL PROJECTS PROGRAM

IPRO 355: Pilot Study in Mexico for KlarAqua Water Filtration System and Business plan (see Appendix B)ning

Advisors: Nasrin Khalili
Team Leader: Laura Grimmer

Design and Testing Team
Amanda Gilliam - Leader
Shea Lemley
Laura Grimmer

Business Team
Brandon Lloyd – Leader
Petre Ikonomov
Samantha Staley
Katherine Hadou
Snehalata Topgi

Project Overview:

The main objective of the IPRO is to improve health conditions in low-income societies, specifically Mexico, by the design and implementation of a water filtration system. In previous semesters, the filtration system has been preliminarily designed and tested. A Market Research Study was conducted on Oct 19-22, 2006 and the results have been utilized to finalize a feasible business plan (see Appendix B). The testing portion of the project is completed, including arsenic solvent tests. The business plan (see Appendix B) has also been completed. We were invited to compete in the International Idea 2 Product (I2P) competition for a grand prize of $25,000. The past month has been spent focusing on the I2P presentation and business plan (see Appendix B) completion. Tom Jacobius also invited KlarAqua to present our project on behalf of the entire IPRO program to the Illinois Institute of Technology Board of Trustees.

Revised Objectives:

The original schedule of deliverables is summarized below with our progress marked.

Date	Event
Sept 5	Set up iknow and igroup accounts - COMPLETE
Aug 29	General IPRO briefing and division into lab and business groups- COMPELTE
Sept 5	First draft of Executive Summary and Vision statement - COMPLETE
Sept 7	Design business cards and shirts-COMPELTE
Oct 3	Develop User Manuals for filtration and potter, test on students- COMPLETE

Oct 30	Business plan (see Appendix B) - COMPLETE
Nov 8	Website - COMPLETE
Oct 15	Brochures - COMPLETE
Nov 25	Partnership
Nov 8	Legal entity
Nov 8	Patent- FILED
Oct 30	Effectiveness against bacteria - COMPLETE Lifespan of silver effectiveness - COMPLETE Flowrate - COMPLETE

In addition to these objectives, the following objectives have also been completed, with italics indicating objectives which are still in progress:

I2P International Competition

-One page and five page summaries were written and sent to judges
-Meetings with appropriate advisors regarding our presentation strategy
-Development of Presentation
-Presentation at Competition in Austin, TX

IIT Board of Trustees Presentation

-Meetings with advisors to discuss KlarAqua's November 8 presentation
-Development of Presentation
-Presentation on November 8

Mexico Market Research Study

-Five students and one advisor spent 4 days in Monterrey Mexico
-Meetings with Monterrey Tech counterparts
-Visits and interviews in underdeveloped communities
-Visits and interviews with potter
-Pricing available resources

Results to Date:

Listed by team, the following tasks have been accomplished to date by our team:

Design Team:

Amanda Gilliam- Leaders

- Taught Shea how to make filters (molding, firing, glazing)
- Made new molds that would account for shrinkage of filters
- Reworked heights of filters to fit inside the bucket
- Bought materials to use in the system manufacturing process (10 quart pails, 2 gallon buckets with lids, valves, sealant)
- Determined optimum glazing scheme
- Produced 3 full working systems for use in the Mexico Market Research Study
- Developed 3D renderings of the system for use in presentations, abstracts, posters, and brochure
- Brainstorming ideas of how to make an effective housing for activated aluminum to be used in removing arsenic
- Took pictures for use in the user manuals
- Wrote initial 1 page paper for I2P in Austin, TX
- Meeting with Jake Elster to strategize for I2P Competition
- Portions of business plan (see Appendix B)
- Presented at I2P in Austin, TX
- Presented for IIT Board of Trustees

Laura Grimmer

- E. Coli Bacterial Testing (results in Appendix A)
- Psuedomonas Aeruginsa Testing (results in Appendix A)
- Flowrate testing
- Silver treatment of all manufactured products
- Wrote initial 1 page paper for I2P in Austin, TX
- Portions of business plan (see Appendix B)
- IPRO Midterm Report
- 5 page summary for I2P
- Compiled common Q & A for IPRO day presentation

Shea Lemley

- Learned to produce filters
- Calculations to adjust for shrinkage
- Attempts to increase flow rate by composition alteration
- Helped identify pilot study communities
- Participated in Market Research Study in Monterrey, MX
- Wrote portion of the business plan (see Appendix B)
- Wrote and posted IPRO minutes

Business Team:

Brandon Lloyd- Leader

Assigning and compiling business plan (see Appendix B) components
Cost estimates
Coordinated entire IPRO team in developing a business plan (see Appendix B)
Portions of business plan (see Appendix B)
Development of I2P presentation
Meeting with Jake Elster to strategize for I2P Competition
Presented at I2P Competition in Austin, TX
Presented to IIT Board of Trustees

Petre Ikonomov

Used different programs to make the website interactive

- Flash (the website itself with interactive content)
- Dreamweaver (make the layout with background waves)
- Photoshop (edit all images)
- 3D max (rotating water drop)

Brainstorming ideas of how to make an effective housing for activated aluminum to be used in removing arsenic
Designed and formatted posters for IPRO day

Snehalata Topgi

Designing and order KlarAqua t-shirts
Contacting potential partners
Attempt to establish non-profit organization
Researched WHO testing
Preparations for Mexico Pilot Study
Updated and printed brochure
Creating of household and potter's manual
Creation of village education program
Participated in Market Research Study in Monterrey, MX
Portions of business plan (see Appendix B)
Compiled information for IPRO day poster

Sam Staley

Wrote project plan
Co-authored executive summary
Portions of business plan (see Appendix B)
Designed business cards
Photographed process for use manual
Creation of logo for products
Wrote abstract
Compiled and formatted the final business plan (see Appendix B)

Co-authored final report
IPRO Liaison

Kit Hadou
Participated in Market Research Study
Portions of business plan (see Appendix B)
Contacting potential partners
World Health Organization standards research
Contacted potential investors
Compiled and formatted business plan (see Appendix B)
Co-authored final report
Compiled and formatted IPRO day presentation

Conclusion

The Market Research Study was very successful and helped us reevaluate our proposed business plan (see Appendix B). All of the deliverables have been completed as expected. The next step for KlarAqua is to conduct a Pilot Study in the target communities chosen during our visit in October.

Appendix A: Testing Results

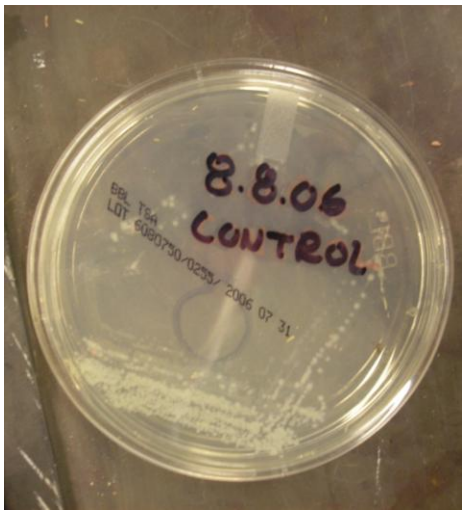
Aug 8, 2006- Test #1: One Time Contact E. Coli

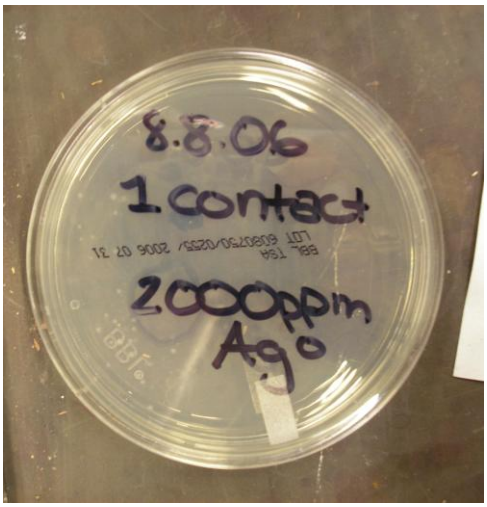
2000ppm solution of colloidal silver (as distributed by www.n-ergetics.com) was used. Each side of the bowl was brushed with ½ oz of solution. This was done the day prior to testing and the bowl dried over night. When water was run through, however, it came out an opaque bronze color, indicating this was too much silver. Water was run through the filter until it ran clear, and then the test proceeded.

The bacteria solution was prepared by a different method than previous experiments to obtain a lower concentration. Bacteria was taken from a plate culture and added to 500mL of distilled water. The amount of bacteria taken was equivalent to 3 loop-fuls on a standard inoculation loop.

500mL of bacteria solution was ran through the filter, followed by 200mL of distilled water to rinse out any bacteria in filter. The original solution (control) and final water were plated and photographed 24 hours later.

The control had 500+ colonies. After 1 contact with silver, only 25 colonies were seen. Pictures are below.





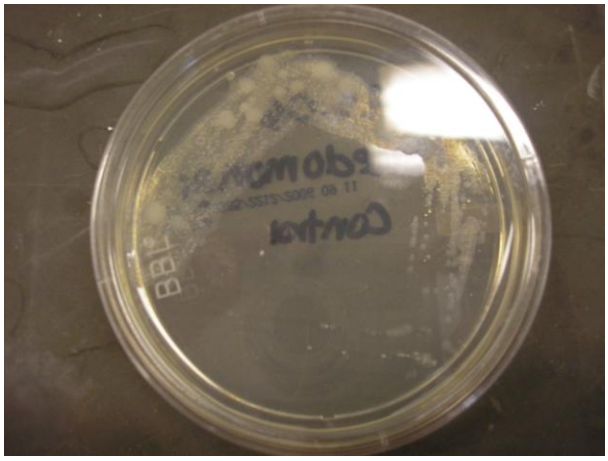
Aug 11, 2006- Test #2: Multiple Contact E. Coli

The same procedure for applying silver to bowls was used, and water was run through until it emerged clear. The same procedure was used for preparing the bacteria solution. Using 3 separate bowls, samples were taken after 1, 2, and 3 levels of contact. The results were photographed 48 hours later (which explains the larger colony size compared

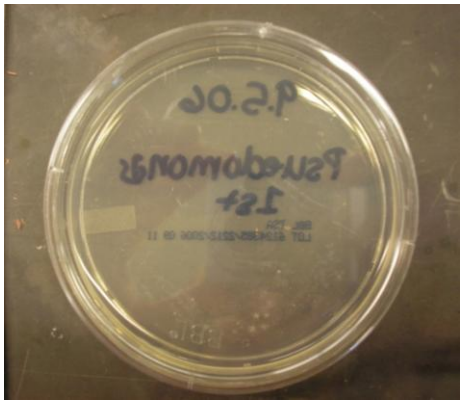
to Test #1). There were 500+ colonies in the control, 10 colonies after 1 level of contact, and no colonies present after 2 and 3 times of contact.

Sept 26, 2006- Test #3: Multiple Contact Psuedomonas Aeruginosa

The same procedure as described above was used for Psuedomonas Aerugnosa, and the pictoral results are shown below, including samples taken after 500mL and 1000mL of run through.

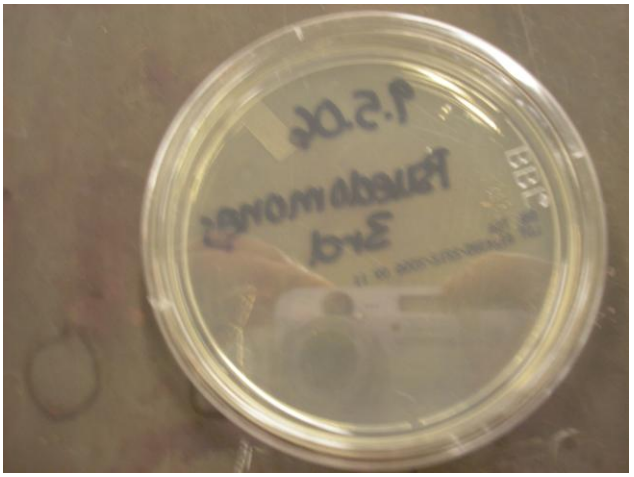


Control

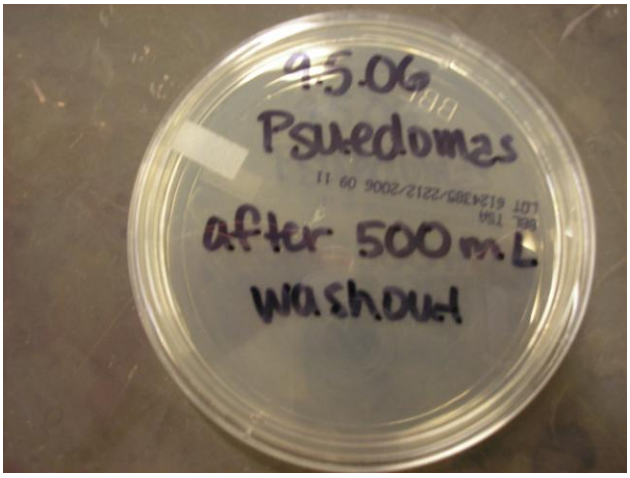


1st Contact

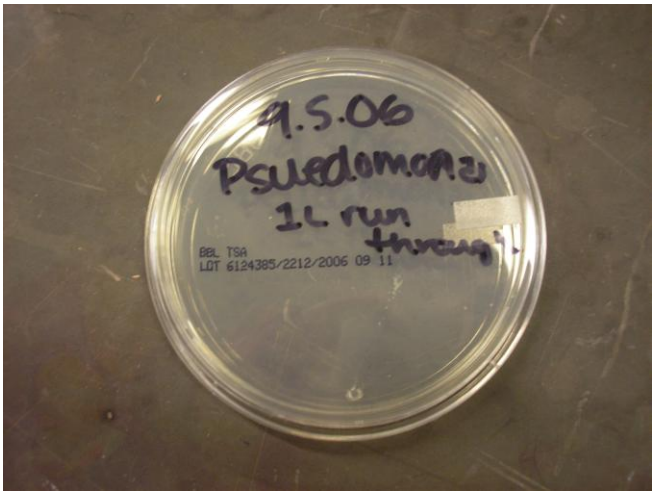
2nd Contact



3rd Contact



after 500mL of water



after 1L of water

Sept 26, 2006- Test #4: Flowrate

3 bowls of inner and outer glazed: 0.428 L/hr 0.400 L/hr 0.352 L/hr

1 bowl of outer only glazed: 0.250 L/hr

Business Plan
Fall 2006

EMPOWERING COMMUNITIES…ONE DROP AT A TIME

Illinois Institute of Technology
IPRO 355

Amanda Gilliam, Laura Grimmer, Katherine Hadou, Petre Ikonomov, Brandon Lloyd, Samantha Staley, Snehalata Topgi

I. Executive Summary

KlarAqua is an award-winning, non-profit organization with three principle missions:

1. To provide household water filters to families in low-income communities,
2. To stimulate local economies, and
3. To offer a curriculum in health education, clean water, and sustainability.

KlarAqua was recognized with a $15,000 first place prize at the 2006 National Idea to Product Competition for its innovative approach to clean water. Accordingly, the organization has been invited to present at the International Idea to Product Competition. In 2007, KlarAqua will compete for $100,000 while presenting its technology and strategies to the Environmental Protection Agency in Washington, D.C.

The water filter can be made with readily available and inexpensive raw materials. Its simple cascading design can be fit into a five gallon bucket and can be provided to the end user for little cost. Instructions are easy to follow and principally pictorial, which eliminates language barriers and enables international market penetration. This filter has been proven to successfully eliminate harmful bacteria and heavy metals from water (pending certification from the World Health Organization).

In addition to providing this unique technology, KlarAqua sends trained volunteers to target communities. These groups meet with local potters to share the technology and give them the means to produce filters and sell them. Meanwhile, these volunteers offer free classes to denizens on health and the importance of clean water.

Implementation begins in the Agua Nuevo and Delgado villages outside of Monterrey, Mexico and will expand to Bolivia and then around the world. Target communities must have a need for clean water and be capable of producing the product locally. Because target consumers are residents of low-income societies, minimizing costs is very important. Critical success factors include:

1. KlarAqua must partner with a firm capable of implementing multilingual product training and providing financial support.
2. Potters must ensure the local production while university volunteers ensure distribution of the product and quality control.
3. Denizens of target communities must be educated on the importance of water purification and also how to obtain, maintain, and use their filtration system.

Mission Statement
To make international contributions to human welfare through health education and the implementation of locally sustained, inexpensive, household water purification systems that improve health conditions and promote local economies.

II. Table of Contents

III. The Industry & Company

A. The Industry

1. Current status and trends

In our target market of rural Mexico, the government provides tube water to approximately 79% of the population. This leaves a significant minority without potable water. Finding support for a project that provides clean water has not proven too difficult, as it is a widely recognized problem. Internationally, water purity is a major concern; worldwide, over 1 billion people are without safe drinking water. The UN's Millennium Development Goals include a plan to decrease the proportion of people without access to safe drinking water by half by 2015.

2. Changes that would affect the venture positively or negatively

Our company will benefit from increased water safety education in developing countries because this will increase awareness of health issues and thus aid the sale of water filters. The company will also benefit from increased government interest in providing safe drinking water, since this may open the door to a partnership or financial support. The company's biggest liability right now is development of a feasible survival plan that would allow the company to persist many years into the future. This problem has been avoided for the time being due to Monterrey Tec's renewed interest in our product and educational program. A certificate program is being developed that would enable KlarAqua to persist through its pilot study phase.

B. The company

1. How and why was the company formed

KlarAqua was established as part of the InterProfessional Project Program (IPRO) at Illinois Institute of Technology in August 2005. The original group was composed of 8 students and 1 faculty member from different disciplines who worked together to address the need for water purification in developing countries. From this need the product was developed, and KlarAqua was established as a partnership with an analogous student team at Monterrey Tec in Monterrey, Mexico. In March of 2006, the KlarAqua Board of Directors was established and was composed of two students (Laura Grimmer and Amanda Gilliam) and three faculty members (Nasrin Khalili, Tom Jacobius and Jake Elster). The project will remain an IPRO project through December 2006.

2. History of the company (sales and profit)

KlarAqua has been given the following grants for research and implementation:

Sept 2005: NCIIA Part 1	$16,000
April 2006: I2P	$15,000
August 2006: EPA P3 Award	$10,000
Sept 2006: NCIIA Part 2	$16,000

3. Where the company will go in the next five years

   KlarAqua will cease to be a part of the IIT IPRO program in Dec 2006 because it will no longer meet the program requirements. At that time, KlarAqua will be transferred to Monterrey Tec, where student volunteers will serve as liaisons to the communities participating in the pilot study. As part of the possible certificate program, testing and maintenance will also be handled by students. Within five years, KlarAqua should be partnered with organizations in our potential market area to support the implementation of the product. One possible avenue to this end would be to establish a KlarAqua grant, to be given to an NGO to cover the costs of implementation. In exchange, the NGO would commit to implementing and monitoring the project according to KlarAqua standards.

4. The management team

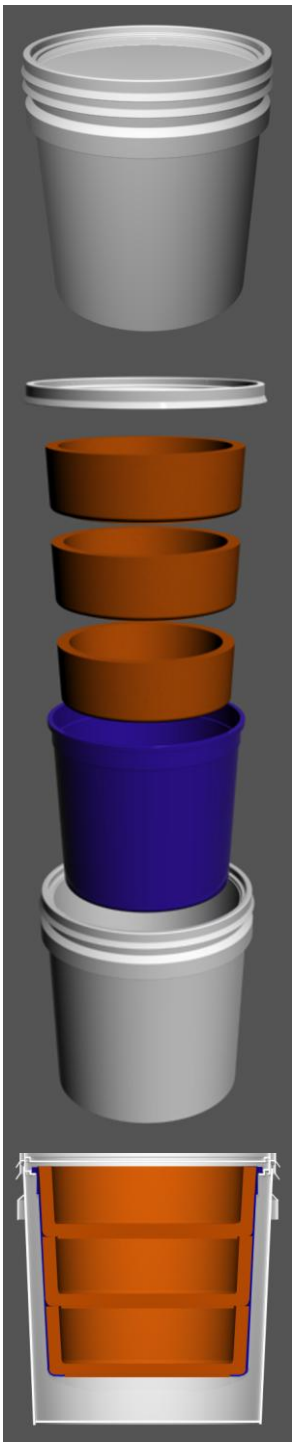
   KlarAqua will have its main headquarters in the USA. This office will be in charge of finances, as well as finding potential new markets for our services. The universities affiliated with KlarAqua will serve as local managerial offices for the communities we serve. They will be in charge of coordinating volunteers for fieldwork, as well as testing and maintenance of each unit. The universities will also be responsible for finding potters in the region. If a grant is given to another organization for implementation, then a grant review and selection committee would be established. The board of directors would remain an advisory council to the organization.

IV. Product

A. Description

KlarAqua is a low-cost, clay-based, in-home water purification system developed for use in developing countries and other areas in need of potable water. The system is composed of two plastic buckets and three clay filters, along with any added solvents needed for the water. Clay is mixed with sawdust in a specified ratio and molded into bowl-shaped forms. During the firing process the sawdust flash burns off leaving tiny air spaces within the filter. These air pockets allow for filtration, optimizing the flow rate. Once fired the sides are glazed, inside and out, to create a higher hydraulic head that

is concentrated at the bottom of the bowl. This procedure helps with optimizing flow rate as well. The filters are then fired once more and brushed with colloidal silver, which acts as a bactericide. A 10-quart plastic container is placed inside a 2-gallon bucket and the three clay filters are stacked inside. The system is topped with cheesecloth to prevent large particles from entering the top reservoir, and a cover is placed on top to prevent damage and contamination. Finally, a valve is inserted into the 2-gallon bucket for dispensing purified water.



B. Proprietary position

The team members involved in the KlarAqua project are currently attempting to file a patent for the system's 3-tiered design. With the help of the students at IIT's affiliate, Chicago-Kent College of Law, papers are being written in preparation to be filed. The university has waived all rights to the product making KlarAqua the sole property of the students and teachers who developed it.

C. Potential

KlarAqua has several advantages over current products in the industry. The system requires no advanced technology, making it simultaneously sustainable and environmentally friendly. KlarAqua can be used by people of all ages and can be made without complicated industrial technology or new capital investment. There is no dependence on foreign aid because the materials can be found or purchased locally, and potters from the local area can manufacture the system in existing workshops. The three layers of filtration allow the system to adapt to social and cultural factors of different target communities; different sorbents can be added to each bowl to address health issues related to excessive nitrates, arsenic, heavy metals, etc. These procedures are still in the research and development phase, although an arsenic sorbent is in its final stages of production. A successful market research study was done in Mexico in late October. If the upcoming pilot study proves to be a success, the team plans to expand the system to other countries with possible applications within the United States for low-income communities or disaster relief. Currently, the system is designed for household use with future research aimed at applications in a more commercial environment including schools and hospitals.

V. MARKET RESEARCH AND ANALYSIS

A. Customers

Who are they?
Klaraqua is designed to meet the basic need of drinking potable water. The potential customers are the segment of the total Mexican population whose community lacks of potable water. Furthermore, Klaraqua´s mission can be extended to those communities that have limited access to potable water. It is known that these communities suffer from water pollution including fecal contamination. This segment of the population is exposed to gastrointestinal diseases, principally diarrhea.

Customer Characteristics and Buying Profile
The customer could be any individual that lives in Mexico that has the need for drinking potable water, notwithstanding age, race, sex or nationality. Since the product is not going to be sold, the action of buying is not performed. Likewise, if we assume that the "buyer" is the individual that receives the product, the buying profile is not relevant.

Customer's Basis for Usage Decision
Quality and performance of the filters.

B. Market size and trends

Current size of the total market
Mexico has a population of 103,263,388. In Mexico, 89.4% of the population has potable water. If we multiply the total population of the country by the fraction of the population that has no potable water, we can obtain the number of people that lack this service in Mexico. The current size of the total market for the product would be 10,945,919.

Source of information and measurement methods used
The information was obtained from the INEGI (National Institute of Statistics, Geography and Data Processing). The INEGI is a unit of the government of Mexico that is dedicated to the collection and organization of statistical, geographical and economic information on the country. The INEGI was founded on January 25, 1983. It is an office of the executive branch under the direct control of the Secretaría de Hacienda (Ministry of Finance). INEGI gathers information using several methodologies; the two most important are the "Censo General de Población y Vivienda" (National Population and Housing Census) and the "Conteo de Población y Vivienda" (Population and Housing Count). The National Population and Housing Census is an exhaustive survey that collects information on the population via direct interviewing on every household in the nation every ten years; the last census took place in 2000. The Population and Housing Count is a similar process but in a lower

scale that is also an event that occurs every ten years; last count took place in 2005 and the information used in this paper is from this study.

Major factors affecting market growth: previous and future

There are several factors that can affect market growth. Some of the most important are the development of new water and sewage systems in communities, and the income of the people that live in those places.

Barriers to market entry

Some of the biggest barriers that exist are geographical and cultural. The people in this sector of the population usually live in isolated areas where it has been difficult for the government to reach and install these services. Another problem is that even if the filters could be delivered, the people that live in those areas might not see the need of this product since they have been using "contaminated" water for generations.

C. Estimated market share and sales

Segment of the market to be targeted

From 32 states in the country, Nuevo Leon is the chosen state in which KlarAqua will be focused. According to the Mexican National Institute of Statistics, Geography and Information (INEGI), 2.6 % of the 4,199,292 Nuevo Leon inhabitants (2005) do not have access to potable water, creating a market segment total of approximately 109,182 persons. As the average family members' number in these communities is 5, an approximate of 21,836 families composes the target market.

Rural communities that belong to Garcia, Hidalgo, Mina, Cienega de Flores, Colombia, located north to the State's capital are the target market for implementation. The characteristics of this segment are similar to the ones of the total market.

Initial Penetration Projections

Strategically localized communities have been chosen by the Klaraqua team for penetration and sampling purposes. These communities have already been contacted and families living in them have accepted the conditions for introduction of the filter.

One family in each of the closely located communities of "El Milagro", "El Delgado" and "Agua Nueva" (part of Garcia municipality in Nuevo Leon) have already been chosen to participate as the pilot study of this project.

One filter will be given to each of these three families, and a periodic visit will be made by a Klaraqua member, who will take samples of the water and survey the participants to analyze and monitor the functionality of the filter and the quality of the water that passes through it.

On the subsequent months, more families will be contacted according to penetration strategies mentioned in the next sections and after quality and functionality of the filter have already been assessed and approved.

Degree of penetration in 1, 3 and 5 years

a. Year 1:

The projections for the first year are introducing a minimum of 250 filters, roughly 1% of the target market segment.

State authorities and Non Governmental Organizations' involvement in subsequent years is necessary in order to provide the service to a higher number of persons.

b. Year 3:

By year 3, it is expected that, with governmental and other organization's support, between 8 and 10% of the families should have a Klaraqua filter. This gives a total approx. of 2,184 families with the service. Acceptance from families is vital to the next stages of evolution of the project.

c. Year 5:

An approximate of 20 to 25% of the families without potable water in Nuevo Leon should have the filter by year 5. This is a number near to 5,500 families, approximately 27,500 persons. This would create a huge improvement in Nuevo Leon's life quality and decrease exponentially the number of water quality-related diseases and deaths.

It is important to mention that great part on the potential success of this product relies on both support from other organizations (NGO's and Government) as well as from participation of the families.

It is the intention of Klaraqua to provide with this vital service to people who need it, but it is virtually impossible to achieve it with no external help.

D. Competition

Names of Competitors

After making the site investigation, it was found that there is no competition associated with Klaraqua or products that could produce the same output since the target population has no or limited access to safe drinking water. Moreover, the introduction of Klaraqua into the segment will be free of charge, which makes absurd the possibility of having a competitor.

E. Ongoing market evaluation

Further evaluation of the market is based mainly on information provided by the National Institute of Statistics, Geography and Information (INEGI) of Mexico, as updates on population numbers and water quality improvements in the country are made periodically.

VI. Design & Development Plans

A. Development status and tasks

The design is currently optimized for bactericidal effectiveness, demonstrating 98% efficiency again Escherichia coli and 95% efficiency against Psuedomonas aeroginosa. The future work involves minimizing the amount of colloidal silver needed and optimizing the flow rate without compromising the bactericidal effectiveness. The current design produces approximately 0.4 L/hr of filtered water and uses about 5mL of 2000ppm colloidal silver per filtration system. The current system poses no threat of leaks or contamination of filtered water due to the system's enclosed design. Future work also involves making the filter system 100% self-contained, including a tight-fitting lid that prevents further contamination of to-be-filtered water. Arsenic removal technology has been developed for the KlarAqua filter, but this technology still needs to integrated into the system and tested for effectiveness as part of the system.

B. Difficulties and risks

The biggest risk in product development is, and will continue to be, quality control. The effectiveness in laboratory tests is irrelevant if the product is manufactured differently in the field. Therefore, the product must be developed with clear guidelines as to the minimal standards for effectiveness and quality control checkpoints must be ensured.

C. Product improvements and new products

The domestic, for-profit version of this product will be the next product for KlarAqua. This product will differ from the current product by being produced via industrial technology and sold to rural areas of America with arsenic and nitrate water contamination. The technology for nitrate removal must still be developed and integrated into the system.

D. Costs

The future development of the current (non-profit) product requires very little capital. Field effectiveness testing will need to be completed during the Mexico pilot study. The optimization of Ag use and flow rate should not require any additional expenses beyond the current lab operating budget (approx $300 per semester). The development of nitrate removal technology and the domestic product will require new lab and office space. Industrial manufacturing systems will need to be rented and office space for administrative duties will need to be established.

VII. Manufacturing and Operations Plan

A. Geographic Location

KlarAqua chose Mexico, specifically Monterrey, because it has a high percentage of people without access to potable water. Mexico's location relative to the USA also makes it a more feasible enterprise for KlarAqua. The geographic location chosen in Mexico is defined by two factors: the population with potable water service and the Urbanization Level. While there is an advantage to using more rural areas where more people only have access to non-potable water, there will be more problems with finding suitable sanitary places to assemble the product parts. For more detailed analysis of Mexico's states and their access to potable water, please see the Appendix.

B. Production process

The potter selected by the local university will be instructed by a student volunteer on the process of making each filter. The How-To Manual will provide basic production procedures but the volunteer will serve as quality control, ensuring that all directions are followed and that no unanticipated mistakes are made. The potter may teach his apprentices or assistants to make the filters as well, but must sign a contract that he will not alter the production process.

C. Quality Control

The quality control will be monitored by each university, not only in the potters' workshops but also ensuring that the filtration systems in homes are in tact and have not been altered. Because there is only one potter making filters for the whole region, it will be easy to maintain quality and ensure the safety of KlarAqua's consumers.

VIII. Management Team

A. Organization

KlarAqua is based on a three-tiered program dependant upon NGOs, the headquarters in the USA, and local universities. The main headquarters will be in charge of finances, searching out and pursuing other potential NGO partners, and searching out other universities. The universities will be in charge of creating a permanent volunteer program, or certificate program, in order to keep KlarAqua running. The students and professors there will be responsible for finding local potters, ensuring quality control through potter education and filter testing, education for the communities, and maintenance. Student volunteers will also serve as general liaisons between KlarAqua and the communities. Finally, there are the partner NGOs who will be KlarAqua's financial backers. They will also have the ability to take KlarAqua to communities in need of potable water, but not near a university. In this case, they will take over all of the university's roles.

IX. Overall Schedule

A. Timing of Major Events

In October of 2006, a market research group was sent to Mexico to determine the best community for a pilot study. Within 6 months, a pilot study will be set up in the determined locations, Agua Nuevo and Delgado. Several filters will be provided to the communities and measurements of flow rate and bacteria will be monitored by Monterrey Tec students. In the event that changes to the design are necessary, they will be made during this time. The pilot study is scheduled to conclude by October of 2007. At this point, it is hoped that a local NGO will take interest in KlarAqua and develop a partnership intermittently. Pursuing a local NGO will be the responsibility of Monterrey Tec's student and professors who are running the pilot study.

Concurrently, KlarAqua and its board of directors will continue to apply for grants and request donations in an attempt to create a KlarAqua Grant. This grant will be given to an NGO that is local to the pilot communities along with the product design and educational plan (including water safety and potter training) developed by the KlarAqua board. The grant will be given to the NGO under certain stipulations, including that the filter be used as intended, prices stay as low for local people as possible and education is continued. Once the product is released to aforementioned NGO, the board of directors will no longer have a hand in the company.

B. Milestones

The first critical milestone for KlarAqua was determining the pilot study community. This task was completed in October 2006. The second milestone was an I2P competition in November at which KlarAqua competed against other innovative inventions for a $50,000 grant. It is important that the board intermittently applies for grants and requests donations. Since the pilot community has been located, plans are being made for the pilot study. KlarAqua representatives also presented to the IIT Board of Trustees in order to further the IPRO Program and to expose KlarAqua to potential investors. The most important milestone for KlarAqua is to find an NGO that is willing to take over the project completely. A large component of this feat is receiving large amount of grants and donations that would collectively be given as a grant to an NGO.

C. Alternative Plans

In the event that the above plans do not go exactly according to schedule, most events can be delayed as needed. In the event that KlarAqua does not find an interested NGO, it could conceivably become its own non-profit organization, opening offices in Mexican cities near communities in need. In this event, capital would be purchased in the forms of office supplies (furniture, computer, etc.) and a truck.

II. Appendix

A.

Table A1.1 Distribution of potable water in México

State	2000	2003
Estados Unidos Mexicanos	**88.5**	**89.4**
Aguascalientes	98.4	99
Baja California	93.5	96.3
Baja California Sur	94.5	97.6
Campeche	**84.5**	**86**
Coahuila de Zaragoza	99.2	99.7
Colima	97.6	98.3
Chiapas	**75.5**	**77.8**
Chihuahua	94.5	96.6
Distrito Federal	97.7	99
Durango	93.4	93.7
Guanajuato	93.4	94.2
Guerrero	**70.3**	**71.5**
Hidalgo	**84.5**	**87.2**
Jalisco	92.1	93
México	92.4	91.3
Michoacán de Ocampo	90.6	90.6
Morelos	91.7	90.6
Nayarit	91.4	93.1
Nuevo León	97	97.4
Oaxaca	**71.9**	**73.8**
Puebla	**83.1**	**83.8**
Querétaro Arteaga	94.5	96.2
Quintana Roo	94.8	97.9
San Luis Potosí	**78.8**	**78.9**
Sinaloa	93.3	96.6
Sonora	97.6	97.7
Tabasco	**72.3**	**71.9**
Tamaulipas	94.7	96.4
Tlaxcala	96	95.3
Veracruz	**70.2**	**71.3**
Yucatán	94	95.3
Zacatecas	90.9	93

Fig. A1.2 Potable water coverage in Mexico. Published by CNA (National Water comission), Dec. 2004.

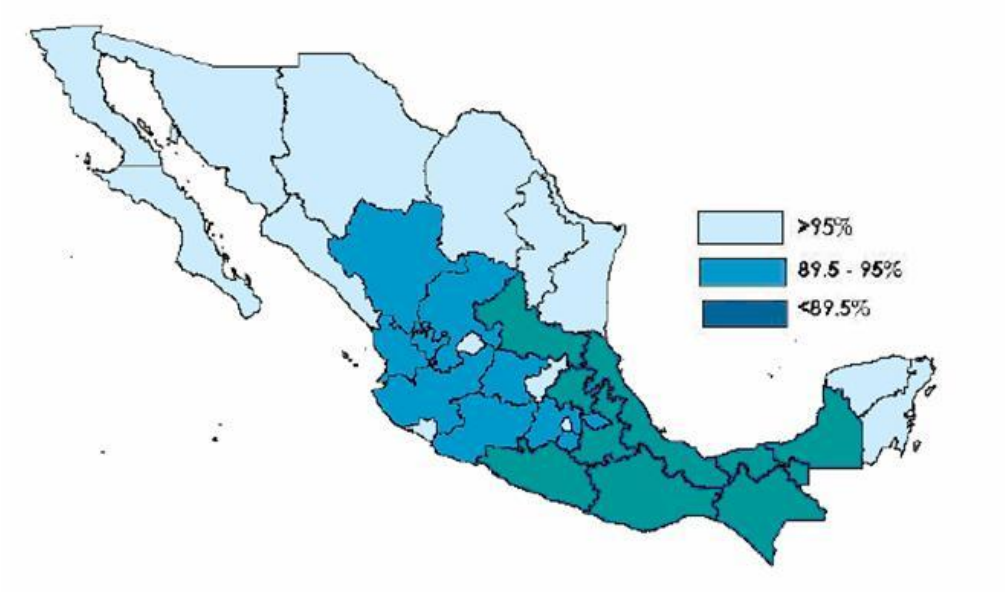


Fig. A1.3. Urbanization Level in Mexico. Published by INEGI (Instituto Nacional de Estadística, Geografía e Informática) 2004.

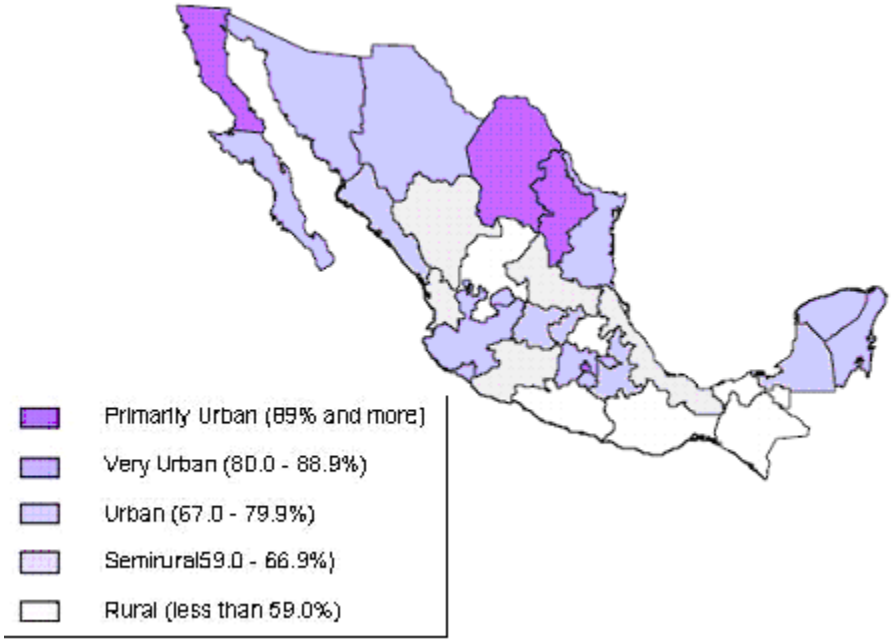


Fig. A1.4 Total rural population by State. (Only the states that have less than 90% of potable water). Data published by INEGI, 2004.

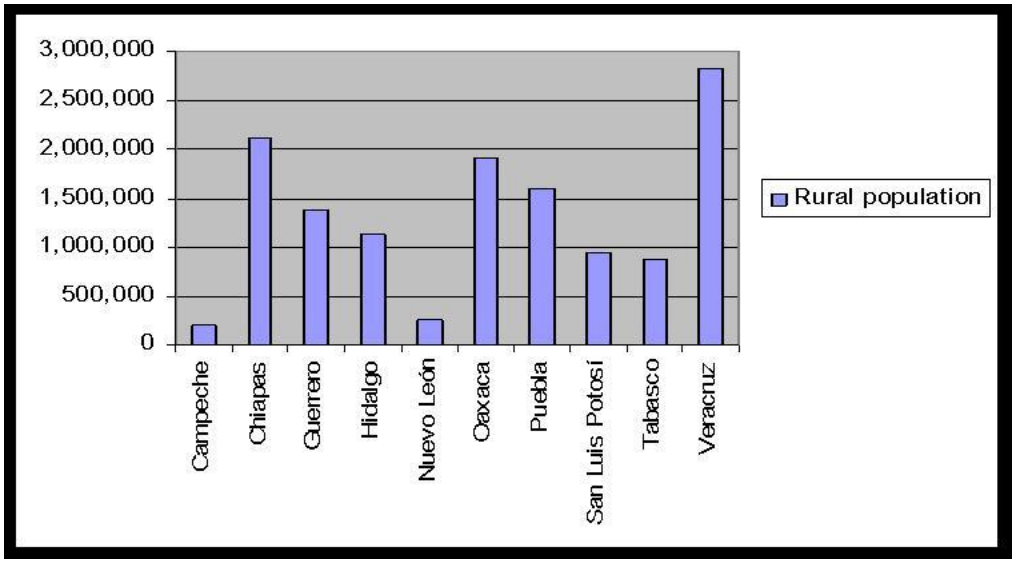


Fig. A1.5 Population distribution in Nuevo León by size of community

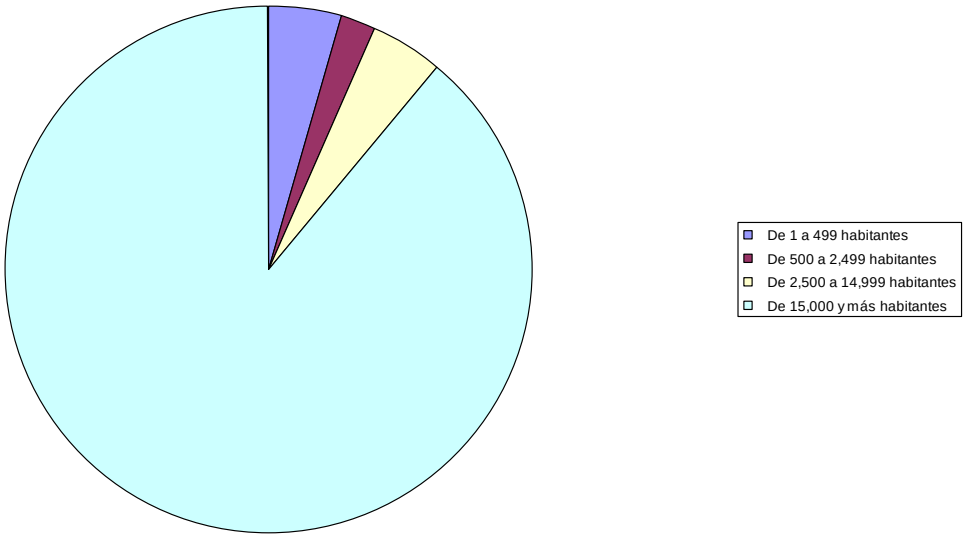


Fig. A1.6. Economically Active Population in Nuevo Leon by economic sector. INEGI, 1995

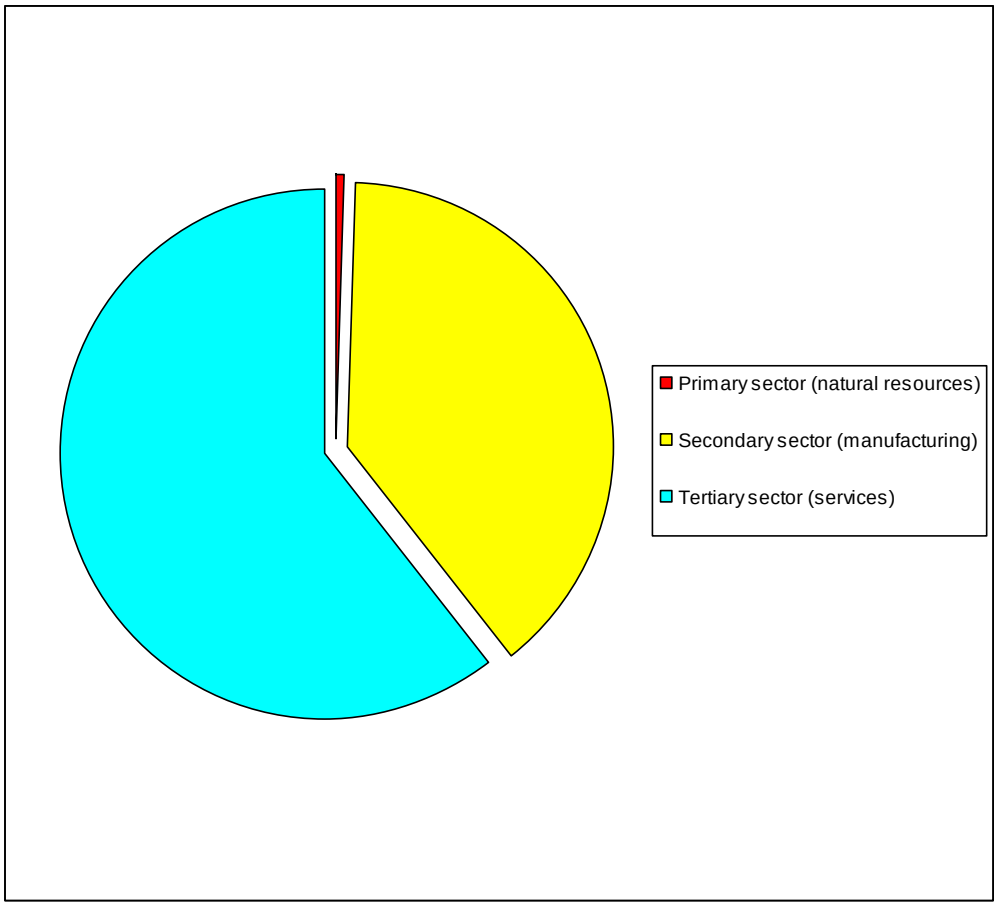
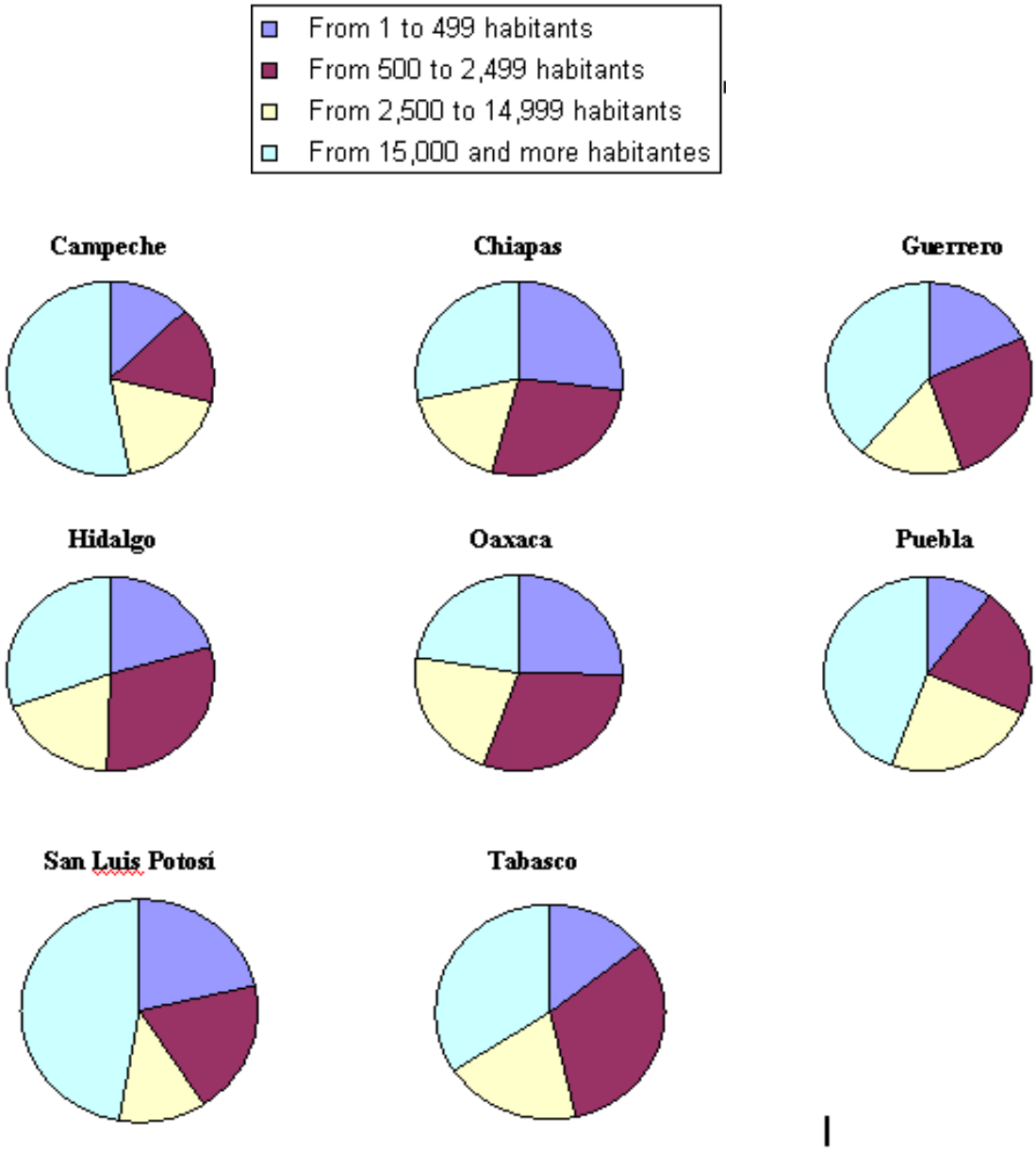


Fig. A1.7 Population distribution in those states where less than 90% of the people has potable water by size of community



B.

Table A-2.1 Production and raw material data for pottery products.
* The production is made according to orders. They don't have a fixed production because there isn't a fixed demand.

Raw material	**Cost / m3 (Pesos)**	**Used to produce**	***Average production / week / person**	**Cost / finished piece (Pesos)**
Black dirt	$125	Bricks	1500	$1
Clay	$584	Flowerpots	300	$15 – 50 (varies according to the size)
				$10- 40
		Decorative Pieces	50	$5
		Tiles	700	